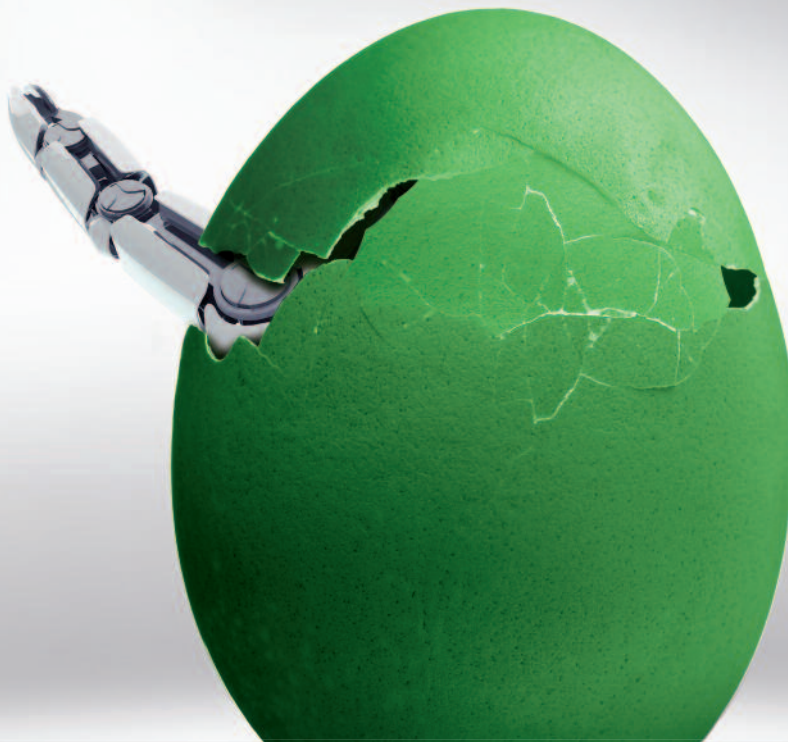




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SULLA RIVIERA ADRIATICA PRENDE FORMA IL QUARTIERE GREEN

A cura della Redazione

Prende forma sulla Riviera Adriatica Ecocittà, il quartiere eco-sostenibile che nascerà a Porto Potenza Picena (Macerata) al posto di un'area industriale in abbandono. Mentre procedono i lavori di bonifica, sono in fase di ultimazione le strutture in cemento armato dei primi due lotti.

Un progetto imponente, che vedrà cambiare volto al cuore della cittadina, con abitazioni, servizi e ampie aree verdi sviluppati attorno ad una piazza centrale. Un esempio in controtendenza nel settore edilizio, tra i più colpiti dalla crisi economica: nel progetto Ecocittà sono impiegate 84 persone, di cui 9 nella gestione del progetto, 30 nei lavori di realizzazione, 15 nella bonifica, 18 nella progettazione e 12 nella consulenza. Professionalità che Ecocittà, progetto da 100 milioni di euro con capitali italiani ed esteri, ha voluto reperire per la gran parte nelle Marche; tra queste, **Generale Costruzioni** di Castelfidardo, che sta seguendo la realizzazione degli edifici, e **Fima Engineering** di Osimo, a cui è affidata la progettazione: "Al posto di un'area industriale a pochi passi dal mare ci saranno edifici progettati secondo alti standard di risparmio energetico e impiego di energie pulite – commenta **Maurizio Andreoli**, architetto e socio di Fima -; un modo di progettare

e costruire all'avanguardia che porterà Porto Potenza Picena tra gli esempi più interessanti di riqualificazione urbana sulla scena nazionale, in linea con interventi di queste dimensioni che si stanno eseguendo in Europa". Grazie anche a normative europee che favoriscono interventi di risparmio energetico, l'edilizia sostenibile può rappresentare una spinta importante per il settore: secondo le stime di una recente ricerca condotta dall'Enea, il settore dell'edilizia sostenibile potrebbe toccare i 50 miliardi di euro nel 2019 in Italia, contro i tre miliardi del 2010.

I lavori per la realizzazione di Ecocittà sono stati avviati nella primavera del 2011: il progetto complessivo prevede abitazioni per 500 famiglie, attività commerciali, 10mila mq di verde pubblico, una piazza di 3mila mq, parcheggi, piste ciclabili e servizi.



Glass for a low-carbon economy: the UK example

A cura della redazione

The challenge is to create a low-carbon and economically prosperous manufacturing sector which ensures greater environmental protection UK glass manufacturers operate using world class environmental, social and quality standards. Glass products, including energy efficient glazing and wind turbines, save energy and CO2. Glass packaging preserves food for longer, reducing waste, and glass is infinitely recyclable. Continuous filament glass fibre is a key component of wind turbines which currently generate 5% of the UK's renewable energy. Social benefits – 6500 people directly employed, 45 000 more downstream. UK glass companies operate to world class employee and product standards. Economic benefits – £1.3 billion value to UK economy (sales revenue). The environmental benefits for UK glass companies operate to world class Environmental standards. Glass is a solution for a sustainable, low-carbon economy glass is used to make solar panels which generate renewable electricity. If energy efficient glazing is installed in a building, it will save more energy in less than a year than was required to produce the glass. Lightweight windscreens and fibre glass parts improve the fuel efficiency of vehicles. glass packaging preserves food for longer, reducing waste, and glass is endlessly recyclable. Glass products save energy, CO2 and reduce waste CO2 from glass manufacturing environmental improvements achieved so far raw materials ,sand ,soda ash ,limestone ,recycled glass finishing 58% of CO2 emissions from fossil fuel combustion 18% of CO2 emissions released from ,raw materials . We can write the follow glass products key statistics (per year)

3 million tonnes of glass manufactured in the UK.

9 gwh energy (primary) used to make glass.

2 million tonnes co emissions.

2 million tonnes co2 is produced by just over 1% of UK motor vehicles each year.

The UK glass industry set up the first bottle banks in 1977. Over 25 billion bottles and jars have been collected since. Energy consumption carbon trust analysis of UK container glass furnace melting efficiency. The efficiency of glass furnaces has been improved by 54% since 1979. The 47% of container glass collected for recycling in the UK in 2012 was transformed into new glass. In the last decade, glass makers have installed additional pollution abatement equipment to further improve air quality. recycling in 2012, the average recycled content of UK made bottles and jars was 32%. 24% of CO2 emissions from primary electricity generation energy ,natural gas ,electricity ,raw material ,preparation melting furnace

From Berlin

di Armando Zecchi

Regardless of the hype, the Internet of Things (or whatever you may prefer to call it) will provide significant value to business and consumers, provided suppliers can address real problems. In the industry, suppliers need to identify problems that the IoT can address many of which are being addressed as "closed loop" solutions using specific wireless hardware. Payback here can be very fast, from locating things and utilizing them more effectively to improving security and safety. Most implementations exist in islands of automation and the next step - if the problem requires it - is to join some of these systems up.

Many data in this articles was showed at IDTechEx's Internet of Things & WSN (1-2 April in Berlin)



Then there are consumer applications - home automation being a strong contender, spurred on by Governments rolling out smart metering. The reality, however, is that consumer spending on home automation devices is sluggish due to the cost. The marketing message of saving energy means that consumers are comparing the costs of the device to the energy saved. The model may be changing, with activities from media companies that sell subscriptions and equipment into your home taking an interest in IoT to deliver better connectivity and remote services for consumers. Indeed, it is here that we can see exciting prospects for the IoT -providing new services and connectivity for consumers. The models need to be thought through - consumers want things for free - with payment coming from other means, such as data use, advertising or consumer data. I believe that those likely to succeed from this new 'Internet of Things' in the short term will addressing the challenges such as focusing on closed system implementations in the main, proving strong payback and then rolling out to more locations where you are solving a problem with a cheaper, more effective solution than any other. This includes building and process automation, logistics monitoring and stock control .Leverage existing hardware such as smart phones to do more useful things,

based on new applications, such as indoor positioning systems connected to other hardware forms such as real time locating systems. Develop the platforms to start connecting existing islands of automation together. Offer new services to consumers they do not yet know they want – the biggest opportunity, but challenging to do and involves creative new business models, probably where the service will be 'free' but paid for in kind by consumer data, or something near this solution. Many examples are on the field , but i want ending to talk about the Keenote of CES LAS Vegas 2014, organized from Intel . the Ceo of Intel spooked about many applications. All of these are in the meaning of IOT. But the real world is new : chips are more and more in your life, also from the first year of life. The Industries, also the green industries are involved in this change. As Soon As Possible (ASAP) Italian manager and politicians understand this new paradigm and better it will be for Italy.

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Congress



A cura della Redazione

Come già indicato nei numeri precedenti di ECO DESIGN MAGAZINE le biciclette elettriche, stanno avendo un notevole successo in Europa e in Italia. Il 25 luglio 2013 a Monaco di Baviera si è svolto il congresso delle eBIKE. Grazie al NS accordo con Materialica e con MUNICH EXPO Tecnoservizi era ovviamente presente e durante i lavori di BIAC 2013 a TALLINN se ne è parlato (SOKOS VIRU HOTEL). Le eBIKE saranno un leit motiv della edizione 2014 della ormai tradizionale rassegna che Tecnoservizi sviluppa ormai da 3 anni sul baltico.

Over 1.3 million eBikes are being ridden on Germany's streets according to ZIV, the German bicycle industry association. According to experts, the sales figures are likely to increase considerably in the near future. The electric bike has proven its worth as one of the most popular and most efficient vehicles for short distances in the past years. This simple means of transportation has developed into a complex system for the most various requirements and versatile usage. But which possibilities and challenges result from this rapidly growing market and the bicycle industry in general? The discussion on topics such as eBike, ergonomics & comfort, and measuring, examining and Testing eVehicles (City and Sports Bikes) the development of electric are the actual trend of the market as lightweight design stunt bikes Audi E-Bikee.

On latest developments and innovations and check out and test latest bicycle trends we are planning some events in Europe. Many about ecar and emobility will be present by ExpoMunich gmbh at eCartech 2014 in Munich

BIAC 2014

A cura di Andrea Fenzi



Anche nel 2014 Tecnoservizi SRL organizzerà la ormai tradizionale manifestazione, nell'area Baltica, rivolta alla Automazione e alle industrie. Quest'anno la rivista che organizzerà l'evento sarà Production&Electronic Magazine

Nel precedente anno la manifestazione si svolse nel mese di luglio a TALLINN, presso lo Hotel SOKOS VIRU, con la partecipazione di varie aziende italiane e dell'architetto Massimiliano Mandarini Noto designer italiano.

Nel 2014 il tema principale della manifestazione sarà rivolto al Design e alle varie applicazioni. Nelle foto vari momenti della manifestazione, con le premiazioni del DFWA, cui era presente l'architetto mandarini e l'ing. Riva, l'uomo che tanti anni fa inventò e progettò la magica serie di motoscafi omonimi

Novità Dal Golfo

I lampioni solari a tecnologia (100% made in Italy) Smartlight (Milano) sono stati esposti al Dubai World Trade Center di Dubai dal 3 al 5 settembre 2013 in occasione di GulfSol 2013 la Prima Esposizione del Medio Oriente dedicata al solare. Nello stand era presente GP III (Crevalcore (Bo)) che si occupa di **produzione di** moduli fotovoltaici ad alta concentrazione e trackers a basso profilo. Vediamo di cosa si tratta. The concentrated photovoltaic technology is existing since 2005 and now represents the third generation of crystalline silicon photovoltaic technologies after (C-Si) and thin film. HCPV technology obtains power energy by concentrating sunlight through an optical system, onto high efficiency photovoltaic solar cells. The system enables a high electrical output from a semiconductor surface far smaller than other solar technologies. HCPV technology uses high efficiency solar multi junction cells made of III-V semiconductor materials. To achieve these results, an optical system comprising two lenses is used. This concentrates sunlight by a factor of several hundred, onto the solar cells, that transform the concentrated sunlight into electrical energy at around 39% efficiency.

The value of the energy depends on the time at which it is produced. The energy production of the HCPV system compared to traditional FV is distributed into a time interval much wider, and in this way greatly increases the part of a self-energy consumption and reduces the exchange with the network that is economically disadvantageous



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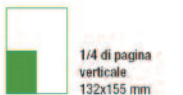


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Wearable Tech Collaborations announced at CES 2014 Las Vegas

A cura della redazione

Intel, leading international fashion design house and curator Opening Ceremony, luxury retailer Barneys New York, and the Council of Fashion Designers of America announce collaborations to explore and deliver smart wearable technology. To kick-off the collaborations, Opening Ceremony and Intel will work together on the design and development of a smart bracelet based on Intel technology. Barneys New York will carry this device in their stores, being one of the first luxury retail outlets to carry wearable technologies.

"The collaborations we announced today are indicative of Intel's collective and conscious approach to the wearable market," said Ayse Ildeniz, vice president, Business Development and Strategy of Intel's New Devices Group. "Through these initiatives we will combine Intel's leading technologies with Opening Ceremony's design prowess, Barneys New York's track record to identify the next consumer trends, and CFDA's commitment to advance innovation within the fashion industry. Our shared vision is to accelerate wearable technology innovation and create products that both enhance peoples' lives and are desirable to wear." As part of the collaborations, Intel and Opening Ceremony intend to collaborate in the design of a smart bracelet concept based on Intel technology with design direction from Opening Ceremony. "Humberto and I have always allowed our curiosity to take us to uncharted waters. Since our early travels and shopping sprees in Asia, we've been keen on discovery," said Carol Lim, co-owner of Opening Ceremony. "This is an incredibly exciting and unique opportunity with Intel to bring our design vision to a wearable accessory that collides with Intel's state of the art innovation with fashion. We are diving in to embark on a journey with Intel and can't wait to see where it will take us. Intel is a company that has powered our lives in countless ways and now we get to be a part of shaping the 21st century with them." People's experiences with a product starts with a first glance at where and how it is presented in the stores. Regarded as the mecca for discerning fashionistas, Barneys New York's museum-like approach to merchandizing provides a unique opportunity to showcase thoughtfully designed wearable technologies. Barneys New York will carry the smart bracelet engineered by Intel and designed by Opening Ceremony. "One of the greatest opportunities for wearable technology as a concept to be successful is fairly simple - to design a beautiful accessory that our customers would desire," said Daniella Vitale, COO of Barneys New York. "It is exciting to be part of an elite group of brands to bring the reality of smart fashion to life. In collaboration with Intel, we are excited to announce that Barneys New York will be one of the first luxury retailers to merchandise a beautifully designed, smart accessory from Opening Ceremony." To scale the convergence of the two industries, Intel will work with CFDA to create a community for technology developers and fashion designers to network, match-make, cultivate and exchange ideas on wearable technology. The collaboration will connect more than 400 leading fashion designers who are members of CFDA with a broad ecosystem of hardware and software developers that Intel has been instru-

mental in building in the last 40 years. "CFDA's commitments are to drive innovation in the fashion industry and as we look at the power of technology and its influence on fashion, we believe technology will need to be part of the fashion industry's DNA," said Steven Kolb, CEO of CFDA. "That's why we are excited to announce a strategic collaboration with Intel on wearable technology in which we can bring together unique strengths of the two industries — Intel, a company that delivers technological innovation across computing devices, and our designers, who design beautiful clothing and accessories that people want to wear. The two together will be a powerful combination."



Energy Husum

a cura della redazione



The New Energy Husum trade fair is opening its doors to trade visitors and the general public from 20 to 23 March. The tenth annual trade fair is all about grass roots energy transition — at private, municipal and commercial levels. The fair is focused on renewable energy generation and storage, alternative propulsion engineering, and energy-efficient and environmentally friendly building and renovation. The exhibition is rounded off with a comprehensive congress and peripheral programme. Small wind turbines and solar energy are the strongest exhibitor contingents. Small-scale wind power is the strongest sector represented at New Energy Husum 2014, with over 70 exhibiting enterprises. At the specialist congress World Summit for Small Wind, jointly organised by Messe Husum & Congress and the World Wind Energy Association is being held for the fifth time on 20 and 21 March, international experts will be coming together to report on political frameworks, markets and innovations in their countries. On the morning of 22 March, the lectures at the Visitors' Forum in Hall 2 will also focus on the various turbine models available, certification and successfully realised projects in Germany. In addition to small-scale wind

power, solar heating and photovoltaics are also important themes at New Energy Husum. "It clearly shows that an increasing number of visitors want to generate and use heat and power themselves", says Peter Becker, managing director of Messe Husum & Congress. "The trend is also towards storage technology, with which consumers can use renewable energy flexibly and efficiently." The Storage Forum is being held as part of the FURGY Congress for the second time on 21 March, providing information about various forms of energy storage technology. The new edition has a special exhibition areas for electric vehicles and ecological building. With a test track in the open-air

space, an eShuttle between the visitors car park and the exhibition grounds, and the presentation of the current range of electric vehicles at a special exhibition area in Halls 2 and 3, electrically powered vehicles are a highlight of this year's fair. "There is hardly another sector where there is so much technical development from year to year", says exhibition boss Becker. "So we are particularly pleased that we are able to welcome so many renowned and innovative automobile manufacturers, including BMW, VW, Mitsubishi, Renault, Nissan and Mercedes.", Ecological building is also constantly gaining importance at the fair.

New Managing Director

a cura della redazione



News



GRAFF si presenta a cura della Redazione

Presente quest'anno per la prima volta al Salone del Mobile di Milano, l'azienda coglie l'occasione per ridefinire le frontiere del design e dell'architettura. Lo stand scelto dalla società è innovativo e firmato da DCUBE design, lo studio ginevrino specializzato in luxury design.

Si tratta di un "ambiente" di 153 mq di casa intima e coinvolgente, nella quale il bagno rappresenta un'oasi che ci protegge dalla freddezza dell'ambiente esterno; lo stand è composto da isole che offrono *home feeling* con spazi dove chiunque può sedersi, caricare il proprio *smarthphone* o *tablet*, a stile Cannes.

I prodotti sono a portata di mano, ma soprattutto a disposizione dei visitatori.

I due elementi d'arredo determinanti per la creazione dell'atmosfera e allo stesso tempo contrastanti tra loro, sono le avvolgenti tende di lino che creano l'effetto *cosy* in contrapposizione alle pareti sospese che riprendono l'effetto cemento industriale.

Schermature Solari e Risparmio Energetico.

A cura di Martina Zecchi

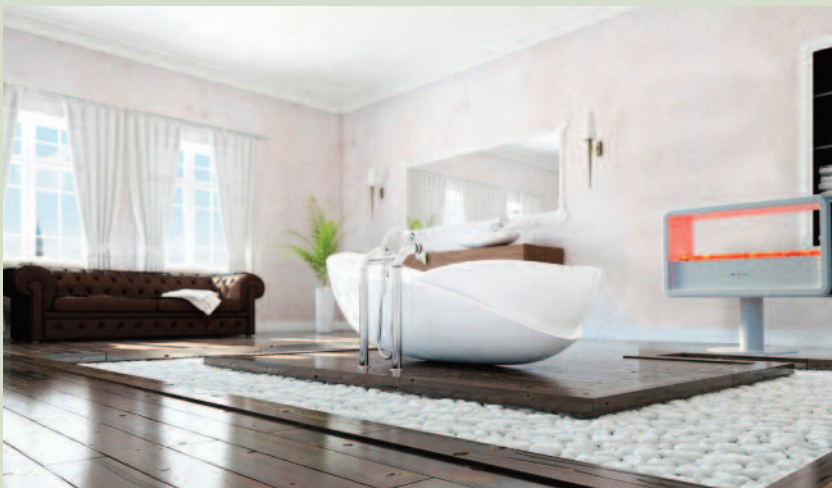
È stato Licenziato alla Camera il Decreto "Destinazione Italia" che viene rafforzato e arricchito da alcune novità. Una, in particolare, grazie alla attività e alle indicazioni di FederlegnoArredo e di Assotende, prevede che le Schermature Solari Mobili debbano essere considerate, misurate, valorizzate nella redazione dell'Attestato di Prestazione Energetica a conferma del ruolo fondamentale di questi manufatti nel risparmio energetico degli edifici. In particolare, ai fini del rilascio dell'APE si dovrà tenere (ora) conto del raffrescamento derivante dalle prestazioni energetiche delle schermature solari. Il riferimento è alla norma europea EN 14501: 2006. Si tratta, per l'Italia, di un nuovo importante elemento tecnico che rafforza il ruolo progettuale delle schermature.

"Sono soddisfatto nel vedere la passione e la determinazione dei colleghi imprenditori di Assotende che ha portato al voto favorevole della Camera all'emendamento che iscrive le tende e le schermature solari fra gli elementi che compongono i valori dell'APE (Attestato di Prestazione Energetica degli Edifici). Un certificato che oggi può rappresentare un momento di svolta e di riscontro delle qualità delle aziende di settore", ha commentato Roberto Snaidero, presidente FederlegnoArredo. Soddisfatto anche Giovanni De Ponti, direttore generale Federle-

gnoArredo, che ha sottolineato quanto "il nostro impegno nell'incontrare gli imprenditori e nel sostenere la loro passione per fare impresa è la linfa che muove tutta la struttura organizzativa della Federazione che rappresenta sempre più uno strumento efficace e virtuoso per comprendere, sviluppare, sostenere e valorizzare la cultura del saper fare che vediamo nei nostri Imprenditori". Aver affermato il contributo al risparmio energetico degli edifici delle tende e delle schermature solari mobili – aggiunge Gianfranco Bellin, coordinatore Assotende – è un grande successo della capacità di FederlegnoArredo di valorizzare le sue componenti associative e imprenditoriali. Aver inserito con tale chiarezza le schermature fra i valori energetici dell'APE è certamente uno strumento che

complemento d'arredo ispirato al concetto del fuoco, nato per emozionare e colpire l'occhio attento di chi ama il design e gli oggetti sorprendenti. Come anche in altri elementi offerti da Vanixa, viene ricreato l'effetto empatico e luminoso delle braci, senza alcun pericolo e con estrema facilità di installazione e gestione.

Ipnosi è un oggetto molto bello e lineare nella sua essenzialità e pulizia, riesce ad essere protagonista indiscusso dell'ambiente in cui lo si posiziona, senza risultare eccessivo e invadente. Consente di arredare un ambiente unendo stile, calore ed emozioni, diventando elemento di discussione e conversazione. Interamente progettato e realizzato in Italia, è ideale per luoghi e spazi in cui la convivialità



confirma il contributo di questi prodotti al risparmio energetico estivo e ne testimonia le ragioni e le qualità, entrambi elementi che vedono Assotende e gli imprenditori di settore sempre più impegnati nel valorizzare una cultura e una professionalità certamente uniche e specialistiche".

Ipnosi arredo emozionale con effetto brace

A cura di Olga Gerke

Giovane, artistico, moderno. Cattura l'attenzione con i suoi colori e le sue finiture ipnotiche e psichedeliche. Un vero oggetto "cult" che rappresenta l'unione tra l'ancestralità della lava e l'attualità delle sue linee. La dinamicità dei tempi moderni viene ben rappresentata dalla velocità e dalla facilità con le quali è possibile cambiare il look di "Ipnosi" tramite le diverse soluzioni estetiche esterne intercambiabili, attraverso un ingegnoso sistema magnetico. Stiamo parlando di un

e la bellezza hanno un ruolo centrale, come per esempio in alcune spa di prestigio, negli spazi hospitality degli hotel più esclusivi, sugli yacht, nei ristoranti più rinomati. Cattura l'attenzione di 4 sensi: la vista, con il meraviglioso effetto di brace generato da luci e cristalli di sale rosa himalayano, l'udito con un leggero crepitio, il tatto con un lieve tepore che proviene da sotto i cristalli di sale, l'olfatto attraverso un diffusore di essenze elettronico. Ogni funzione viene attivata singolarmente tramite apposito telecomando. L'utilizzo ha anche un effetto salutare, infatti il tepore che scalda i cristalli di sale rosa genera ioni negativi, utili al miglioramento delle funzioni respiratorie e gli stessi cristalli proteggono da molte delle emissioni elettromagnetiche presenti nell'ambiente circostante, generate da tutti i dispositivi elettrici che ormai circondano la nostra quotidianità. Un oggetto bello, emozionale, utile, che risolve facilmente l'esigenza di poter installare facilmente e ovunque una "luce del fuoco", con gusto e notevole bellezza.

Energia e rifiuti

A cura Olga Gerke

Oggi non basta più smaltire la spazzatura in modo sicuro o depurare l'acqua inquinata con sistemi affidabili. Rifiuti, acque reflue e fumi di scarico si stanno rivelando infatti grandi sorgenti potenziali di energia. Gli espositori del salone di tecnologie ambientali IFAT presenteranno le tecnologie e le soluzioni più recenti in questo comparto dal 5 al 9 maggio 2014 nel Centro Fieristico di Monaco di Baviera.

L'Unione Europea ha fissato nella direttiva sulle discariche del 1999 l'obiettivo di ridurre al minimo il deposito di rifiuti. L'Europa diventa così, insieme all'Asia orientale, il principale acquirente di soluzioni per la valorizzazione energetica dei rifiuti ("waste-to-energy"). Secondo uno studio recente della società di ricerche di mercato Frost & Sullivan, il mercato europeo dei termovalorizzatori ha raggiunto nel 2012 un giro d'affari di 4,22 miliardi di dollari. Entro il 2016 il valore arriverà a 4,94 miliardi.

Per la costruzione di nuovi termovalorizzatori, la Gran Bretagna e la Polonia sono i mercati più interessanti e attivi per i prossimi anni. Dalle nazioni pioniere nella termovalorizzazione, come Germania, Francia e Scandinavia, invece, gli analisti di Frost & Sullivan si attendono nuovi impulsi alla modernizzazione di impianti che hanno già qualche decina d'anni di attività alle spalle. Al di fuori dell'Europa, è soprattutto la Cina ad affidarsi alla termovalorizzazione dei rifiuti. La società di consulenza Ecoprog, specializzata in questioni energetiche e ambientali, calcola che la Repubblica Popolare Cinese metterà in funzione nei prossimi cinque anni circa 125 impianti all'anno con

Foto tratte da: Giz (Gesellschaft für Internationale Zusammenarbeit GmbH)



capacità di 40 milioni di tonnellate annue. Oltre alla combustione, un'altra soluzione per ricavare energia dalla spazzatura è la gassificazione. In questo settore, la trasformazione del metano in gas naturale di alta qualità apre nuove prospettive. Ad esempio, il gas ricavato da rifiuti organici in impianti per la produzione di biogas può essere immesso nella rete di distribuzione del metano, con benefici logistici ed economici. Il cerchio viene chiuso da grandi aziende di smaltimento, come se ne trovano negli Stati Uniti, che trasformano i gas delle discariche in carburante per i camion della nettezza urbana. L'energia si nasconde non solo nei rifiuti solidi, ma anche nelle acque reflue. Lo scorso anno, in Germania, sono

stati ricavati oltre 1.200 gigawattora di energia da gas di scarico, pari al fabbisogno di circa 360.000 abitazioni. E ci sono ancora ampi margini di miglioramento: su oltre 10.000 impianti di depurazione attivi in Germania, solo 1.200 attualmente estraggono gas dal trattamento dei fanghi.

Anche dal processo di chiarificazione è possibile estrarre energia dalle acque di scarico. Sotto i nostri piedi scorre un flusso calore incessante: le acque reflue delle utenze domestiche, artigianali e industriali viaggiano lungo i canali a temperature comprese fra 12 e 20 gradi. Condotta attraverso speciali scambiatori di calore, questa energia potenziale può essere sfruttata, mediante pompe di calore, per il riscaldamento o il raffrescamento di edifici. Secondo la Themenallianz Abwasserwärmenutzung, un'associazione di imprese, società di servizi e istituti di ricerca per la termovalorizzazione delle acque reflue, sarebbe possibile riscaldare circa il 6 per cento di tutti gli edifici della Germania con il calore ricavato dalle acque di scarico. Secondo i dati in possesso dell'associazione, attualmente in Germania sono in attività circa 35 impianti di questo tipo.

Anche l'aria è nel mirino degli sviluppatori di tecnologie ambientali: con intelligenti combinazioni di processi è possibile recuperare i flussi di aria di scarico nell'industria per risparmiare combustibili fossili. Fra le novità più recenti si segnala la possibilità di concentrare e trattare i vapori dei solventi in modo tale che possano essere bruciati in caldaie a vapore o centrali termoelettriche come nel caso del gas naturale





New Plant in Russia

A cura della Redazione

The Bosch Group plans to establish a new manufacturing site for automotive technology in Samara, Russia. By 2015, the supplier of technology and services will invest some 40 million euros in the new location. The buildings constructed in this phase will cover some 15,000 square meters of floor space, and include manufacturing, administration, warehousing, technical infrastructure, and a cafeteria. The site itself covers a total of some 200,000 square meters. Construction work is set to start in the first half of 2013. Bosch plans to employ more than 500 associates in Samara by the end of 2017. The company plans to locate the operations of three divisions at the new site: Chassis Systems Control, Starter Motors and Generators, and Diesel Systems. They will manufacture automotive technology such as antilock braking systems and alternators, mainly for local customers. These products will later be joined by starters and common-rail injectors for commercial vehicles. In making this move, Bosch is pursuing its strategy of further expanding the company's global presence.

"For Bosch, Russia is an important growth market. In establishing a further local manufacturing site, we can make better use of the opportunities the Russian market offers, and thus extend our presence in eastern Europe," said Gerhard Pfeifer, the president of the Russian regional company. "In addition, since it is located in the southern European part of Russia, Samara is a perfect base from which to serve our local customers."

Strong presence in Russia

As was recently announced, the Bosch Thermotechnology division also plans new manufacturing plant at its existing location in Engels. The plant will make industrial boilers and wall-mounted conventional boilers. This represents a total investment of roughly 21 million euro. If all goes to plan, some 170 new jobs will be created by 2016. The Bosch Automotive Aftermarket, Gasoline Systems, Diesel Systems, and Power Tools divisions already have a presence in Engels. In addition the new company headquarters in Moscow is due to be completed in the second half of 2013. The company has invested more than 100 million euros in the building project. Bosch has been present in Russia since 1904. This means that Russia was one of the first countries outside Germany in which a sales organization was established. Today, the Bosch Group manufactures power tools, auto parts, gasoline systems, packaging technology, and household appliances at locations in Engels, Tolyatti, and St. Petersburg. In 2011, the company's more than 2,700 local associates generated sales of nearly one billion euros in the Russian market. Following Engels, Samara will be the second Bosch plant to manufacture automotive technology in Russia.

AUMA actuators were chosen by ITALVALV to aid automation of the dam's barrier gates. The Italian valve designer and manufacturer selected AUMA's Generation .2 AUMATIC actuators: the actuation technology was integrated by ITALVAV into its emergency system which operates high performance control ball, butterfly and globe valves, required for on-off and modulating services.

Key reasons cited for selection of these adaptable valve automation products included zone 2 explosion protection, required to protect against methane gas leaks. Reliability of performance is ensured with plug housing incorporating fail safe technology within the power supply and feedback system. And, as a result of using these generation products, full flexibility of control is afforded with redundant Profibus DP communication, in combination with conventional and analogue (4 - 20 mA) controls.

The mobile barriers for the Mose are made up of rows of independent gates consisting of a metal box structure fastened to a housing caisson by means of two "hinges". In normal tidal conditions, the gates are full of water and rest on the seabed, completely invisible and with no impingement on the fundamental exchange of water between sea and Lagoon. In the event of danger from flooding, compressed air is pumped into the gates, emptying them of water. The gates, which function only for the period of the high water event, rise and emerge, blocking the inflow of the tide into the Lagoon.

A total of 981 actuator and gearbox combinations are being installed as part of the Mose scheme over an 18 month period.

Venetian defence scheme A cura della redazione

In one of AUMA's most prestigious flood defence projects, and the largest order to date for its Generation .2 product series, almost a thousand modular electric actuators are being installed in a major scheme to protect the Venetian Lagoon in Italy. The high technology structure, known as Mose, is in an advanced stage of implementation.

Forming part of a major plan for the physical



ECO DESIGN MAGAZINE

and environmental restoration of Venice's entire Lagoon basin, Mose links the defence of the City with the architectural heritage of historic buildings and the Lagoon's ecosystem. Protection from high waters, and recovery of the Lagoon's resources, are incorporated into the scheme. The measures to safeguard the Lagoon are being implemented as part of an integrated and systemic programme by the Consorzio Venezia Nuova, on behalf of the Italian State (Ministry of Infrastructure and Transport - Venice Water Authority).

Mobile barriers are being constructed to defend the Lagoon area, its inhabitants, towns, cities and historic/ artistic/environmental heritage from high waters: as a result of changes in the inter-relationship between water and land in the Lagoon, rising water levels have become more intense and frequent over recent decades. To protect the Lagoon's three inlets, 78 flood barrier gates with steel panels 20 m wide and up to 28 m long are secured to concrete foundations on the sea bed in four rows. Filled with water under normal conditions, the gates lie flat on the sea bed. If a tide of more than 1.1 m is predicted, compressed air triggers the gates to rise in sequence to produce an artificial dam.



Sestri Les Vins
A cura Olga Gerke

Dopo la conferenza stampa del 28 gennaio a Milano dedicata alla presentazione in anteprima degli eventi di VinNatur 2014, si è svolta a Sestri Levante seconda edizione di "Sestri Les Vins", l'evento che prevede la



presenza di tutti i produttori associati a VinNatur in un contesto unico nel suo genere. La conferenza aveva visto gli interventi di Lara Gianelli (presidente Consorzio Sestri Levante in), Angiolino Maule (presidente associazione VinNatur), Samuel Cogliati (scrittore) ed Alessio Guarda (artista). Un evento che rientra in pieno nel programma di divulgazione dell'associazione; la stampa è uno dei mezzi con il quale dobbiamo lavorare in sintonia ed essere sempre a disposizione per fornire approfondimenti per far sì che il lettore sia sempre consapevolmente informato, per poter dare una voce a tutti i piccoli produttori di cui l'associazione è composta. L'evento ha aperto il ciclo di eventi della associazione per questo 2014; Nella città ligure abbiamo partecipato (ben volentieri) a un evento degustazione che con oltre 50 vignaioli presenti ha esposto al pubblico i propri vini da produzione naturale, nei giorni 2 e 3 marzo 2014. Sestri Levante si è rivelata un luogo ideale a per questo evento; tutta la città ne è stata partecipe e come lo scorso anno la città ha dimostrato una grande capacità di



Lettera Aperta

Crisis in Ukraine and energy dependency: investing in renewables for heating and cooling will bring security of supply and more competitiveness

EU could save EUR 11.5 billion per year, announces the industry

Brussels, 19 March, 2014

AEBIOM, EGEN and ESTIF representing the biomass, geothermal and solar thermal sectors respectively, address an open letter to the Heads of State and Government, ahead of their spring meeting in Brussels.

The growing uncertainties over the crisis in Ukraine show once again all the limits of Europe's energy dependency. According to Eurostat, about one third of EU's total crude oil (34.5%) and natural gas (31.5%) imports in 2010 originated from Russia. The EU energy dependency contributed not only to weaken our geopolitical influence on the international arena but fuelled the dramatic GDP-leakage with the EU having spent €545 billion or 4.2% of its GDP on importing fossil fuels in 2012 alone.

Part of that fuel (in the form of natural gas and heating oil) is used for heating our houses, our offices or for industrial purposes. These energy services alone account for half the EU's energy needs. In these sectors, however, readily available renewable energy solutions, combined with energy efficiency measures, are a practical and versatile option to alleviate our fossil fuels dependency. This option is also much more environmentally constructive and beneficial than developing shale gas in Europe.

Achieving the additional renewable energy consumption in heating and cooling foreseen by Member States between 2011 and 2020 could allow the EU to reduce its import of natural gas from third countries by the equivalent of 35 Mtoe per year from 2020. With current import prices (\$11.5/ MMBtu or EUR 8.4/MMBtu)[2], this would save the EU as a whole some EUR 11.5 billion per year.

Over recent years, the lack of awareness and political support to renewables for heating and cooling has meant only modest market development in the sector. However, in view of the upcoming discussion of the European Council on EU climate and energy policies beyond 2020, there is a great opportunity to invert this trend.

Decarbonising our energy sector should not be regarded as a burden, but rather as an opportunity for Europe's industrial renaissance. Clear pledges on renewables for heating and cooling and energy efficiency will increase EU's energy independence, while improving our balance of trade, creating a substantial amount of new local jobs and ensure stable and affordable energy prices to our consumers and industries.



Riceviamo e pubblichiamo Integralmente:
La redazione

accoglienza ed organizzazione. Non si è trattato semplicemente due giorni di degustazione ma di un percorso che si è dipa-

nato per tutto il fine settimana per accompagnare ed acculturare gli appassionati di un modo unico di produrre e vivere il vino.



I sistemi di incentivazione dell'efficienza energetica

A cura della Redazione

Smart Energy Expo, in collaborazione con GSE (Gestore Servizi Energetici), ispirandosi ai più virtuosi modelli europei, ha colto l'occasione della più importante rassegna biennale in Europa nel settore del riscaldamento a legno e biomasse, Progetto Fuoco, per fare il punto rispetto all'evoluzione dei sistemi incentivanti della produzione di energia termica da fonti rinnovabili, in correlazione all'efficienza energetica.

Da quel che è emerso a Verona, gli incentivi andranno forniti solo se c'è un effettivo risparmio di energia e se il contesto risulta efficiente: Al convegno sono intervenuti Marco Pezzaglia, Founding partner di Ekn-Efficiency KNow e Luca Benedetti, Responsabile dell'unità Studi e Strategie del GSE. Il convegno, dal titolo "Produzione di energia termica da fonti rinnovabili ed efficienza energetica: evoluzione e integrazione dei sistemi incentivanti" è stato organizzato nell'ambito di Progetto Fuoco, una importante rassegna biennale a livello europeo nel settore del riscaldamento a legno e biomasse, che si è svolto a Verona fiere dal 19 al 23 febbraio 2014.

L'evento ha posto la questione della necessità di far convergere gli sforzi verso un effettivo risparmio di energia primaria, attraverso l'analisi di case history europee, al fine di fornire un contributo e uno stimolo allo sviluppo virtuoso del sistema di incentivazione nazionale.

Spostare il livello di investimenti da incentivi erogati a fronte di sole installazioni rispondenti a pre-determinati requisiti ad incentivi alle reali produzioni termiche misurate e premiate in base all'efficienza del contesto in cui vengono effettuate è il vulnus emerso dai lavori.

In tal senso si potrà tener conto, dell'efficacia dei risultati ottenuti, minimizzando l'impatto



sui consumatori, in termini di spesa per la copertura degli incentivi.

RFID e Plastic Logic in Russia and Baltic area

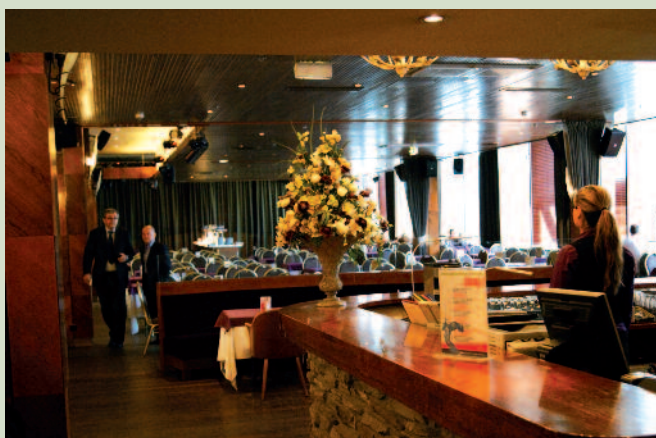
A cura di Olga Gerke

Quale mercato che si prospetta per le soluzioni RFID in Russia, CIS, e area Baltica nel periodo 2013-2022? L'articolo analizza la situazione sulla base dei dati resi disponibili da IdtechEX e fornisce indicazioni sul grande sviluppo che si otterrà nei paesi dell'EST, sor-

prendentemente (ma non troppo) anche nel Baltico. Tecnoservizi

Ne ha già trattato a TALLINN con un seminario specifico durante BIAC 2013 il 20.7.2013 e questo tema sarà uno dei leit motiv dell'edizione 2014 che saranno presentati a MOSCA dal 15 al 17 Aprile 2014 durante l'edizione di Electron EXPO.

This report analyses RFID supply and use in Russia and some of its surrounding countries with comparable total population but little more than one third of Gross Domestic Product GDP in total. They are the Baltic States, CIS and, because of its RFID significance, Bulgaria. The countries investigated are Azerbaijan, Armenia, Belarus, Bulgaria, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Since Russia has larger present and future demand than all the others put together and, unlike the other countries, it is a world leader in



Sala principale Biac 2013 Tecnoservizi

some aspects and seeking to be a world leader in others, we look particularly closely at it, including providing ten year forecasts by application and more analysis.

Vladislav Tropko, Investment officer OJSC of the Russian Corporation of Nanotechnologies Rusnano, the huge state investor in RFID and allied technologies, spoke that Russia is one of the largest economy in the world by nominal GDP and the 6th largest by purchasing power parity (PPP). The economy of Russia will grow faster than the world's economy with actual oil prices and investments the key growth drivers. It will pass US\$2.7 trillion by 2015. It has a population of over 140 million, 75 million being the educated labour force, and it has high consumer spending as a percentage of GDP. It has a diversified base in fundamental research with strong support from government: the Russian Academy of Science (RAS) is the leading science organization in Russia with 466 research institutes and 55,000 researchers, 61% having a PhD. Rusnano has invested heavily in Russian manufacturer Systematica which plans to make 150 million RFID tags for sale in Russia in 2015. Its newest investment project is Plastic Logic. This will include building the world's largest commercial printed electronics factory in Zelenograd.

Plastic Logic

This new technologies does not yet make RFID but it has printed organic transistor technology appropriate to replacing silicon chips, creating a lower price, higher volume market for the simpler RFID tags. Rusnano and Plastic Logic have finalized details of a \$700 million investment. Although the USA remains the largest user and supplier of RFID in the world, RFID and industrialization in general is succeeding in countries with tough government, consistency of purpose, little borrowing and large home markets. In this respect, we know of China but must now think of Russia gearing up to make and use RFID passport chips with 1.25 million transistors in them, huge RFID postal automation systems and a great deal in between. The big topic in Russia is what will replace the oil and gas income when it expires. We can write that security is high on the agenda and Russia has somewhat different priorities from the

rest in its extensive use of RFID for public transport, including placing the world's largest ongoing

order for 300 million RFID tickets yearly for the Moscow transport system.

It also has unusual emphasis on libraries with over twenty already fully tagged - books, CDs and DVDs. Unusually for this part of the world, Russia is also placing particular emphasis on the use of RFID in retailing.

Its ambitions in postal RFID are also of a very different order, with the avowed intention of putting tags on all 600 million postal items yearly.

By contrast, several of the countries covered in this report, including Russia, are doing appreciable work on RFID in land and sea logistics. For the size of their population and GDP, Ukraine is doing surprisingly little with RFID while Lithuania and Estonia are doing a lot. In the coming decade, we expect see a great deal of RFID adoption in the wealthier mineral rich countries in the region such as Kazakhstan. In the next decade, the primary expenditure on RFID in this geographical region will continue to be in Russia. The four most important applications and formats all involve passive UHF and HF RFID in the main, in the formats of cards, tickets and labels - so no surprises there. Indeed, by the end of the decade, the mix of RFID in use will not be dissimilar from that in the world as a whole and the specifications will be the same. Although the global value market for RFID will grow about five times in the next ten years, the market in Russia and the market in the other countries covered, taken as a whole, will grow much faster. The forecasts do not show the plan of the Russian government to tag 600 million postal items yearly within two years, because we consider a somewhat longer timescale to be realistic for such a world first due to technical challenges. We see this happening later. In this region we expect particular activity in Logistics & Postal, Financial, Security, Safety, Retail, Leisure and Passenger Transport & Automotive sectors with Mining, Chemical and Oil & Gas starting to be important.

I rifiuti Elettronici : una grande opportunità Industriale

A cura di Andrea Fenzi

I rifiuti da apparecchiature elettriche ed elettroniche, sinteticamente indicati come RAEE sono tutti i piccoli e grandi elettrodomestici, computer, dispositivi elettrici ed elettronici, cellulari, lampade fluorescenti a risparmio energetico, oltre agli apparecchi di illuminazione arrivati a fine vita. Individuati dalle direttive europee 2002/95/CE e 2002/96/CE (recepite in Italia con il Decreto Legislativo 151 del 2005 e con il Decreto Ministeriale attuativo 185/2007), i RAEE devono seguire un apposito percorso di trattamento, recupero e smaltimento perché molti di loro contengono sostanze inquinanti nocive alla salute.

La responsabilità della gestione dei RAEE viene fatta ricadere sui Produttori di AEE (Apparecchiature elettriche ed elettroniche) che sono stati chiamati a costituirsi in consorzi per assicurare i processi di raccolta, trasporto, trattamento e smaltimento. Le direttive europee hanno fissato i principi cardine del "chi inquina paga" e della "responsabilità estesa e condivisa": entrambi sono orientati alla riduzione dell'inquinamento e a un minore spreco di risorse naturali. Per sostenere i costi di gestione dei RAEE, la legge ha dato la facoltà ai produttori di applicare un eco-contributo alle nuove apparecchiature elettriche ed elettroniche messe in vendita. L'eco-contributo è un sovrapprezzo che ha finalità esclusivamente ambientale: non rappresenta (o almeno non dovrebbe rappresentare) un elemento di guadagno né per i Produttori né per i punti vendita.

In Italia opera tra gli altri il consorzio Ecolight (dalle cui pubblicazioni sono tratte alcune informazioni citate in questo articolo) che dichiara di perseguire il contenimento dei costi per queste procedure che ha come diretta conseguenza l'abbassamento dell'eco-contributo. Il sistema multi-consortile di gestione



dei RAEE in Italia è partito l'1 settembre 2007, data del primo importante Accordo tra il Centro di Coordinamento RAEE e l'Associazione Nazionale Comuni Italiani (ANCI). L'avvio operativo si è avuto nel gennaio 2008. Nel 2012 hanno operato 16 sistemi collettivi, facendo capo al Centro di Coordinamento RAEE.

I RAEE sono classificati secondo cinque raggruppamenti:

- R1, freddo e clima (frigoriferi e congelatori, condizionatori e scaldacqua);
- R2, grandi bianchi (lavatrici, lavastoviglie, cappe, forni ecc.);

- R3, tv e monitor;
- R4, piccoli elettrodomestici, elettronica di consumo, telefonia e computer, apparecchi di illuminazione;
- R5, sorgenti luminose (lampade a fluorescenza).

Per ciascuno di questi raggruppamenti è previsto un preciso iter di raccolta, trattamento e recupero. L'importanza strategica di una corretta gestione dei RAEE risponde a obiettivi in termini di: risparmio energetico; risparmio delle risorse naturali; riduzione dei quantitativi di rifiuti da avviare a smaltimento.

Pile e Batterie

Al fine di incrementare le percentuali di raccolta e di riciclaggio dei rifiuti di pile e accumulatori, il Decreto Legislativo 188/08 ha previsto che siano i Produttori ad organizzare e gestire i sistemi di raccolta separata di pile ed accumulatori portatili idonei a coprire in modo omogeneo tutto il territorio nazionale. Questo testo normativo è stato integrato dal Decreto legislativo 11 febbraio 2011, n. 21, pubblicato sulla Gazzetta ufficiale del 15 marzo 2011. La normativa è stata così adeguata ai più recenti dettami dell'Unione Europea (direttiva 2008/103/CE e 2009/603/CE).

Il decreto definisce tre tipologie di pile ed accumulatori: batterie o accumulatori per veicoli: le batterie o gli accumulatori utilizzati, per l'avviamento, l'illuminazione e l'accensione; pile o accumulatori industriali: le pile o gli accumulatori esclusivamente a uso industriale o professionale, o utilizzati in qualsiasi tipo di veicoli elettrici; pile o accumulatori portatili: le pile, le pile a bottone, i pacchi batteria o gli accumulatori che sono sigillati, sono trasportati a mano e non costituiscono pile o accumulatori industriali, né batterie o accumulatori per veicoli. Anche per le pile e gli accumulatori è stato creato un sistema multiconsortile che nel 2011 è stato avviato in via volontaria, sulla base della scelta di adesione da parte dei singoli sistemi collettivi. Nel 2011 è stato costituito ufficialmente il Centro di Coordinamento Nazionale Pile e Accumulatori (CDCNPA) che ha operato l'anno successivo raccogliendo 16 sistemi collettivi e 2 sistemi individuali nella gestione dei rifiuti di pile e accumulatori.

Il Centro di Coordinamento Nazionale Pile e Accumulatori

Le attività di raccolta coordinate dal CDCNPA sono operative dal 2012. Il modello di raccolta per le pile e gli accumulatori portatili si basa su un principio di ripartizione territoriale: ad ogni Sistema di raccolta il Centro di Coordinamento Nazionale Pile e Accumulatori ha il compito di: ottimizzare le attività di competenza dei sistemi di raccolta garantendo omogenee e uniformi condizioni operative al fine di incrementare le percentuali di raccolta e di riciclaggio dei rifiuti di pile e accumulatori; definire le modalità di determinazione e di ripartizione dei finanziamenti delle operazioni di raccolta, trattamento e riciclo da sottoporsi all'approvazione del Comitato di Vigilanza e Controllo, nello specifico provvede ad organizzare ed effettuare campagne di informazione per i consumatori; organizzare per tutti i consorziati un sistema capillare di raccolta; assicurare il monitoraggio e la rendicontazione dei dati relativi alla raccolta ed al riciclaggio dei ri-

futi di pile e accumulatori portatili, industriali e per veicoli; garantire il necessario raccordo tra la Pubblica Amministrazione, i sistemi di raccolta e gli altri operatori economici. Nello specifico, il trattamento delle pile zinco-carbone permette di ottenere materiali di recupero importanti come acciaio, carta e plastica, fango carbonio manganese, e materie prime seconde come lo zinco e il manganese. Gli elettroliti non possono essere recuperati, vengono quindi inviati alla fase di smaltimento.



Sulle pile zinco-carbone raccolte, Ecolight sostiene di arrivare ad una percentuale di recupero maggiore rispetto al trattamento delle altre tipologie di pile e accumulatori. Con le batterie zinco carbone il Consorzio fornisce come dato di riferimento il 97,15% in peso di materiale recuperato perché solamente gli elettroliti vengono avviati allo smaltimento. L'acciaio, la carta e la plastica e il fango carbonio-manganese sono materiali che, una volta estratti dalle pile, vengono inviati agli impianti di recupero. Lo zinco e il manganese ottenuti sono invece materie prime a tutti gli effetti.



Foto dal catalogo Giz

La nuova Direttiva

È stata pubblicata recentemente una direttiva europea (2012/19/UE del 4 luglio 2012) che sostanzialmente rivede il testo e rivisita la precedente Direttiva, stabilendo nuovi obiettivi e puntando ad un incremento dei tassi di raccolta con un maggiore coinvolgimento dei consumatori a combattere l'esportazione illegale dei RAEE. Tra le novità, la direttiva prevede l'inserimento tra i RAEE dei moduli fotovoltaici a fine vita e l'introduzione dell'uno contro zero per i punti di vendita di dimensioni medio-grandi. Ecco alcuni dei passaggi a mio parere tra i più importanti della Direttiva: Obiettivi e destinatari: «La presente direttiva è intesa a contribuire alla produzione e al consumo sostenibile tramite, in via prioritaria, la prevenzione della produzione di RAEE e, inoltre, attraverso il loro riutilizzo, riciclaggio e altre forme di recupero, in modo da ridurre il volume dei rifiuti da smaltire e contribuire all'uso efficiente delle risorse e al recupero di materie prime secondarie di valore. Essa mira inoltre a migliorare le prestazioni ambientali di tutti gli operatori che intervengono nel ciclo di vita delle AEE, quali ad esempio produttori, distributori e consumatori, in particolare quegli operatori direttamente impegnati nella raccolta e nel trattamento dei RAEE». «Le disposizioni della presente direttiva dovrebbero applicarsi ai prodotti e ai produttori a prescindere dalle tecniche di vendita, **comprese televendite e vendite elettroniche**. In tale contesto, gli obblighi dei produttori e

dei distributori che utilizzano canali di televendita e vendita elettronica dovrebbero, per quanto possibile, avere la stessa forma». Va sottolineato come, secondo i dati GSE con quasi mezzo milione di impianti solari in funzione, l'Italia si confermi la seconda nazione al mondo per potenza installata dietro alla Germania. La cultura delle energie rinnovabili è particolarmente diffusa: in 7.857 comuni italiani è stato installato almeno un impianto fotovoltaico. Solo in 248 centri (il 3% del totale) non c'è produzione di energia solare. Come stabilito dai decreti interministeriali del 5 maggio 2011 (Quarto Conto Energia) e del 5 luglio 2012 (Quinto Conto Energia), per gli impianti fotovoltaici entrati in esercizio a decorrere dall'1 luglio 2012 al produttore è richiesta l'obbligatorietà di adesione a un sistema/consorzio che ne garantisca il riciclo a fine vita per poter aver accesso (e mantenere) alle tariffe incentivanti.

Recycling of refrigeration units

A cura di Roberto Frizzo

The BHS Rotorshredder has proven its worth in practice in the mechanical crushing of refrigeration units at the recycling company H.J. Hansen A/S in Odense, Denmark. Since its commissioning, the machine has processed more than a million units. The appraisal after five years is highly positive: energy and wear-related costs are nearly half of those from other processes. In 2007, H.J. Hansen A/S, one of the largest recycling companies in Denmark, planned the construction of a new plant with the capacity to recycle approximately

200,000 household refrigeration units, constituting a large part of Denmark's annual yield. The units were to be recycled in single-shift operation, according to material type and in an environmentally friendly and cost-effective manner. From the start, H.J. Hansen had the goal of processing at least 100 units per hour – nearly twice as many as was usual in the recycling industry. Its favorable experience in the crushing and disaggregation of mixed electrical waste led H.J. Hansen to order a BHS Rotorshredder of type RS 3218. This machine was the largest Rotorshredder built thus far and was the first for crushing refrigeration units. With a diameter of 3,200 mm and a height of 1,800 mm, the working chamber can handle refrigeration units measuring up to 1,000 x 1,200 x 2,000 mm (W x D x H) and weighing up to 100 kg. This means that even



large refrigerator-freezer units are crushed in one step, without the need for pre-crushing. Once the components made of glass or wood, plastic films, electric cables, condensers, mercury switches, and compressors have been manually removed, a conveyor belt feeds the refrigeration units into the working chamber of the Rotorshredder. The chamber contains rotating hammers fastened to a high-speed vertical shaft. The Rotorshredder crushes the units through impact, punching and shear forces. The solids are automatically sorted into ferromagnetic and non-ferromagnetic parts (predominantly aluminum and copper), plastics and polyurethane foam. The blowing agents released during crushing as well as the separated PU foam are disposed of entirely in accordance with the pertinent regulations.

Positive results

The plant has been in continuous single-shift operation since 2008 and has worked more than 8,000 hours to date. It still meets all the requirements defined at the start of the project, and does even more: it currently processes around 140 units – or approximately 6.8 tonnes – per hour. This corresponds to an average crushing time of 25 seconds per unit. The authors know of no other plant which achieves a higher throughput rate. A test of 1,000 units carried out by a Swedish supplier of scrap refrigeration units in 2013 confirmed the plant's performance, both in terms of compliance with permitted CFC emissions as well as the quality of the accurately separated final products.

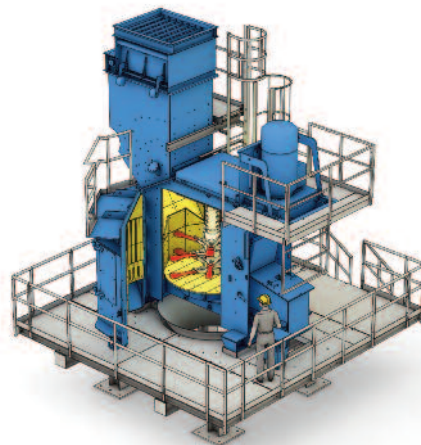
Low costs

The excellent crushing performance and short processing time result in a very high degree of energy efficiency and therefore low energy costs. The average electrical power requirement is only 120 kW. This results in a specific energy consumption of only 18.5 kWh per tonnes. The wear-related costs are also extremely low in comparison to other crushing machines: they are less than three euro per tonne. Moreover, maintenance costs are low. As they do not cut but rather function by force of impact, the rotating hammers do not need to be adjusted or sharpened. Only a daily visual inspection is necessary. With this plant, H.J. Hansen and BHS-Sonthofen have proven that refrigeration units can be recycled safely and inexpensively with the Rotorshredder. Due to the Rotorshredder's low operating costs, H.J. Hansen can run the entire plant not just economically but also profitably. The Rotorshredder of type RS 3218 can crush up to 150 refrigeration units per hour. In three-shift operation, it could thus achieve a much higher performance of approximately 3,250 refrigeration units per day, and more than 800,000 units per year. With an expanded sorting facility, it is also possible to process electrical and electronic waste (WEEE) in the same plant as the fridge

The IC process

For the treatment of gases in the refrigeration units, BHS has recently developed the

IC process, a new technology for treating re-



frigeration units containing CFCs or hydrocarbons. The central machine in this process is once again the BHS Rotorshredder. The refrigerants and blowing agents that are recaptured during the process undergo thermal-catalytic conversion and are completely transformed into harmless substances such as water vapor, carbon dioxide and dilute acids or saline solutions. Beyond this, the process allows for major cost savings.

SIWA: Smart Water Management from Siemens

A cura di Andrea Fenzi

Gaining control over every drop of water – this was the underlying objective adopted by Siemens in the development of its modular Smart Water Management (SIWA) solution. Designed for simple combination, the software modules help plant operators to optimize the management of their water and wastewater networks. Based on the Simatic PCS 7 process control system, the various



modules address different aspects, from optimizing the way in which water networks operate through control of sewage systems and wastewater flows to the identification of leaks in the water transport system and distribution networks. These functions are complemented by modules for computer-aided simulation of the hydraulic behavior of water flows in complex networks and different situations. The SIWA Optim module optimizes water network operation by calculating the most efficient schedules for pumps, tanks and water plants with a view to enhancing plant productivity. The SIWA Concept module generates a computer-aided model of the network infrastructure to allow the simulation of hydraulic behavior in water supply systems. Using the virtual network model, system operators can simulate different operating modes and analyze complex interactions occurring within the network. The add-on module SIWA OTS is specifically designed for use in training situations to familiarize personnel with underlying functions and how to deal with exceptional events. The SIWA Sewer module was developed by Siemens specifically for use by the operators of sewer networks and sewage treatment plants to control sewer systems and regulate wastewater flows. It ensures more even utilization of sewage plant capacity and prevents the discharge of contaminated wastewater into natural waterways. The two modules SIWA Leak and SIWA Leak Control are designed to ensure the most rapid, precise and reliable detection of leaks in water transport and water distribution systems and to also localize leaks in pipelines.

Efficient optimization of operating sequences

An economical water supply hinges largely on the efficient operation of pumps and on the plant schedule. Siemens provides the right process optimization tools both for the transportation of water from the point of origin to the local provider, and also for the distribution

of drinking water on the municipal level. Using mathematical optimization methods and energy provider tariff structures, the scalable management system SIWA Optim calculates the most economical pump, well and water tank schedules. Other scenarios can also be determined such as the optimum timing of maintenance interruptions, the selection of suitable pump sets or ensuring the optimum efficiency of pumps. Experience has shown that using SIWA Optim can cut the costs of electricity used for water transportation and distribution by up to 15 percent. To safeguard the supply even in extreme situations, Siemens provides a computer-aided model for the calculation of hydraulic behavior within the supply system with its SIWA Concept module. This tool examines different scenarios and permits operating personnel to test out different responses, ensuring the reliability of the supply and reducing costs for plant operators in the water industry.

Putting an end to leaks

The efficiency of water transport and distribution systems is not only dependent on the efficiency of the individual control elements, but decisively also on the rapid, reliable detection of leaks. If pipelines or networks are damaged, the escaping water has a number of consequences for the operator. Not only do enormous volumes of drinking water treated at great expense go to waste, impacting negatively on supply reliability and cost-effectiveness for the supplier, but the resulting washout and corrosion also threaten to cause enormous damage to roads and buildings. The SIWA leakage detection systems SIWA Leak and SIWA LeakControl provide water transport system and water distribution network operators with specially developed modules for the detection and localization of pipe damage. A particular benefit of this software-based Siemens solution is its capacity for smart analysis of measured data at minimum cost. The software module is able to cheaply and quickly pinpoint even small leaks to within just a few meters, allowing fast and selective repairs to be carried out, safeguarding the reliability of a drinking water supply for consumers and minimizing damage to the surrounding soil.

Smart control of wastewater flows

Ensuring an undamaged pipeline network is never more crucial than where wastewater is concerned. Any issues here can place the surrounding ground water – which in many locations directly equates with the drinking water supply – at risk of contamination. This hazard can occur not only in the event of damage, but also if the sewer network is overloaded. Siemens has addressed this potential risk with its SIWA Sewer Management System, which is designed to ensure optimum utilization of the sewer net-

work and control of wastewater flows. SIWA Sewer evaluates measurements such as precipitation, water level and discharge. At regular intervals of just a few minutes, it uses this information as the basis for calculating the control strategy for all the control elements of a sewer network, including weirs, pumps or valves. This ensures that the storage volume of the sewer network is utilized to optimum effect, enabling the even admission of wastewater to the sewage treatment plant. In this way, the SIWA Sewer Management System ensures optimum sewage treatment plant and sewer network operation, while reducing the discharge of wastewater into natural waterways. At the same time, all the important technical and operational restrictions of relevance to the creation of optimum plant schedules are taken into account. By using a special component library, the system can be conveniently adjusted to apply to any sewer network, making for rapid implementation.

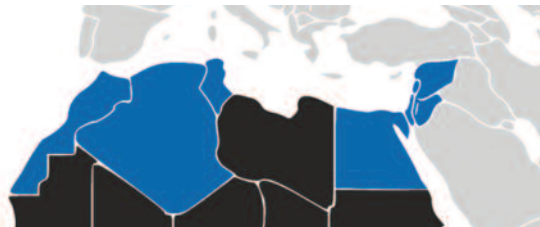
Ideal preparation for normal and exceptional situations

Also key to improving productivity in the water industry is the ability to simulate different scenarios. Using the computer-aided SIWA Concept and SIWA Secure systems, it is possible to virtually test pipeline networks. SIWA Concept calculates the hydraulic behavior of water supply systems, taking into account dynamic information from all measurement points to illustrate complex correlations and work flows. Scenarios can also be analyzed with varied hydraulic behavior or a changed automation model. By allowing automation functions to be tested without risk, SIWA Concept helps cut the time needed to implement a safe automation concept. Use of the module reduces the overall time and costs for engineering and commissioning. During the operating phase, SIWA Concept allows the operator to simulate the effects of different types of operation. These simulations also provide a valid basis for the evaluation of proposed plant expansion projects or capacity adjustments. Alongside the simulation of exceptional situations, SIWA OTS also provides an ideal method of training new recruits. Employees can be prepared offline for the various operating sequences and shown the right method of dealing with extreme situations without affecting the actual day-to-day running of the water supply.



Entire A cura di Andrea Fenzi

ENTIRE is a two year programme with the main objective to empower regional civil society networks to take an active role in Integrated Water Resources Management (IWRM) in the Southern Mediterranean Region (SMR) working in Algeria, Egypt, Jordan, Lebanon, Morocco, West Bank, the Gaza Strip, Syria and Tunisia. Targeted groups of the project are Civil Society Organisation (CSO) Networks: the Arab Countries Water



Utilities Association (ACWUA) and The Arab Network for Environment & Development (RAED) supported by the German Water Partnership (GWP) and the Collective Leadership Institute (CLI).

ACWUA and RAED and their members take part in workshops, multi-stakeholder events and trainings. These are developed and implemented by the CLI and the GWP with the aim of practice exchange and gaining methodological competence. While capacity building and best practice exchange is supported by GWP professionals' experiences, the method to lead result-driven engagement processes with different stakeholders is provided by the CLI as based upon their Dialogic Change Model.

Arab states should reconsider conventional water strategies —

With the region's water deficit projected to triple to 130 billion cubic meters by 2030, water demand management must be incorporated in water strategies, a senior government official said in February 2014. The expected deficit will necessitate projects estimated to cost Arab states \$200 billion by 2030, which will place further burdens on the region in terms of raising necessary funds and retrieving the project costs, Water Minister Hazem Nasser said.

"Because water sources in the Arab world are expected to drop by 20 per cent during the next two or three decades due to climate change, it is imperative for countries in the region to ensure sustainability of the existing water resources," the minister added at the opening of a workshop on integrated water resources management in the southern Mediterranean region.

Nasser underscored that Arab states, 66 per cent of whose water resources originate from outside the region, must take water demand management into consideration. "Arab states should reconsider their conventional water strategies, which primarily rely on increasing water resources and to a much lesser extent on demand management," he said.

The minister suggested involving local communities in the management of water resources, noting that the Kingdom's experience in this field has been

successful. "Jordan handed over the management of irrigation water distribution in the Jordan Valley to its farmers via water users' societies as of 2004. Now, 80 per cent of the irrigation water distribution is in the hands of local communities," Nasser told the participants at the one-day event. He also urged Arab countries to raise water use efficiency and public awareness on water shortage and its impact on socio-economic growth. During the workshop, co-organized by the Collective Leadership Institute, the Arab Countries Water Utilities Association (ACWUA), the Arab

Network for Environment and Development and the German Water Partnership, organisers launched a project to empower regional civil society networks to take an active role in integrated water resources management in the southern Mediterranean region (ENTIRE). ACWUA Secretary General Khaldoun Kashman said the ENTIRE project seeks to strengthen the role of civil society organizations working in Algeria, Egypt, Jordan, Lebanon, Morocco, West Bank, the Gaza Strip, Syria and Tunisia. Kashman noted that several activities will be implemented by the project, including training selected members on the stakeholders' dialogue methodology in integrated water resources management.

Bosch sold

A cura di Andrea Fenzi

The deal under which the production of crystalline photovoltaic cells and modules in Arnstadt will be sold by Bosch to SolarWorld has been closed. All the conditions for consummating the purchasing agreement signed in November 2013 have been fulfilled, including the approval of the antitrust authorities and the conclusion of a reconciliation of interests for the Bosch Solar Energy associates transferring to SolarWorld Industries-Thüringen

GmbH. The parties have agreed not to disclose any details of contractual conditions. In total, 1,000 of the currently 1,400 jobs at the Arnstadt location have been preserved. "We have achieved our goal of selling parts of the operation and relocating an alternative Bosch business, and in this way of offering jobs to as many associates as possible," said Dr. Volmar Denner, Chairman of the Board of Management of Robert Bosch GmbH. "In this way, we can offer a perspective for the large majority of associates instead of closing the site. We have invested a lot of time and considerable sums of money in making this possible." In addition to the roughly 800 associates who are transferring to SolarWorld, Bosch will employ a total of roughly 250 associates at the Arnstadt location. The Bosch service organization and trading company have already commenced operations. From the autumn of 2014, Bosch will also be manufacturing an automotive electronic product in Arnstadt. The preliminary preparations are currently underway. In addition, negotiations are being held with the employee representatives to discuss the reconciliation of interests and social compensation plan for those associates not transferring to SolarWorld Industries-Thüringen GmbH. Despite increased efforts by Bosch, together with the Thuringian government and state development corporation, the potential investor from the pharmaceuticals industry has abandoned its original plans to manufacture in Arnstadt, citing business reasons. The acquisition – which was initially announced last year – adds 700 MW of production capacity to SolarWorld's value chain, swelling its overall cell output potential to more than 1 GW, making the company the largest manufacturer of solar power technology outside of Asia. "SolarWorld offers a counterpoint to solar manufacturing in China," said SolarWorld AG CEO Frank Asbeck. "We rely on highly automated production processes so that we can minimize failure rates and guarantee the highest quality." The takeover of the Bosch Solar Energy plant follows a prolonged round of financial restructuring for the SolarWorld Group, of which the final stages were only completed in February. For Bosch, the sale was the best possible case scenario for the company's solar division, which had always earmarked March 2014 as the date it would exit the solar market.



Ambiente 2014

A cura di Olga Gerke

Registrando un incremento di visitatori del 3,5% si è conclusa a Francoforte l'edizione di Ambiente che ha riscosso il maggiore successo da oltre dieci anni. Nel complesso hanno visitato la fiera leader mondiale del settore dei beni di consumo 144.000 buyer provenienti da 161 paesi. Durante le cinque giornate tutte le tendenze e le innovazioni più interessanti per la nuova stagione commerciale (e non aggiungiamo noi) occupando la stessa superficie dello scorso anno (329.300 metri quadrati lordi). "Ambiente non è mai stata così internazionale e così importante per il settore. Ce lo conferma il suo posizionamento come fiera leader mondiale del mercato dei beni di consumo. Il clima favorevole ai consumi che si respira in Germania e la ripresa della congiuntura mondiale sono fattori che giocano a nostro vantaggio", ha dichiarato Detlef Braun, membro del comitato direttivo di Messe Frankfurt GmbH.

Oltre la metà degli operatori che hanno visitato Ambiente 2014 proveniva dall'estero. Le 10 nazioni maggiormente rappresentate tra i visitatori sono state l'Italia, la Francia, i Paesi Bassi, gli USA, la Gran Bretagna, la Svizzera, la Spagna, la Cina, la Turchia e la Russia. In particolar modo sono aumentati i visitatori che dall'est europeo e dalla penisola araba si sono recati a Francoforte. Passando a tracciare qualche indicazione proveniente dalle aziende espositrici citiamo il parere di Hamid Yazdtschi A.D. di Gilde-Handwerk Macrander GmbH & Co.KG che ha dichiarato che il numero di visitatori è a suo parere "persino maggiore della scorsa edizione di Ambiente. L'internazionalità della fiera rappresenta per l'intero gruppo Gilde uno dei criteri qualitativi a favore della piazza fieristica di Francoforte." Una valutazione condivisa anche da Lars Adler, amministratore delegato di Hoff Interieur: "Per noi è stata molto positiva la crescita del grado d'internazionalità della manifestazione; nel nostro stand abbiamo accolto molti buyer provenienti soprattutto da paesi come la Turchia ma anche dall'est europeo, ma anche l'afflusso di visitatori da Francia, Italia e Spagna è stato considerevole. Possiamo dire che Ambiente ha dunque confermato la sua posizione leader."

L'impressione è che l'atmosfera sia decisamente più positiva. Il clima favorevole ai consumi in Germania e la lieve ripresa della congiuntura mondiale si fanno sentire, in Germania. I commercianti sono predisposti agli acquisti, il clima è positivo e i compratori hanno fiducia sia nei prodotti esposti che nel mercato. Ambiente è semplicemente il punto d'incontro per tutti coloro che puntano sul design. ECO DESIGN MAGAZINE non poteva mancare a questa manifestazione, nonostante l'accavalarsi di eventi in questo mese di Febbraio 2014. Nel 2014 Ambiente ha confermato il proprio ruolo di piattaforma delle tendenze e del design di tutto il settore. Nel corso delle cinque giornate fieristiche a Francoforte si sono svolte numerose mostre speciali, visite guidate dei trendshow e premiazioni. Tra questi eventi va segnalato il trendshow dell'atelier di moda bora, herke, palmisano nell'ambito del quale sono stati presentati quattro diversi stili che caratterizzeranno gli

assortimenti della prossima stagione. Grande interesse ha suscitato anche la mostra speciale legata al concorso Design Plus Award. Il Giappone è stato nel 2014 il paese partner: la terra del sorriso ha presentato un Design innovativo, un linguaggio formale chiaro e un artigianato artistico tradizionale abbinati ad una buona dose di colorata gioia di vivere: ecco gli ingredienti che rendono così unici i prodotti made in Japan. Queste caratteristiche sono emerse chiaramente nella mostra speciale "Super Ennichi" allestita dal designer giapponese Yukio Hashimoto nell'ambito del programma paese partner di Ambiente 2014. L'evento clou è stata la giornata di lunedì specificamente dedicata al Giappone. Il paese del Sol Levante è stato celebrato con numerose manifestazioni e iniziative tra cui un dibattito su come avviare con successo un'azienda sul mercato giapponese e una visita della fiera in compagnia dell'attrice e modella Rila Fukushima. Nella serata di lunedì è stato reso omaggio anche al futuro paese partner di Ambiente, gli Stati Uniti, che nel 2015 si presenteranno con un ampio programma di eventi collaterali.

Il design al servizio dell'utilità

I tempi in cui gli oggetti d'uso quotidiano venivano snobbati dal design sono ormai finiti. Oggi persino gli estintori presentano un design sorprendente oppure vengono fatti scomparire in accattivanti rivestimenti. Rilevatori di fumo salvavita se ne stanno spavalidamente posati sul soffitto come fossero mosche o macchie colorate. E per coloro che sono sempre alla ricerca di una scarica di energia è stata pensata una collezione di lattine, scatole e cassetiere a forma di vecchie batterie. Cuffie e auricolari trendy, scatole bluetooth mobili e raffinati sistemi musicali sono ormai parte integrante dell'universo degli articoli da regalo. All'ultimo grido è uno stereo portatile in cartone con connessione per iPhone. Ora i gadget digitali sono accompagnati da analoghi complementi d'arredo e utensili da cucina. Nessun freno viene posto alla fantasia: la buona vecchia cassetta audio/video si presenta come un cuscino e una fodera per vassoi, l'LP in vinile come un cutter per pizza e l'equalizzatore come un portachiavi.

Il trend „Upcyclin

Acquistano sempre maggiore importanza nuove soluzioni studiate per un migliore utilizzo delle risorse naturali. Una di queste è l'upcycling adottata da un numero crescente di produttori. Fra le materie prime utilizzate compaiono oltre alla tela per vele e i teloni per autocarri anche i giubbotti di salvataggio, i paracaduti e le manichette antincendio trasformate in borse, portabottiglie e fermaporte. Molti progetti coniugano ecologia e impegno sociale come quello che ha interessato il Burkina Faso, dove i sacchi di cemento sono stati trasformati in accattivanti cesti per ogni uso.

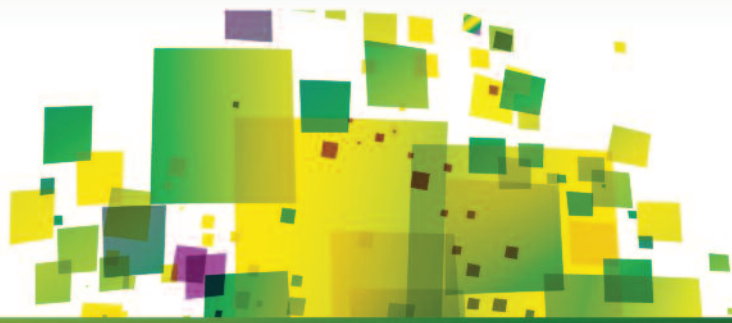
Beauty & Wellness

Un profumo gradevole è benessere per l'anima. In primavera le candele con note floreali che ravvivano le anime stanche dell'inverno, come l'ibisco, sono seguite in estate da aromi rinfrescanti al limone. In sintonia con gli aromi fruttati i produttori più creativi propongono le loro candele aromatizzate alla frutta. Sempre più raffinati e creativi si presentano anche i profumatori per ambienti, dove, per esempio, erba e fiori di carta fungono da diffusori. Esclusivi brand orientali che i frequent traveller hanno magari avuto modo di conoscere negli hotel di design, sono ora presenti anche nel commercio europeo. Le perle da bagno, indipendentemente da come si presentano – molto colorate o come prelibate tortine - puntano su ingredienti naturali e di alta qualità. Le vere intenditrici scelgono per una pausa rigenerante perle da bagno alla rosa, lavanda e lime.

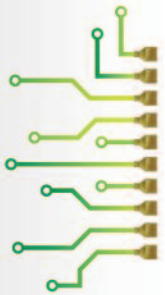
Il seducente oro rosa

Delicatezza e femminilità: in linea con la moda attuale nei bijoux e negli accessori personali dominano l'oro rosa e l'elegante color carne. Must assoluto della primavera sono i colori pastello e cipriati nelle nuance rosa, salmone e albicocca. Nella scala dei toni freddi l'abbinamento verde menta e argento ha un effetto rinfrescante, mentre il petrolio e il blu nelle nuance più soft vengono accostati al turchese e al verde mare. Collane, anelli, bracciali e braccialetti da collezione sono finemente lavorati e ricchi di particolari. Sempre maggiore importanza stanno acquisendo le „collane che parlano": collier grandi, spesso molto lavorati, che riempiono l'intero décolleté e rappresentano una coraggiosa dichiarazione di moda. Leggermente più discreti si fanno i motivi in merletti e collane tattoo, di una speciale gomma anallergica ed ecologica, indossabile anche mentre si fa sport.





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OLED Measurement

A cura di Andrea Fenzi

During the Berlin IDtechEX Event the swiss company Fluxim exposing the new system e the new software about OLED measurement.

These simulation products are intended to facilitate and accelerate device design and characterization tasks in industrial and academic R&D labs. Platform for all-in-one TThe traditional solution for testing and simulation software usually need a complex harware (and software) system. In this article we write about a traditional provider for Organic Electronics and Photovoltaics that offer to the market a new compact solutions. Setting up steady-state and transient opto-electrical characterization equipment can be tedious and time-consuming. Commonly, dedicated set-ups are developed for different types of measurements with some level of automation. Often, the data sets cannot directly be compared due to experimental uncertainties involved with different hardware. This makes device optimization and parameter extraction a challenging task. Without reliable measurements for parameter extraction one cannot validate models and reveal the predictive power of device simulation. Paios for OLEDs use this kind of asset: a white high-power LED illuminates the solar cell a high-speed photodetector measures the transient electroluminescence of the OLEDs. Other types of LEDs are available.

The software **setfos** is suitable for the simulation of the operation of optoelectronic multilayer devices. The scope of applications includes :Light-emitting devices (LEDs, OLEDs), Light-harvesting devices (solar cells), Optical coatings and passive optics interference-based devices, Semiconducting devices (diodes) The dipole emission model implemented in **setfos** is a well established model for light emission from multilayered structures such as OLEDs and VCSELs.

The implemented charge drift-diffusion equations allow for the simulation of electronic device characteristics. The advanced transfer matrix formalism executed by **setfos** allows the optical characterization of

any combination of coherent and incoherent layers for maximum optical design freedom.

La tecnologia a LED rivoluziona il design e l'illuminotecnica

A cura di Andrea Fenzi

Basta lanciare uno sguardo al settore delle lampade e agli enormi progressi conseguiti nell'illuminazione a tecnologia LED per poter dire con certezza che il futuro appartiene a questa tecnologia. E questo non a caso considerando i vantaggi offerti dai diodi a emissione luminosa. Questi infatti consumano poca energia, durano a lungo e inoltre sono altamente compatibili con i moderni sistemi di controllo dell'illuminazione. E anche per quanto riguarda la qualità e il colore della luce, il LED oggi giorno non ha nulla da invidiare alla tradizionale lampadina a incandescenza. Non stupisce dunque che aziende e designer siano accesi da un incontenibile desiderio di conferire nuove forme alle luci LED.

Creatività senza confini

I designer e gli eco designer in particolare si trovano ad affrontare sfide insolite nella realizzazione di progetti basati sull'uso della tecnologia LED. Nell'era pre - LED qualsiasi lampada d'interni possedeva almeno una costante, ovvero un attacco per la sostituzione della lampadina. Questo componente oggi non è più necessario. E così i punti luce a LED si prestano a libertà creative completamente nuove: l'altezza d'ingombro ridotta e lo sviluppo di calore contenuto rendono ormai superfluo optare per la tradizionale lampada composta da corpo, attacco e testa. Il LED consente di adottare nuove varianti di dispositivi di controllo e grazie al suo lungo ciclo di vita pari a diverse decine di anni può essere montato nella lampada in maniera fissa – solitamente non occorre più sostituire la lampadina.

Visibile

La voglia di sperimentare emerge chiaramente dal lavoro di molti designer. Finalmente si possono realizzare linee e forme

geometriche ed essenziali; fasci di luce e singoli punti luminosi vengono integrati in elementi sospesi estremamente filigranati e in corpi piatti che fino a poco tempo fa sarebbero stati assolutamente impensabili. Al posto della lampada è piuttosto la luce a essere messa in scena. Raggi di luce diventano così l'elemento di design dominante. L'uso di lucenti superfici luminose e di involucri estremamente piatti permette di realizzare innovativi scenari in cui il LED vero e proprio resta in secondo piano o addirittura non si vede affatto. Tuttavia ogni trend ha il suo opposto: da una parte troviamo severe geometrie e un omaggio alle moderne tecnologie, dall'altra parte materiali che incarnano una tendenza a tutto ciò che è fisico, tradizionale e familiare. Le moderne luci LED vengono dunque combinate con materiali naturali, grezzi o ispirati al mondo industriale come l'ottone, la ceramica, il vetro ma anche il calcestruzzo e la carta.

Prospettive e luci

Sfruttare le enormi opportunità offerte dal LED sia a livello tecnico che progettuale, perfezionarle e adattare al proprio portafoglio di prodotti è il lavoro pionieristico in cui le aziende del settore dell'illuminazione si stanno cimentando con entusiasmo e successo. E mentre il LED sta rapidamente prendendo piede nel mondo dell'illuminazione, molti produttori stanno già lavorando alla prossima sfida: perfezionare i diodi organici a emissione luminosa, i cosiddetti OLED. Mentre i LED creano un punto luce, gli OLED producono una superficie luminosa. Grazie alle loro dimensioni ridotte, anche in questo caso si hanno a disposizione innumerevoli opportunità, come ad esempio quella di illuminare tessuti, oggetti o intere pareti. Gli OLED non fanno in alcun modo concorrenza ai LED, ma piuttosto rappresentano un completamento intelligente ed efficiente in termini di consumi energetici. Probabilmente in futuro i LED a controllo automatizzato garantiranno un'illuminazione generale dinamica e saranno integrati dalla luce irradiata indirettamente dagli OLED sulle pareti e sul soffitto. Le superfici luminose delle lampade OLED creano un'atmosfera futuristica, tappezzeria e tessuti risplendono all'occorrenza di una luce tenue e, quando fuori si fa buio, la pellicola OLED applicata alla finestra simula la luce del giorno. Questa nuova fonte luminosa offre già oggi entusiasmi e innovative possibilità d'illuminazione e si colloca nel bel mezzo di un processo di sviluppo di cui non si può prevedere la fine. Non resta dunque che scoprire quali innovative e brillanti idee hanno in serbo i LED e gli OLED per il presente e il futuro.



Nord Stream

A cura di Armando Zecchi

Nord Stream meets the highest international environmental standards in implementing the pipeline project and observes national and international environmental, maritime and legal requirements during construction, testing and operation of the pipeline. It conforms to internationally recognised operational practices and the rigorous standards of the company and its shareholders. Nord Stream conducted the most comprehensive environmental studies of the Baltic Sea to date, investing more than 100 million euros on detailed environmental studies and project planning to assess and subsequently minimise environmental impact. More than 40,000 kilometres of geophysical surveys were conducted, with thousands of objects on the seabed inspected.

Safeguarding the Environment during Construction

In order to safeguard the environment during and after construction, Nord Stream also developed **Environmental and Social Monitoring Programmes (ESMPs)**, which run through 2016. The data gathered provide important information to future research projects studying the Baltic Sea environment. Nord Stream is committed, through national and international agreements, to carrying out all work safely and in an environmentally responsible manner. In order to obtain the **permits** necessary to begin construction of the twin pipeline system, an Environmental Impact Assessment (EIA) was carried out for each country through whose waters the pipelines cross: Russia, Finland, Sweden, Denmark and Germany. In the EIAs, Nord Stream stated that the construction and operation of the pipelines will have only minor impacts on the environment, and ESMPs are



in place to determine just how, and if, the Baltic Sea's flora and fauna have been impacted in any way by the construction.

High Standards Upheld at Every Stage

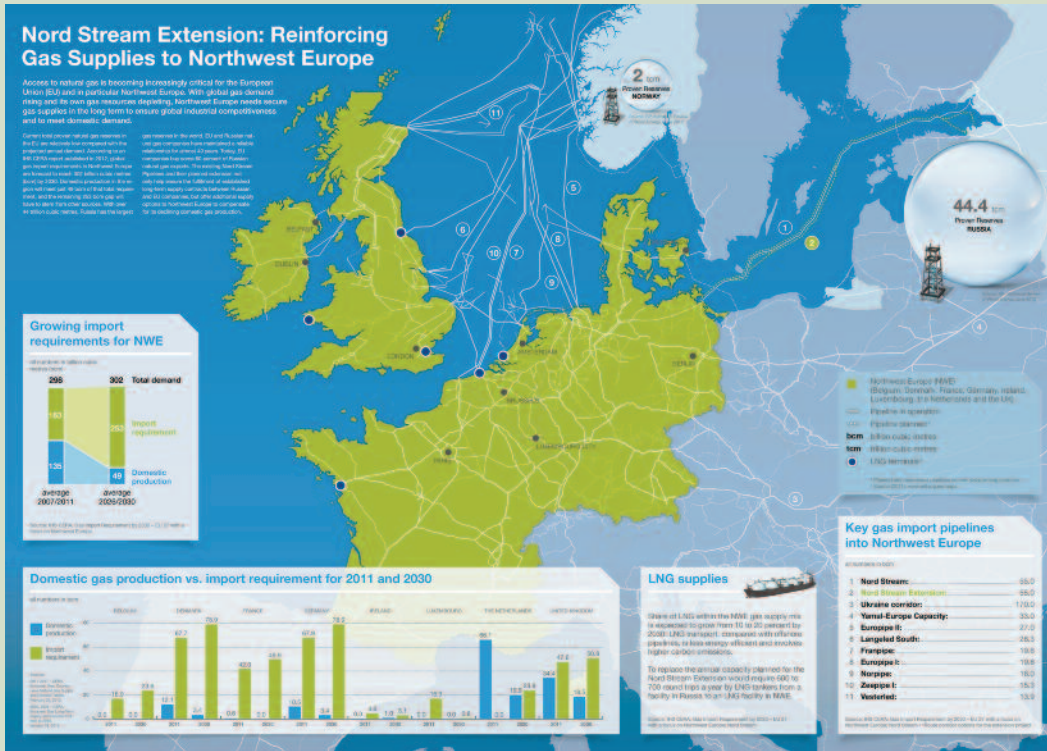
Nord Stream's safety standards and ESMPs ensure that everyone engaged in all the major stages of the project, including construction, pipeline testing (pre-commissioning), putting the pipeline into service (commissioning), and full operation has a

consistent approach towards the environment. The Nord Stream Pipeline will be operated with the same regard for the ecosystem as is applied during its construction. The company intends it to be the safest pipeline possible.

Successfully Completed

Dec. 5, 2013 As of 6:00 CET today, Nord Stream has successfully completed the final 30-day test of the pipeline system. The industry-standard test

confirms the safety and reliability of the integrated twin-pipeline gas transportation system. The completion of the NEL-Pipeline in early November allowed for a test phase involving the connected pipelines. Since the start of operations in November 2011, Nord Stream continues to transport all the gas nominated and supplied by Gazprom Export to its downstream European partners



Mercato Domotica

A cura Andrea Fenzi

This article is about Domotic Market and trends in Italy. Many segments are estimated with informations by several Italian associations. Questo documento è stato realizzato da Tecnoservizi SRL sulla base di varie documentazioni e collaborazioni con varie società di settore.

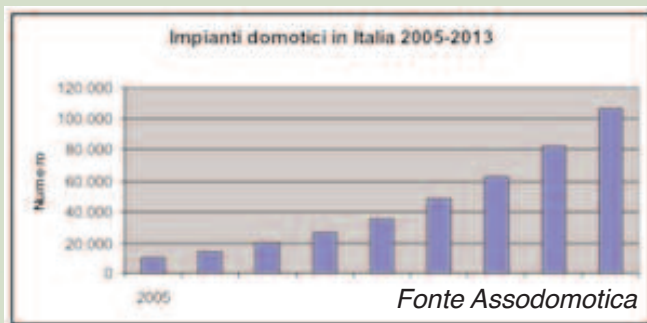
Introduzione

Dal punto di vista del consumatore, una casa intelligente rappresenta più di un semplice gadget di alta tecnologia. Qualsiasi casa rappresenta un impegno a lungo termine e un investimento significativo, ma una casa intelligente comporta cambiare lo stile di vita nel modo in cui è condotta la vita quotidiana. Precedenti innovazioni (ad esempio: il televisive, il computer di casa) hanno prodotto significativi cambiamenti sociali ma la casa intelligente creerà cambiamenti ancora più significativi. Da un punto di vista professionale lo sviluppo dei mercati della domotica, della building automation e della sicurezza industriale va sicuramente al di là del semplice mercato consumer, ponendosi di fronte ad uno scenario internazionale in grande evoluzione, come testimoniano i fatturati di esportazione. Sono richieste soluzioni basate su standard aperti, deve esistere la possibilità di cambiare il sistema o un servizio senza una riprogettazione importante degli impianti. Ciò sta alla base dello sviluppo industriale. Lo sviluppo del mercato richiede anche la diffusione del know-how sulle tecnologie e sull'integrazione dei sistemi, è richiesta comunque una maggiore interazione tra i "system integrator" e i produttori di tecnologie.

Il mercato della domotica

Lo sviluppo della domotica sta raggiungendo

in Italia un momento maturo, siamo infatti giunti nel momento della crescita, grazie anche ad una migliore comunicazione sull'argomento. Gli utenti potenziali sono sempre più consapevoli del valore dell'integrazione impiantistica e funzionale che crea benefici in ordine a maggior sicurezza, comfort, risparmio energetico e facilità d'uso. Anche i costruttori edili mostrano un maggior interesse verso la domotica, come motore di crescita del valore dell'abitazione e motivo di aumento della competitività della propria offerta. Inoltre la proposta di soluzioni domotiche è sempre più accattivante, sia come semplici automazioni sia come sistemi con funzioni avanzate e livelli di integrazione elevata. Il mutamento generale della logica abitativa orientata verso spazi flessibili, non tanto in senso fisico quanto in senso funzionale, impone un collegamento tra le nuove tecnologie e la logica comportamentale degli utenti di abitazioni. L'esigenza di una integrazione tra progettazione degli apparecchi per la casa e progettazione dello spazio abitativo può favorire l'affermarsi di progettisti "high-tech" orientati ad un allargamento del supporto tecnologico all'abitare. Il mercato della domotica in Italia è nella fase di sviluppo con trend di crescita che, secondo la nostra elaborazione sui dati forniti da Assodomotica, si manterranno intorno al 30% nei pros-



simi 5 anni (fino al 2019) L'attuale tendenza degli utenti è di realizzare impianti domotici in abitazioni nuove o ristrutturate, in Italia si costruiscono circa **300.000 abitazioni nuove all'anno** e se ne ristrutturano circa **700.000** con il completo rifacimento dell'impiantistica. Nel 40% dei casi, questo milione di proprietari è molto interessato alla sicurezza, denotando quindi, una maggior attenzione a questo problema di quanto non accada mediamente nel resto dell'Europa. I dati forniti da Assodomotica testimoniano un passaggio dai 10.000 impianti domotici realizzati nel 2005 agli oltre 100.000 impianti nel 2013, e una stima (elaborazione TECNOSERVIZI sui dati ASSODOMOTICA) di oltre **400.000** impianti base nel 2019. Questa tendenza sta già inserendosi normalmente nelle dotazioni a capitolato fornite dalle imprese di costruzioni, che impianti avanzati con elevati livelli di personalizzazione. Il valore complessivo di tali impianti è passato dai 42 milioni di euro nel 2005 a 440 milioni di euro nel 2013 (Fonte ASSODOMOTICA). La stima Tecnoservizi, su dati ASSODOMOTICA E ANIE **è quella di superare i 3 miliardi di euro nel 2019**. Tale valutazione riguarda complessivamente i prodotti e i servizi legati alla realizzazione delle funzioni domotiche negli impianti tradizionali, senza trascurare i prodotti e i servizi di normale fornitura, necessari per l'infrastruttura degli impianti. Analizzando il mercato dallato della offerta, possiamo dire che l'industria italiana fornitrice di tecnologie per Building Automation e Domotica e Sicurezza si caratterizza per una consolidata eccellenza tecnologica all'interno del settore industriale nazionale. Tale comparto è espressione a fine 2012 di un **fatturato totale aggregato pari a quasi 2 miliardi di euro** (Dato ANIE Sicurezza) **Le principali tendenze nel 2012...** Dopo la performance positiva mostrata nel 2011, nel 2012 il comparto Domotica ha mantenuto una sostanziale stabilità nell'andamento del fatturato totale (+1,3 per cento). La costante vocazione all'innovazione tecnologica continua a costituire un elemento chiave a sostegno della sviluppo settoriale

L'INDUSTRIA DELLA SICUREZZA E AUTOMAZIONE EDIFICI					
	2010	2011	2012	2011/2010	2012/2011
	milioni di euro, valori a prezzi correnti			variazioni %	
MERCATO INTERNO	1.684	1.732	1.778	2,9	2,7
FATTURATO TOTALE	1.829	1.919	1.944	4,8	1,3
ESPORTAZIONI	203	259	263	27,3	1,5
IMPORTAZIONI	58	72	97	25,1	34,3
BILANCIA COMMERCIALE	148	187	166		

ANDAMENTO DEL FATTURATO PER SINGOLI SEGMENTI DEL COMPARTO	
	2012/2011
Fatturato	variazioni %
ANTINCENDIO	0,8
ANTINTRUSIONE	1,7
di cui:	
Antintrusione e sistemi di monitoraggio centralizzati	-7,7
Controllo accessi	0,5
TVCC	5,2
BUILDING AUTOMATION	0,9

anche in una fase congiunturale difficile come l'attuale. L'evoluzione complessiva di comparto è frutto di dinamiche differenziate. Nel 2012 ha evidenziato una maggiore dinamicità il segmento della Videosorveglianza che ricopre, grazie ai crescenti fenomeni di sostituzione tecnologica, un ruolo trainante fra le merceologie rivolte al settore della sicurezza. Pur in un contesto di mancato riavvio del ciclo economico nel mercato delle Costruzioni, l'innovazione tecnologica continua a sostenere la domanda di soluzioni innovative per la building automation. Il segmento del Controllo accessi ha evidenziato indicazioni di sostanziale stabilità, parzialmente penalizzato dalla caduta degli investimenti nel settore non residenziale. Più in generale la crisi economica, favorendo gli squilibri sociali, si riflette sulla domanda di sicurezza in ambito urbano e sulle modalità di fruizione dei servizi pubblici. Questi aspetti alimentano una crescente richiesta di tecnologie per la sicurezza sempre più evolute ed integrate. Fra le maggiori criticità di scenario con cui si confrontano gli operatori di comparto si annoverano i ritardati pagamenti e fenomeni di downpricing che non premiano adeguatamente la creazione del valore e l'attenzione alla qualità.

Nel 2012 in un contesto internazionale più critico le esportazioni di tecnologie per la sicurezza, pur mantenendosi in territorio positivo, hanno registrato rispetto all'anno precedente un ridimensionamento del tasso di crescita (+1,5 per cento). Nel periodo più recente le imprese stanno gradualmente aprendosi ai mercati esteri. La tenuta della domanda europea ha beneficiato della crescita del mercato nel Regno Unito, Paese interessato da importanti investimenti per gli avvenimenti sportivi realizzati. Esportazioni di tecnologie per la sicurezza, pur mantenendosi in territorio positivo, hanno registrato rispetto all'anno precedente un ridimensionamento del tasso di crescita (+1,5 per cento). Nel periodo più recente le imprese stanno gradualmente aprendosi ai mercati esteri. La tenuta della domanda europea ha beneficiato della crescita del mercato nel Regno Unito, Paese interessato da importanti investimenti per gli avvenimenti sportivi realizzati.

2013

Secondo i dati attualmente disponibili, nel primo semestre del 2013 l'industria italiana del settore (Domotica) ha sperimentato una inversione di tendenza, evidenziando una flessione del fatturato totale del 2,0 per cento nel confronto con il secondo semestre del 2012. Anche rispetto al primo semestre del 2012 il dato è negativo, con un calo tendenziale vicino all'1,0 per cento. L'andamento soffre la perdurante debolezza degli investimenti nel territorio nazionale, elemento che era stato in parte contrastato nel periodo precedente grazie alla forte spinta all'innovazione tecnologica. L'onda lunga della crisi ha raggiunto anche il comparto, che nel 2012 aveva mostrato una maggiore tenuta rispetto ai settori industriali che hanno come principale mercato di sbocco le Costruzioni.

Nel 2013, pur in uno scenario internazionale complesso, il canale estero continua invece a fornire un contributo positivo allo sviluppo di comparto. A compensazione di una domanda interna debole, negli ultimi anni gli operatori della Sicurezza hanno guardato con crescente attenzione ai mercati esteri avviando un graduale percorso di internazionalizzazione. Fra i principali mercati di sbocco verso cui si sono orientate le strategie di apertura ai mercati esteri delle imprese si annoverano i **Paesi dell'Est Europa**, aree caratterizzate da una maggiore tenuta degli investimenti edili. Le strategie di internazionalizzazione nel comparto si caratterizzano prevalentemente per un orientamento a "medio raggio", che privilegia la vicinanza nell'ambito del tradizionale baricentro europeo.

A fine 2012 oltre il 75 per cento delle esportazioni di tecnologie sono state rivolte all'Unione europea. In un quadro congiunturale pervaso da una crescente incertezza e in un mercato in profonda trasformazione, innovazione tecnologica e apertura ai nuovi mercati si confermano i principali driver per la domanda di comparto nel più lungo periodo.



Didascalìa Foto Pagina 22

I relatori della Conferenza sulla Domotica BIAC 2013 Tallin Estonia. Da sinistra: Architetto Mandarini, Ing. Zecchi, con i responsabili di una delle società sponsor (New Jolly Studio)

Stime 2014 – 2019

Basandosi sui dati disponibili (ANIE, ASSOAUTOMAZIONE) l'elaborazione TECNOSERVIZI prevede, come già indicato, un notevole sviluppo complessivo della domanda, in virtù di una ripresa internazionale più che di una ripresa nazionale. **Il valore aggregato complessivo stimato per il 2019 è di circa 3 miliardi di euro.** Automazione Cancelli e Porte

Un altro mercato parallelo e fortemente inserito nel contesto economico della domotica e sicurezza industriale a riferimento è quello degli **Ascensori e dei Sistemi di chiusura (Porte e Cancelli)**

L'ascensore è il mezzo di trasporto in assoluto **più utilizzato al mondo**, ma è anche tra i più vecchi in circolazione: su quasi **1 milione di impianti** in servizio in Italia, circa **il 40% (400.000) ha più di 30 anni** e **almeno il 60% (600.000) non è dotato delle moderne tecnologie** che garantiscono un mag-

giore livello di sicurezza per gli utenti. di **AssoAscensori**, associazione aderente ad **ANIE Confindustria**, ha presentato il 4. Ottobre i dati sullo stato dell'arte di ascensori e scale mobili nel nostro Paese. Nell'ottica di aumentare la sicurezza degli utenti, sono state illustrate le stime di incidenti e infortuni su questo mezzo di trasporto, le loro principali cause e le misure per prevenirli. Secondo lo studio di AssoAscensori, l'invecchiamento crescente degli ascensori in funzione costituisce la **principale causa di infortunio** per gli utenti e compromette sempre più la sicurezza del mezzo. Una tecnologia antiquata, infatti, dà vita a una serie di **situazioni di rischio: un terzo degli incidenti** in ascensore denunciati in Europa ogni anno sono causati dalla presenza di **dislivello** perché la **precisione di arresto al piano** non si rivela adeguata; **l'urto con le porte** che si chiudono rappresenta la seconda causa di infortunio, soprattutto nel caso di persone anziane, mentre **l'intrappolamento in cabina** fa registrare gravi conseguenze soprattutto a persone cardiopatiche o claustrofobiche. Un ammodernamento degli impianti esistenti con **tecnologie all'avanguardia** consentirebbe di superare i limiti degli ascensori più vecchi e

garantire lo stesso livello di sicurezza a tutti gli utenti, riducendo il numero di incidenti. Un beneficio alla sicurezza che si anche traduce in risparmio energetico e in agevolazioni economiche: l'utente che decide di realizzare tali opere di ammodernamento, infatti, può usufruire del **bonus ristrutturazioni**, fissato fino alla fine dell'anno al **50%**, con un parziale rimborso dei costi sostenuti sotto forma di **detrazioni fiscali**. Secondo le **stime di AssoAscensori** per lo scorso anno, gli incidenti ad utenti e ad addetti ai lavori sono stati **più di 1.300**, alcuni dei quali con **conseguenze gravi o addirittura mortali**, in percentuale nettamente superiore per gli ascensori (73% del totale degli infortuni) rispetto a quelli avvenuti su scale e marciapiedi mobili (27%). Il confronto darebbe risultati differenti ponderando il numero di

eventi al **numero di impianti**, considerato che in Italia sono in funzione quasi 1 milione di ascensori, mentre il parco di scale e marciapiedi mobili è quantificato nell'ordine dei 10 mila impianti, pari all'1% del totale. La causa più frequente di incidente su scale e marciapiedi mobili è di gran lunga la **caduta** (83% dei casi), seguita dallo **scivolamento** (10%). Ad oggi, fatta eccezione per quanto stabilito in materia di sicurezza sui luoghi di lavoro, in Italia l'adeguamento del parco esistente è lasciato a **discrezione e connessa responsabilità del proprietario**. La maggior parte degli Stati che fanno parte dell'Unione Europea, infatti, a differenza del nostro Paese, ha recepito la **Raccomandazione 95/216/CE** per l'adeguamento della sicurezza degli **ascensori installati prima del luglio 1999**, che attraverso moderne tecnologie consentirebbe di superare i limiti degli impianti più vecchi.

TELECONTROLLO UNO SGUARDO D'INSIEME SULLE PUBLIC UTILITIES



Stazione remota connessa ad internet/LAN in rete cablata o GPRS/UMTS mediante Web Server

M2M via Modbus TCP. Gateway tra protocolli standard / proprietari

Supervisione, Monitoraggio, Data logging remoto o locale su SDCard (invio via FTP)

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Dye Sensitized Solar Cells Market
A cura di Andrea Fenzi

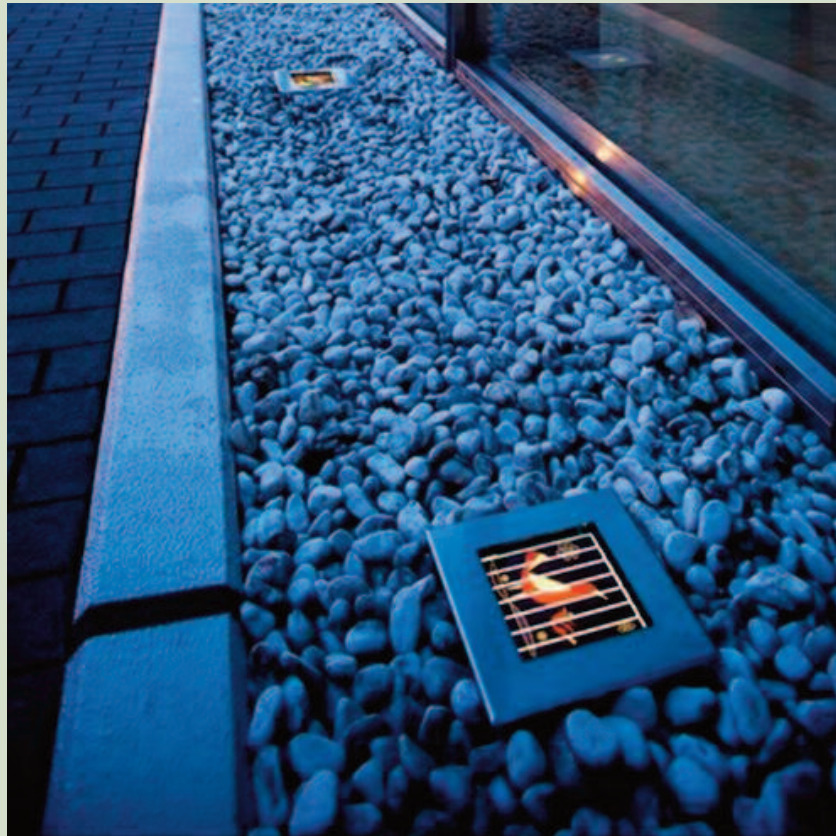
The market for dye sensitized solar cells (DSSCs) is forecasted to slowly grow to over \$130 million by 2023 according to market research company IDTechEx.

Although initial products are aimed towards indoor, portable applications such as solar chargers, solar bags and solar wireless keyboards, the end game for DSSCs is the ability to have these largely inexpensive solar cells incorporated into a wider variety of product offering, including larger installations. For that purpose, development work is being undertaken in order to produce prototypes and demonstrators of DSSCs being utilised in applications such as bus shelters, steel roofing and others such as facades, semi-transparent windows etc.

As can be seen from the chart below, in the next few years applications for portable electronics will remain the most popular application in which DSSCs will be deployed but in later years the scene is going to change. A larger share will be taken over by applications such as smart labels, the currently nascent sector of energy harvesting for wireless sensor networks as well as applications in photovoltaics (PV) for developing countries and building integrated solutions. As described in more detail in the report, mobile electronics and automotive integration will remain limited, mainly due to the power output demands for these demanding but also cost-sensitive market segments.

In Figure 1 you can see DSSC market division by application to 2018. The current dominant sector of application of DSSCs is in portable electronics but it will eventually become one of several market segments in which DSSCs will penetrate in the next decade. Source: IDTechEx Research report "Dye Sensitized Solar Cells (DSSC/DSC) 2013-2023: Technologies, Markets, Players"

Companies in the value chain: Established players and new entrants



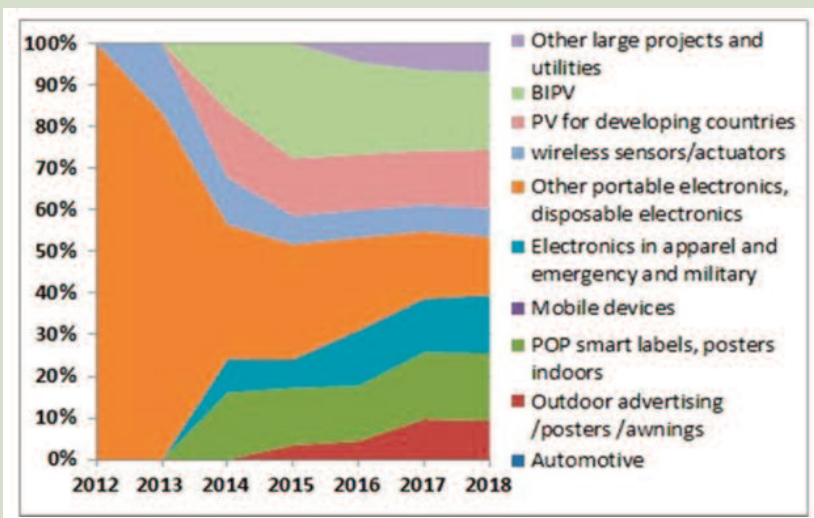
The difficulties in the PV industry in recent years have had their impact on dye sensitized solar cells; the slow growth of the market for the technology being testimony to the effects of the PV industry slowdown. With DSSC technology being part of a third generation of PV devices the market conditions have been especially challenging.

Regardless of this fact, there has been activity that showcases that developments in the DSSC industry are continuing: established companies such as Dyesol continue their work on large scale installations in collaboration with Tata Steel in North Wales, UK. G24 Innovations, after going into administration a few months ago is now under new management and has renamed itself G24i Power, continuing their commercialization efforts. NLAB has also been re-vamped and is now called Exeger and having received a US\$20 million dollar in-

vestment is proceeding with building a 20MW production line in Stockholm, Sweden, in which they will further develop their DSSCs incorporating their proprietary 1DPC (1-dimensional photonic crystal) technology.

Earlier in the value chain Solaronix is still one of the best established materials providers for DSSCs but is also currently involved in the manufacture of DSSC modules, which will be utilized in a façade commissioned by the EPFL in Lausanne, planned to be completed at the end of 2013. As a newer entrant, Dyenamo of Sweden is focusing on developing innovative material solutions but also offers design and integration services, "samples on demand" as well as consultancy services to their customers.

Finally, it is not just European companies pushing ahead with DSSC developments. Although multinational giants Sharp and Sony seem to be winding down their DSSC operations and are focusing on other products, Nissha Printing in Japan is actively engaged with further developing its proprietary EneLEAF™ DSSC technology, while CSIRO in Australia recently became part of a consortium that has been given funding for an US\$80 million, 8 year project to create a joint Australia-USA research centre on Advanced Photovoltaics. The lead partner is the University of New South Wales but it includes all of the major research groups working on PV in Australia. In Figure 2. Nissha's Akarie solar lamp, incorporating the company's EneLEAF™ technology. Source: Nissha Printing



La mobilità nuova a Citytech

A cura di armando Zecchi

Si è svolto il 28 -29 ottobre 2013 a Milano CITYTECH, l'evento dedicato alla mobilità del terzo millennio, inaugurato con un'anteprima esclusiva del Libro Bianco sulla Mobilità e i Trasporti in Italia di Eurispes. La Sessione Istituzionale Plenaria di Citytech, è stato organizzato dal Comune di Milano in collaborazione con la Commissione Europea Rappresentanza a Milano. L'evento ha l'Adesione del Presidente della Repubblica e sua medaglia di rappresentanza. Citytech, nella sua prima edizione, si è proposto come luogo d'incontro privilegiato tra le amministrazioni pubbliche, le aziende produttrici di tecnologie e gli opinion-makers di settore, per indirizzare le scelte e ridefinire i paradigmi su tutto quanto concerne la mobilità e il trasporto in Italia.



L'apertura dell'evento è stata svolta dal Sindaco di Milano Giuliano Pisapia, dal Presidente della Provincia di Milano Guido Podestà e dal Presidente della Regione Lombardia Roberto Maroni e l'inaugurazione della mostra foto/video MyCitytech, Shoot Your New Mobility!, a cura di Roberto Mutti e organizzata da Citytech, in collaborazione con Trasportando.com e Photographers.it.

I saluti di benvenuto della Sessione Istituzionale sono stati di Barbara Covili, Amministratore Unico di Clickutility on Earth, società organizzatrice dell'evento. L'anteprima dei risultati del Libro Bianco sulla Mobilità e i Trasporti in Italia è stata presentata da Carlo Tosti, Direttore Osservatorio sulla Mobilità e i Trasporti di Eurispes e da Luca Masciola, Direttore Comitato Libro Bianco sulla Mobilità e i Trasporti di Eurispes. Poi un ricco calendario di workshop tecnici, ai quali hanno partecipato professionisti da tutta Italia della Pubblica Amministrazione, gli operatori del settore, il mondo dell'associazionismo, i rappresentanti delle più importanti aziende produttrici di tecnologie per la mobilità e il trasporto italiane ed europee.



più di ogni altro potrebbe approfittarne. Sempre nell'evento milanese sono state presentate le novità sul mondo dei parcheggi in Italia e all'estero, in collaborazione con Aipark. Focus che ha tracciato il quadro tecnico venutosi a delineare dopo il 160 Congresso Internazionale della European Parking Association che si è svolto a settembre 2013 a Dublino, e sulla città di Amsterdam, città modello in Europa per la gestione della sosta.

Funivie urbane per muoversi in città.

Con costi contenuti e grandi capacità di trasporto, le funivie sono l'ultima novità nel panorama mobilità urbana e molte amministrazioni stanno progettando di implementarle. Durante l'evento di Milano Steven Dale, il più grande esperto al mondo di funivie urbane, ha illustrato questa importante novità insieme ai rappresentanti e i principali costruttori mondiali di cablecars. L'uso della bicicletta genera benefici economici nell'UE pari a 200 miliardi di euro l'anno. L'Italia, primo produttore di bici in Europa, è il paese che

Politiche di gestione della mobilità e della sosta.

Durante i due giorni di Citytech sono state presentate varie esperienze nel mondo, illustrate da esperti europei. Ne hanno poi discusso, con uno sguardo su Milano, rappresentanti di Assolombarda, Unione del Commercio Milano, AICAI, Legambiente. FIAB-Ciclobby, Genitori antimog, Esperti del Comitato scientifico del PUMS e rappresentanti del Comune di Milano.



Riscaldare con fonti rinnovabili

A cura Martina Zecchi

Per raggiungere, in Germania e nel mondo, gli obiettivi climatici perseguiti, in futuro sarà essenziale investire maggiormente nella produzione di energia termica rinnovabile. Il mercato dell'energia termica rappresenta il 40 per cento del consumo energetico in Germania: la quota più consistente, con ottime possibilità di ridurre le emissioni di CO₂. Gli immobili esistenti e in particolare l'efficienza dei loro sistemi di riscaldamento offrono pertanto molte opportunità. Oltre a ridurre le emissioni di CO₂ provocate dai combustibili fossili, gli impianti moderni permettono di abbassare notevolmente i costi per il riscaldamento. Inoltre, si fanno più forti le pressioni sulla politica per un suo maggiore impegno verso la svolta energetica nel mercato dell'energia termica. L'obiettivo che si è dato il governo tedesco è ridurre le emissioni di gas serra in Germania del 40 per cento entro il 2020 e dall'80 al 95 per cento entro il 2050 (con riferimento ai dati del 1990). Il mercato dell'energia termica gioca un ruolo importante per il raggiungimento di tali obiettivi: solo un quarto dei circa 20 milioni di impianti di riscaldamento installati in Germania sono allo stato attuale della tecnica. I restanti tre quarti, ovvero 15 milioni di sistemi di riscaldamento, avranno bisogno di essere aggiornati entro il 2020, come ha calcolato l'Associazione tedesca per l'energia e l'acqua (BDEW). Davanti a questo scenario è auspicabile che i proprietari di immobili, gli architetti, i consulenti energetici, gli installatori e i progettisti prendano in considerazione i vantaggi dei sistemi di riscaldamento rinnovabili.

Cambiamento delle condizioni quadro nel mercato dell'energia termica
Attualmente in Germania il riscaldamento è

prodotto per il 9,5 per cento da energie rinnovabili, una quota che entro il 2020 dovrà salire al 14 per cento, ai sensi della legge tedesca sul riscaldamento con energie rinnovabili (EEWärmeG). Altrove le politiche sono persino più ambiziose. In Danimarca il riscaldamento dovrà essere assicurato interamente dalle energie rinnovabili già entro il 2035. Per realizzare tale obiettivo, da quest'anno non sarà più possibile installare caldaie a gas o a gasolio negli edifici di nuova costruzione danesi. Inoltre, dal 2016 le caldaie a gasolio dovranno essere sostituite con fonti di calore sostenibili anche negli immobili esistenti durante le ristrutturazioni. Anche in Germania, tuttavia, i requisiti di legge rendono necessari sistemi di riscaldamento più efficienti per il futuro. La direttiva europea "Nearly Zero Energy Building (NZEB)", ad esempio, stabilisce che dal 2020 gli edifici di nuova costruzione abbiano un consumo energetico minimizzato. A partire dal 2015, inoltre, il "Regolamento UE in merito alle specifiche per la progettazione ecocompatibile degli scaldacqua e dei serbatoi per l'acqua calda", in breve "etichettatura energetica", prevede nuovi requisiti minimi e un'etichetta sul consumo energetico da apporre ai sistemi di riscaldamento. Un contesto giuridico che favorisce soprattutto i sistemi di riscaldamento rinnovabili.

chitettura dell'edificio e al gusto personale. AB Legno – Divisione Gruppo Bevilacqua, storica azienda, mette a disposizione la sua esperienza più che ventennale, fornendo consulenza per la progettazione ad hoc e la realizzazione di strutture 100% Made in Italy tutte in legno naturale lavorato presso il proprio centro di produzione.

Un porticato bello e funzionale in tempi rapidi

Costruire un porticato non significa necessariamente sostenere lavori lunghi e impe-



gnativi. AB Legno è in grado di realizzare strutture di questo tipo senza ricorrere ad opere murarie. Grazie all'impiego di sistemi costruttivi e tecnologie di ultima generazione, i tempi di realizzazione sono rapidi, con un risultato finale che si distingue per precisione e qualità. Anche l'aspetto estetico è curato nel minimo dettaglio. E per dare vita a porticati funzionali e al contempo belli, l'azienda ricorre ad ancoraggi a scomparsa.

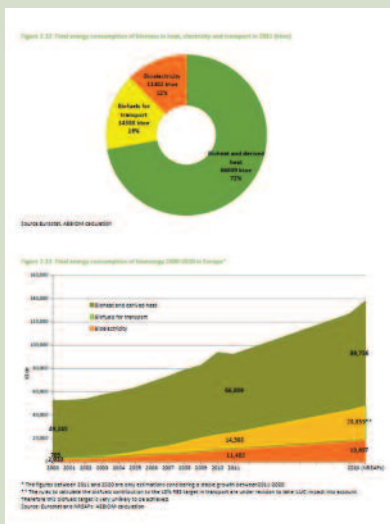
Materiali e soluzioni per strutture che durano nel tempo

Essendo esterni all'abitazione, i porticati sono esposti all'usura degli agenti atmosferici. Per questo motivo AB Legno realizza strutture in legno lamellare dotate di apposite finiture come la verniciatura anti-UV o il fondo antimuffa. Altro fattore per evitare che il porticato si rovini nel tempo è la manutenzione ordinaria, con prodotti specifici forniti direttamente da AB Legno.

Un salotto a contatto con la natura

A cura di Martina Zecchi

Un porticato, realizzato all'ingresso o in adiacenza dell'abitazione, può rivelarsi la soluzione ideale per creare un salotto a contatto con la natura, un'area relax dove leggere un buon libro o organizzare cene tra amici. Ogni abitazione ha, però, un suo stile e modificarne la struttura, ad esempio, realizzando un porticato, implica un'attenta progettazione, oltre che un'accurata scelta dei materiali che meglio si integrano all'ar-



Wearable technologies

A cura di Martina Zecchi

The Internet-of-Things (IoT), the concept of connecting physical objects to each other and

ecosystem of the wearables industry at the conference, including memory, low power microprocessors, Bluetooth® chips and MEMS sensors. Applied Materials and the Office of the CTO are contributing to the growth of the wearables market inflection through differentiated solutions. One of the reasons wearables

including prescription glasses for Google Glass by Rochester Optical and my favorite, a touchless Gesture Interface by Microchip Technology, which replaces the need for a clicker to

Russia : Un mercato strategico

A cura della redazione



to the internet through sensors within or attached to the objects, is a key market inflection that is opening up new opportunities and ways of obtaining information. Cisco Systems estimates there will be 50 billion connected devices by 2020—creating a tidal wave of data! Wearable Computing or “wearables” is a small but rapidly growing segment within the IoT space and is one of the potential killer applications that could fuel IoT.

Last year was significant for wearables. Google began shipping its Glass wearable computing device in early 2013, Pebble Technology reported receiving 275,000 orders for its smart watch by mid-year, and the Samsung® Galaxy Gear™ and Qualcomm® Toq™ watches were also released. In 2014, CES, the largest consumer electronics show, kicked-off with a huge emphasis on wearables. Several products were introduced at the show by Panasonic, LG and others. On the chip side, Intel introduced the Intel® Edison development board, a miniature computer in the form factor of an SD card and built on a low-power 22nm Quark processor. The Edison board is targeted at IoT applications, validating the semiconductor industry's commitment to wearable computing and related devices. At the recent Wearable Technologies conference in Munich, analysts from ABI Research reported that 50 million wearable units, including activity monitors and smart watches, were shipped in 2013. The firm stated that approximately 90 million units are forecast to ship this year – a dramatic 80% year-over-year increase, which is just the beginning of a projected sustained growth cycle for this segment of consumer electronics. Several Applied Materials customers showcased products that form the

are expected to become mainstream is the rapid reduction in manufacturing costs. This is where Applied Materials and our expertise in precision materials engineering comes in and plays an important role. We have constantly innovated and worked closely with memory, microprocessor and MEMS customers to deliver differentiated equipment that helps accelerate their product introductions and enable rapid reductions in cost structures. One key part of the wearables ecosystem that is still in need of new innovations is the battery. Two of the biggest challenges to overcome are the thick form factor due to battery size, and the lack of adequate battery life, thus requiring frequent recharging. At the same Wearable Technologies con-



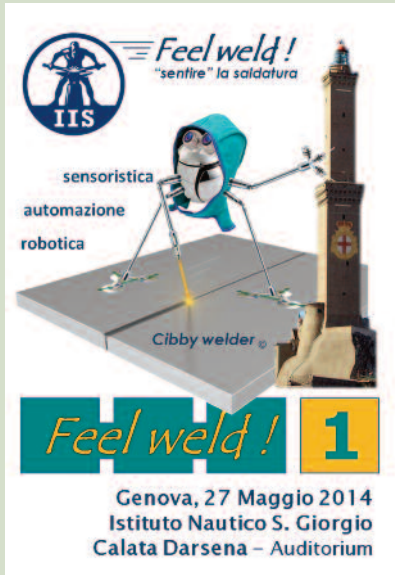
ference, Applied's Leo Kwak, Distinguished Member of Technical Staff, Office of the CTO, gave a presentation on solid state thin film batteries for wearable products. Kwak's presentation focused on Applied's work in solid state thin film battery technology, which aims to help solve those two biggest challenges. Applied's technology allows wearable products to either be thinner or to pack more battery capacity in the same space, thereby increasing battery life. There were numerous other products introduced at this conference

Grazie alla collaborazione con l'associazione russa Amedoro e quella europea EFIC, FederlegnoArredo ha ottenuto una proroga all'entrata in vigore della nuova regolamentazione sulla sicurezza nella produzione di mobili nei paesi dell'Unione Doganale di Russia, Bielorussia e Kazakistan L'entrata in vigore della nuova regolamentazione sulla sicurezza nella produzione di mobili nei paesi dell'Unione Doganale di Russia, Bielorussia e Kazakistan (regolamento tecnico TR TS 025/2012), attesa per giugno 2014, verrà posticipata a gennaio 2016. Il regolamento prevede una soglia di 0.01 mg/m3 per le emissioni di formaldeide dai mobili e materiali legnosi, un limite estremamente restrittivo e irraggiungibile dalla quasi totalità dei prodotti costituiti da pannelli a base di legno. Il provvedimento pone infatti un limite dieci volte inferiore a quello di 0.124 mg/m3, oggi previsto dagli standard internazionali e già riconosciuto non nocivo per adulti e bambini in Europa e dalla stessa WHO (World Health Organization). In questi mesi FederlegnoArredo ha lavorato intensamente con l'associazione russa di categoria Amedoro, il Commissario Europeo Antonio Tajani e con le associazioni europee rappresentative delle industrie del mobile e del legno, in particolare con EFIC (European Furniture Industries Confederation), per ottenere la proroga di tale provvedimento, che oltre a non avere base scientifica che giustifichi i nuovi valori limite di formaldeide, porterebbe un grave danno alle tante imprese italiane del settore legno-arredo che hanno nel mercato russo uno dei principali sbocchi commerciali alla loro attività. In una fase storica di per se già delicata per il mercato russo, l'introduzione di tale regolamento rappresenterebbe una reale minaccia per la sopravvivenza di molte aziende produttrici, già duramente colpite dalla crisi economica, con le pesanti conseguenze anche a livello sociale. “La Russia per noi è un mercato assolutamente strategico”, sottolinea il presidente di FederlegnoArredo Roberto Snaidero, “che nel 2013 è ormai tornato agli ottimi livelli pre-crisi, sfiorando il miliardo di euro di export. Il provvedimento promosso dall'Unione Doganale non ha alcun fondamento e la sua applicazione si tradurrebbe di fatto solo in un danno economico, anche per lo stesso mercato russo. Conosciamo bene i gusti di questo straordinario popolo, che ama il Made in Italy più di qualunque altra cosa. Proprio quest'anno a ottobre festeggeremo il decimo anniversario dei Saloni WorldWide di Mosca, una manifestazione fieristica di grande successo, a cui ogni anno partecipano in gran numero operatori provenienti dalla Russia e dalle ex Repubbliche Sovietiche”.

Feel weld

A cura della redazione

Continua l'organizzazione della prima giornata "Feel weld! Sviluppi ed indirizzi per Automazione, Robotica, Sensoristica ed Intelligenza Artificiale applicati alla saldatura", in programma dall'Istituto Italiano della Saldatura - con il Patrocinio di SIRI - per il giorno 27 maggio 2014 nella cornice del Porto Antico di Genova. Il termine "cibernetica"



tica" (in greco «arte del pilota») non è probabilmente tra quelli di più comune utilizzo e tuttavia il suo uso è destinato ad entrare, in tempi ragionevolmente brevi, anche nel quotidiano del mondo variegato della fabbricazione mediante saldatura.

Il sogno millenario dell'ingegno umano di realizzare la "macchina" perfetta, e con questa sfidare gli Dei, sta cominciando a prendere corpo. I prodotti saldati non ne saranno estranei ed un processo di fabbricazione definito "speciale" per le potenziali indeterminazioni operative che lo affliggono, perderà molta della sua "specialità" diventando un processo molto più programmabile, anche nei risultati; ovvero un processo "cibernetico". L'Istituto Italiano della Saldatura ha deciso di organizzare la prima Giornata Nazionale della Cibernetica in Saldatura. Nel Porto Antico presso la Sala Convegni dell'Istituto Tecnico Nautico "San Giorgio", grazie al contributo di esperti dell'industria, di esponenti del mondo universitario e di alcuni primari fabbricanti, nazionali ed internazionali, verranno trattati argomenti come la sensoristica applicata alla saldatura, i sistemi di visualizzazione e di inseguimento del giunto, l'integrazione tra le diverse unità che costituiscono gli attuali sistemi robotizzati, l'intelligenza artificiale in saldatura, con lo scopo di definirne lo stato dell'arte ed analizzare alcune delle loro più significative applicazioni industriali.

Rapid chargers

A cura di Valentina Parisi

Chargemaster's network of 14 electric vehicle (EV) rapid chargers is ready to go four weeks earlier than anticipated. The network of 14 rapid chargers, forming Milton Keynes CrossLink and supplied and operated by Chargemaster Plc, has been completed four weeks. Chargemaster said the rapid chargers are some of the first 'tri-standard' units in the UK and will allow EV drivers to charge their cars in approximately 20 min-



utes, enabling cross-country motoring through Cambridge, Bedford, Milton Keynes, Buckingham and Oxford. CrossLink is a Milton Keynes Council initiative and the charging units are located at strategic locations connecting Cambridge and Bedford in the East with Milton Keynes and Cheltenham, Oxford and Buckingham with Milton Keynes to the South West. Per Chargemaster, the 'tri-standard' charging points are designed to work with all the latest electric cars including the new BMW i3 and VW e-up!, the Nissan Leaf, Renault Zoe, Citroen C Zero, Peugeot Ion, Mitsubishi i-MiEV and the Tesla Model S, the first UK models of which will arrive next month. The network of charging points has been partly funded by UK's Office for Low Emission Vehicles (OLEV) under a government scheme supporting the growth of ultra low emission vehicles and the respective charging network. "These charge points are the first of their kind in England, able to rapidly recharge a wide range of plug-in vehicles," said Transport Minister Baroness Kramer. "The government is committed to making the UK a leading market for ultra low emission vehicles and putting in place versatile and access..

Protagonisti a MADE expo 2015

A cura della redazione

Si è svolta a marzo presso la prestigiosa sede della Triennale di Milano la conferenza stampa di presentazione di MADE expo, appuntamento biennale dedicato all'architettura, al design e all'edilizia in programma a Fiera Milano Rho dal 18 al 21 marzo 2015, alla quale hanno partecipato anche il vice ministro dello Sviluppo Economico Carlo Calenda, il presidente di Confindustria Giorgio Napolitano, il pre-

sidente di Assimpredil Ance Claudio De Albertis e il commissario del Governo per Expo 2015 Giuseppe Sala.

La fiera viene vista come strumento primario di politica industriale, e come volano per la crescita "MADE expo è uno degli eventi su cui vogliamo investire più risorse" ha annunciato Carlo Calenda. "Come ministero stiamo lavorando per far interagire le imprese italiane e gli investitori stranieri, e da questo punto di vista MADE rappresenta un interlocutore privilegiato, perché unisce un progetto di filiera a un appeal internazionale" MADE anticiperà inoltre i contenuti di Expo2015: con "Building the Expo" il visitatore della fiera avrà infatti la possibilità di conoscere in anteprima i padri-



gioni, le tecnologie e i materiali dell'appuntamento che porterà a Milano oltre 30 milioni di visitatori. "Uno stimolo importante, anche dato che il 96% delle imprese che stanno lavorando per Expo sono italiane", ha ricordato Sala. "Quella dell'anno prossimo sarà un'edizione straordinaria, con un grande potenziale, che deve essere sfruttato" ha commentato Giorgio Squinzi. "Mapei ha creduto nel progetto di MADE expo fin da subito e continueremo a sostenere con forza la sua capacità di attrarre investitori stranieri". Il presidente di FederlegnoArredo, Roberto Snaidero, ha sottolineato la forte spinta all'internazionalizzazione di MADE expo, che ad ottobre per la prima volta

gistico, il Salone Costruzioni e Materiali dedica un'attenzione particolare alla progettazione e ai prodotti per l'integrazione tra verde, arredo pubblico, infrastrutture urbane e sportive. Completano l'offerta espositiva: mostre, workshop e convegni internazionali che costituiscono il filo diretto tra tecnici e amministratori pubblici per una città più fruibile e a misura d'uomo. Significativa a questo proposito la conferma di partecipazione del Gruppo Costruttori Macchine per alluminio e Pvc anche alle edizioni 2015 e 2017 di MADE expo. Ampio spazio è dato ai produttori di rivestimenti di facciata e di coperture che presentano le soluzioni più avanzate in termini di efficienza, sicurezza

spensabili ai progettisti quanto i servizi che consentono alle imprese di svolgere al meglio la propria attività sviluppando il giro di affari. Non solo le ultime novità in ambito software, dalla progettazione e calcolo strutturale alla progettazione architettonica dell'involucro, al BIM, all'interior design, all'ottimizzazione energetica degli edifici fino al project management e alla gestione del cantiere, ma anche stampanti 3D e plotter. Completano il Salone i sistemi laser e gps e i servizi accessori che richiedono sempre maggiore attenzione nella corretta gestione del proprio studio come i servizi di telefonia, internet, e anche gli indispensabili servizi finanziari e assicurativi.



affiancherà i Saloni World Wide Moscow, la manifestazione in programma a Mosca dal 15 al 18 ottobre 2014. La specializzazione di MADE expo si rafforza ulteriormente grazie all'articolazione in quattro saloni tematici - MADE Costruzioni e Materiali, MADE Involucro e Serramenti, MADE Interni e Finiture, MADE Software, Tecnologie e Servizi - scelta che consente la migliore sinergia tra prodotti e servizi utilizzati in edilizia per anticipare le dinamiche di un mercato sempre più interconnesso. I sistemi per il trasporto verticale interno ed esterno e le ultime novità nel campo del lift & homelift trovano in MADE Costruzioni e Mate-

e design. A completare l'offerta contribuiscono i produttori di sistemi di oscuramento, di tende e pergole e di sistemi di protezione solare e antinsetto con prodotti che soddisfano le diverse esigenze di funzionalità, risparmio energetico, e valorizzazione architettonica. Laboratori ed eventi ad hoc assicureranno a serramentisti, installatori, progettisti e costruttori l'opportunità di valutare le valenze prestazionali dei prodotti innovativi con particolare attenzione ai temi caldi del settore: efficienza energetica, luminosità, comfort abitativo, facilità di installazione e domotica. La manifestazione darà spazio e rilevanza anche alla

Nasce la collezione Trussardi casa

A cura della Redazione

Il Gruppo Trussardi annuncia il lancio di Trussardi Casa in collaborazione con Luxury Living Group. Il marchio del Levriero -attivo in ambito Design già dai primi anni '80 attraverso collaborazioni importanti e progetti prestigiosi; e già conosciuto nel settore attraverso singoli pezzi d'arredamento - presenterà una collezione completa di arredamento ad aprile in occasione del Salone del Mobile di Milano. Gaia Trussardi, Direttore Creativo del Gruppo, e Luxury Living Group hanno pensato ad una casa contemporanea ed elegante, interpretata in chiave milanese. Le proposte, realizzate con la collaborazione dell'Architetto Carlo Colombo, esprimono il lusso discreto e l'eleganza senza sforzo tipici di Trussardi. Tessuti e legni pregiati uniti alla pelle, da sempre materiale principe del marchio, diventano perfetti interpreti di una modernità classica. Grazie ad un heritage centenario lo stile di Trussardi Casa raggiunge la sua massima espressione nelle lavorazioni più complesse e artigianali. Soluzioni giorno e notte - divani e poltrone ma anche letti e complementi d'arredo come lampade e tappeti -, uniche e speciali - grazie ad un'attenzione ai dettagli e alla qualità del Made in Italy-, sono pensate per ambientazioni internazionali ed evolute. La collezione Trussardi Casa sarà prodotta e distribuita da Luxury Living Group, realtà consolidata e leader nel settore del design che incontra il mondo della moda. Un'azienda tutta italiana che nel tempo ha saputo maturare esperienza e conoscenza senza eguali nell'arredamento luxury, interpretando e valorizzando l'identità e i valori dei marchi in proprio portfolio. Tomaso Trussardi, Ceo del Gruppo Trussardi: "Trussardi è un marchio di lifestyle e con Trussardi Casa si rafforza il legame che storicamente abbiamo con il mondo del Design. La collezione di arredamento è un'estensione naturale della moda Trussardi e incarna i valori e i codici stilistici tipici del marchio. Sono molto felice di questa collaborazione con Luxury Living Group, un partner eccellente per portare avanti il concetto di Made in Italy anche nel Design, quarto ambito d'azione del Gruppo Trussardi insieme a Moda, Food e Arte." Alberto Vignatelli, Ceo e Presidente di Luxury Living Group commenta: "Il connubio tra Design e Moda continua a proporre nuove forme e soluzioni. Con Trussardi Casa il panorama internazionale dell'arredamento si amplia e arricchisce grazie a un brand sinonimo di classe e italianità. Sono davvero orgoglioso di poter dar vita agli arredi di questo prestigioso marchio da sempre espressione di dinamismo ed eccellenza".



riali una nuova collocazione che ne permette la giusta valorizzazione in quanto parte integrante del sistema edificio. Il mondo dell'impiantistica partecipa a MADE Costruzioni e Materiali per incontrare il mondo dell'edilizia e definire le regole della progettazione integrata Edificio-Impianto, che tengano conto di tutte le fasi del processo costruttivo degli edifici e della loro ristrutturazione in un'ottica di efficientamento energetico e comfort abitativo, con il ricorso a fonti energetiche tradizionali e rinnovabili. Nel segno di una gestione virtuosa del territorio e della tutela del patrimonio paesag-

giocata, in linea con la tendenza del costruire dalla Passive House alla Active House. La luce è un elemento indispensabile del comfort, la luce anima gli spazi sottolineandone architettura e arredi e promuovendo il benessere psicofisico di chi vi abita. Da questo impulso nasce la sfida tecnologica raccolta dal mondo del serramento per ridurre spessori e larghezze dei profili per ampliare sempre di più la superficie vetrata trasparente. Il Salone per il 2015 si rinnova mettendo al centro professionisti e imprese e proponendo tanto gli strumenti di lavoro indi-

EV Market

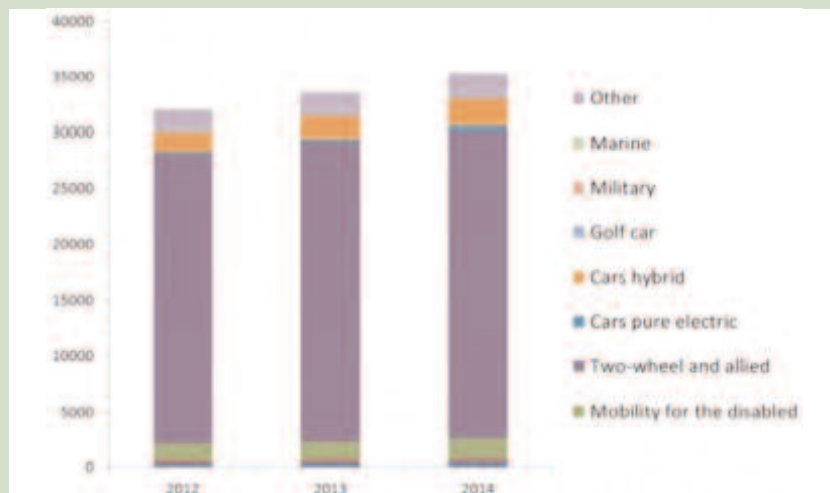
A cura di Valentina Parisi

This comprehensive report has detailed assessments and forecasts for all the sectors using and likely to use traction batteries. There are chapters on heavy industrial, light industrial/commercial, mobility for the disabled, two wheel and allied, pure electric cars, hybrid cars, golf cars, military, marine and other. The profusion of pictures, diagrams and tables pulls the subject together to give an independent view of the future ten years. Unit sales, unit prices and total market value are forecast for each sector for 2012-2022. The replacement market is quantified and ten year technology trends by sector are in there too, with a view on winning and losing technologies and companies.

With vehicle traction batteries it is important to look at the whole market. The rapidly growing market for traction batteries will exceed \$55 billion in only ten years. However that spans battery sets up to \$500,000 each with great sophistication needed for military, marine and solar aircraft use. Huge numbers of low cost batteries are being used for e-bikes but even here several new technologies are appearing. The largest replacement market is for e-bikes today and the value market for replacement batteries will not be dominated by cars when these batteries last the life of the car - something likely to happen within ten years. The trends are therefore complex and that is why IDTechEx has analysed them with great care.

Vehicle manufacturers are often employing new battery technology first in their forklifts or e-bikes, not cars, yet there is huge progress with car batteries as well - indeed oversupply is probable in this sector at some stage. The mix is changing too. The second largest volume of electric vehicles made in 2010 was mobility aids for the disabled but in ten years time it will be hybrid cars. The market for car traction batteries will be larger than the others but there will only be room for six or so winners in car batteries and other suppliers and users will need to dominate their own niches to achieve enduring growth and profits. Strategy must be decided now.

Global EV sales, in thousands *Source: IDTechEx*



WASSER BERLIN INTERNATIONAL 2015

A cura di Roberto Frizzo

WASSER BERLIN INTERNATIONAL – t International Trade Fair and Congress for Water and Wastewater – has enhanced its trade fair concept, thus creating added value for exhibitors and trade visitors. From 24 to 27 March 2015 WASSER BERLIN INTERNATIONAL will be organised in an even more structured format. In future, the hall layout of the **trade fair** will reflect the economic cycle of the water industry, whose 360-degree approach symbolises the principle of sustainability as well as demonstrating that WASSER BERLIN INTERNATIONAL showcases products, services and solutions from all parts of the water industry. Trade visitors will be able to find their way around the fair more easily. In 2015, for the first time, the WASSER BERLIN INTERNATIONAL **Congress** will take on the format of a Hall Forum and will thus become an integral part of trade fair events. No extra charges will be made for the congress. The concept of the congress will be more tightly structured. On 24 and 27 March 2015 at one session respectively, and on 25 and 26 March 2015 at two sessions respectively, the focus will be on the latest water industry and policymaking topics at national and international level. In addition, specialist symposiums dealing with individual topics in greater detail will be taking place in close coordination with trade fair events. Matthias Steckmann, director at Messe Berlin GmbH: "WBI is Germany's international marketing platform devoted to the topic of water. The response to our conceptual changes has been outstanding. In particular this is reflected in the high level of bookings, which currently exceeds the figure for the same period before the last event." In addition to NO DIG BERLIN, the trade fair section with an accompanying symposium on 'trenchless construction', a further independent section under the heading of 'FLOOD MANAGEMENT BERLIN' is now also being organised. FLOOD MANAGEMENT BERLIN will deal with flood control, water engineering and disaster management. New features will include a Board Meeting Area, which will be set up in the Palais am Funkturm next door to WASSER BERLIN INTERNATIONAL.

Assise IRVE

A cura di Martina Zecchi

Questo importante evento si è svolto presso l'Università mediterranea di Nizza in promenade des Angles 65. I dati ufficiali parlano di 300 partecipanti. Erano presenti, tra gli altri con una propria relazione Laure Chapuis (collaboratrice di Commissario Europeo dei trasporti Siim Kallas) S.E. Alan Kelly T.D Ministro dei Trasporti della Repubblica di Irlanda S.E. Bernard Fautrier Ministro Plenipotenziario del Principato di Monaco Christian Estrosi Presidente della città Metropolitana di Nizza –Costa Azzurra Antoine Bourbonnex Responsabile Strategie BMW Beatrice Foucher Direttore del programma Veicoli elettrici Renault Claude Mueller Responsabile delle infrastrutture di ricarica dei Veicoli elettrici Nissan Waldermar Schwioger Direttore Veicoli elettrici Volkswagen



Olivier Paturet Direttore Nissan Europa Occidentale Jose Fernandez Garcia Policy officer Dg Move Commissione Europea

Michel Couture Direttore Sezione Mobilità Elettrica Gruppo EDF Christelle Chabredier Responsabile rapporti Istituzionali Gruppo La Poste (Francia) Vincet Brunel Direttore delle attività per Veicoli Elettrici Schneider Electric Nicolas Chauveau Responsabile sviluppo ABB

Sono emerse molte novità commerciali e strategiche importanti : in sintesi sono in fase di realizzazione (entro maggio 2014 saranno terminati i lavori) investimenti strutturali in Irlanda, Inghilterra e Olanda per oltre 64 milioni di euro.

La direttiva europea in fase di emanazione, dai dati forniti, limiterà dal 2020 l'uso di motori endotermici per auto. Ciò significa , nei fatti, un forte incentivo allo sviluppo di veicoli elettrici, anche in funzione di nuove tecnologie per batterie e sistemi di ricarica veloci (nei fatti le case costruttrici europee hanno annunciato a Nizza una intesa per unificare i 3 principali sistemi di carica).

I sistemi NFC sono fortemente inseriti in questa attività . La stima della commissione EU prevede la realizzazione di oltre 70.000 punti di ricarica in Italia entro il 2020.

PRODUCTION & ELECTRONIC magazine



Sensors Printed Electronics Production and Components maggio 2015

SENSOR+TEST 2014 Nürnberg

A cura di Armando Zecchi

The 21st international SENSOR+TEST trade fair will be held from the 3rd to the 5th of June 2014 at the Nürnberg Exhibition Center. AMA Service organizer count with about 550 exhibitors and approximately 8,000 visitors.

Focal Topic for 2014: Safety & Security

Today's sensors and measurement technology are providing more and more safety and security in all areas from everyday life to industrial processes. Low-maintenance sensors reliably detect toxic and inflammable gases to ensure air quality, they control air-conditioning systems, and other sensors are integrated in wind-park condition monitoring systems, triggering alarms per SMS, while fiber-optic sensors check for fatigue in aircraft components. The range of safety-relevant applications is extremely broad.

Product Overview of the SENSOR+TEST 2014

The text below is based on the preliminary information given by the exhibitors to AMA Service, the fair organizers, up to early February 2014. It comprises a preview of products, services, and trends that can be seen and experienced at this year's SENSOR+TEST from 3 to 5 June 2014. The structure follows the trade fair's nomenclature.

Geometric Parameters

Determining distance, gap, position, angle, tilt, and attitude – or fill level for that matter – are among the most common measurement tasks. Diverse sensors for such geometrical parameters measurements can be found. They are used in smartphones, brake test benches, driver assistance systems, robots, or a plethora of other special tasks. For position tracking of individuals in buildings, shoes are shown with integrated inertial sensors. They are to enable navigation without external references, such as radio, GPS, or mapping tools. The development aims to include locating and tracking emergency or rescue teams. Applications that require an exact waypoint bearing or precise orientation data, may be able to use a novel sensor principle based on the earth's magnetic field. Such sensors, made in Great Britain, provide magnetic field measurement of <math><10\text{ nT}</math>, or approximately 0.1% of the magnetic field, as well as SPI

Printed Electronics

A cura di Armando Zecchi

As Printed Electronics Europe event Berlin (April 2014), it is time to take a closer look at the successes of the printed electronics industry in Europe. One of the areas where Europe is making a huge impact is in printed sensors. This is not to say that R&D in America or Asia have not been on par, however European organisations have been particularly innovative in identifying new applications for printed sensors. And in the race for the commercialization of new emerging sensor technologies, it seems that many leaders are based in Europe. PST Sensors to demonstrate the first printed temperature sensing system. The company, which is headquartered in Norway, envisions mass-produced smart labels for a fraction of the cost of conventional time-temperature loggers. Peratech in the UK has commercialized a new piezoresistive ink that can be used to make touch sensors or electronic skin for robots. In Finland, Clothing+ has become a leader in e-textile, designing and manufacturing wearable sensors that use electrodes directly printed on fabric. But what makes Europe so dynamic in the field of printed sensors? This is probably thanks to the combination of complementary expertise in the organic materials industry and research and product development for sensors coming from the semiconductor industry, with a market pull of different industries in France, Germany and the UK", said Laurent Jamet, co-founder and director of business development at Isorg. His company is leading the commercialization of organic photodetectors and is exhibiting again at Printed Electronics Europe this year to demonstrate new products: "We will show our latest developments for large area image sensors, with the first image sensor on plastic jointly developed with Dr Danick Briand, who is leading the EnviroMEMS group at EPFL (Switzerland), also thinks the know-how that has been accumulated over the years helps the industry: "Developing sensors components and systems require specific competences and Europe is therefore in a very good position to capitalize on the emerging printed sensors segment thanks to its strong industrial sector in that field", he said.

European consortium

Another key factor is the number of printed electronics centers of excellence that have been set up in several countries. Mostly government funded, they offer facilities for prototyping and process development.

"Our technology was developed in partnership with the industrial research lab CEALITEN, based on an original application and product vision for large area image sensors and photonic sensors on plastic", Jamet said. The European Union also encourages collaboration between academia and industry by funding consortium projects. For example, one project known as SIMS (Smart Integrated Miniaturised Sensor System) has focused on developing a point-of-care biosensing platform using printed electronics. The project, led by the University of the West of England, has recently achieved a milestone by integrating a printed cholesterol sensor with a printed battery and a printed display. Another project, FLASHED (Flexible Large Area Sensors for Highly Enhanced Displays), has recently been granted €2.8m of funding. The project aims to create new ways to interact with a flexible display by using PyzoFlex, a piezoelectric sensor array which was developed by Dr Briand and is convinced that the support from the EU is necessary to foster strong collaborations. "This is crucial to bring together the best expertise in Europe to achieve innovations. Competences and know-how can be geographically far from the industrial players that have an interest. These instruments allow bridging them", he said. He has worked on a European project called FlexSMELL, designing an olfaction system for smart packaging applications: "We are going to show a fully printed multi-sensor platform for environmental sensing interfaced to a printed RFID label, which was developed at Enabling technologies There has been a considerable amount of interest in printed sensors recently and the industry is changing rapidly. End-users of the technology and integrators are looking for sensors that will enable the Internet-of-Things. There is also a huge trend in favour of wearable technologies and e-textiles. By hosting the Printed Electronics Europe event, IDTechEx helps many end-users to connect with the main suppliers and to keep up to date with the latest announcements. Some of Italian Editors are writing about new technologies, IOT, Graphene, Printed Electronics, Sensors and so on. One question again to our readers, Technical readers, of course: Why Tecnoservizi is the only one of Italian magazine at Berlin and Test & measurement (Nürnberg) with some people of the staff? Please send me your answers. I have one idea about it, but I am an Italian and International Editor, and so I prefer to read your opinions.

and an I2C interface. The newly developed ASIC not only offers the usual amplification adjustments, but also excellent noise-suppression characteristics. For magnetic sensors, associated with angle, distance, or position measurement, compact SMD sensor packages are now presented in LAG6 size. An LAGmulti is available for integration of signal processing. The supplier is also showing a number of extremely precise material measures. Magnetization is based on a pulsed process with various materials and provides the foundation for reliable results with linear

m/s, at temperatures of -40 to $+150$ °C with a short-term limit of 175 °C, and are shock resistant up

50 g. With a dual-seal design, an IP67 rating was obtained. Also designed for rugged ambient conditions are inductive proximity switches in a full-metal housing. Rapid changes in temperature, as occurring in the steel industry, extreme vibrations, aggressive cooling agents, or hot sharp-edged metal shavings will not impair the sensor's functions, says the supplier. Sized from M8 to M30,



scales and pole rings. A very flat rotary encoder has been developed for motor speed detection and determination of the exact angular position of electromotors. These work with reflecting code wheels, allowing the light source and light receiver to be in the same plane. The exactitude enables a 4-fold interpolation with an angular tolerance of less than $\pm 0.14^\circ$. The encoder is available as a modular kit for easy integration in motors. A newly developed product series with scalable measuring characteristics is to facilitate a start in radar-based measurement. The devices are able to detect moving objects at a distance of 0.3 to 80 m and velocities between from 0.2 to 250 km/h. A robust IP67 housing provides a wide range of applications in different environments. Working with ultrasound instead of radar, a sensor for parking assist systems will be presented in Nürnberg by an enterprise from South China. This supplier also offers a selection of fill-level sensors, which measure the speed of an ultrasound signal – of water in a container for instance. A number of pressure transducers for level measurement also come from China. Enclosed in a stainless-steel housing, they can be used to measure levels from 1-m to 200-m depths. Explosion-proof versions are available for application in hazardous environments, such as in mining. A fluid level switch is now available as a mass-market product for OEM integration. It is based on an infrared principle, in which a point-level sensor detects the presence or absence of most liquid types. Other example would be an inductive position sensor with displacements of up to 15 mm, highly integrated, with a diameter of only 10 mm, a linearized output signal of 0 to 4 VDC, and encapsulated as per protection class IP68. It is designed for use in oil mists, rain, sludges, or dust. Long-life linear position sensors for stroke lengths from 25 mm to 290 mm are to be presented. Made for use in motorsports, they operate at 10

sensing distances up to 40mm are realized. The supplier also has a product line now that supports the I/O-Link automation interface. This allows a query of the switching status, temperature, and other operating states.

Mechanical Parameters This section summarizes the initial exhibitor reports dealing with such parameters as pressure, differential pressure, force, weight, torque, or density. Take an absolute pressure sensor, for instance, with a 24-bit resolution and a measuring range from 10 to 2,000 mbar. At 0.02 mbar you can detect an altitude difference of 16 cm. Add an integrated temperature sensor with a resolution of 0.02 °C and you get a component designed for extremely precise altimeters or variometers for use in multi-function watches or mobile, battery-powered barometer systems that need a processor anyhow. That is why the sensor can also be equipped with its own processor with an SPI and I2C interface for further data processing. The sensor's manufacturer is also presenting special low-pressure sensors with a measuring range of 10 to 100 mbar, both as a differential and bidirectional-differential design. These are made for use in respirators, negative pressure wound therapy, or sleep-apnea monitoring. Also operating in the low-pressure range are sensors for monitoring clean rooms or hygiene plant zones. This is about production areas for semiconductor components or pharmaceutical products, where preventing contamination is crucial. Appropriate pressure measuring equipment connected to these hygiene zones, is usually located in control cabinets, where output signals that control ventilation are emitted. Reports from versatile Chinese suppliers mention the further development of their process transmitters. Many of these offer standard analog signals with an RS485 interface or parameterization as per HART protocol. The sensing technologies involved include silicon-based piezoresistive thin film

strain gauges, with an integrated temperature sensor if desired. Many of these devices are scalable and equipped with limit switches (relays) and fault-diagnosis functions. Also mentioned in this context are Ex-protection standards and UL certifications. Typical areas of application are petrochemicals, oil drilling, metallurgy, steam, water and wastewater, or natural gas. The transmitters are also used for flow metering (pressure drop) in these areas. Very compact transmitters for wet/wet differential pressure measurements, such as for contaminated water, solvents, or aggressive gases, are to be found in Nürnberg. They are designed for application in the food industry or in chemical/pharmaceutical production processes, where they monitor filters, fill levels, or flow. Pressure transmitters with wireless transmission of measured values are designed for mobile or rotating systems. This concept is also eminently suited for temporary measuring points or centralized data acquisition of distant measurement sites. The range of standard pressure sensors from completely encapsulated models with sputtered thinfilm strain gauges and exceptional impact and vibration resistance to the more common pressure transmitters with silicon sensors in oil-filled capsules and standard output signals, for absolute, relative, or differential pressure. A complete pressure transducer with a voltage output for measuring ranges from 2 to 250 bar is to be shown. It has an M8 threaded connector, 14-mm diameter, and 32-mm length. The thin-film strain gauges permit temperatures of -40 to $+125$ °C and provide a long-term stability of ± 0.1 %. Last, not least, we have the pure sensor element and system offerings at the fair. Examples: stainless steel capsules with thin-film strain gauges, weld-on capsules with a piezoresistive oil-filled sensor with a diameter of only 12.6 mm or encased pressure sensors produced in MEMS technology as components for machine-assembled PCBs to be used in washing machines, refrigerators, or air-conditioners. Capacitive ceramic pressure sensors are now being equipped with a novel ASIC that provides not only analog interfaces, but also two separate digital interfaces (SPI / UART). Measuring ranges from 50 mbar to 70 bar are realized with diameters of 32.4 and 17.5 mm.

Force, Weight A force transducer of the more complex kind measures shearing parameters of workpieces in machining equipment and wirelessly transmits the measurements to a data-acquisition and evaluation unit. This considerably increases the optimization potential. Probably just as complex is the measurement by a 6-axis sensor of forces and moments applied to golf club as a training aid for golfers. Close thematic relatives of these force transducers are weigh and load cells. A broad range of offers in standard and special measuring cells can also be found in Nürnberg. A low-profile shear beam load cell of only 19.1 cm height for a rated load of 500 kg would likely fall in the latter category.

Torque Just a few years ago, contactless measuring of torque on a static or rotating shaft would have been hard to imagine. Today we do just that at a distance of 2 mm to the magnetizable shaft turning at up to 10,000 rpm and get the measured results in realtime. One enterprise has enhanced its torque measuring flanges by adding EtherCAT to its selection of network connections. This enables fiber-optic cabling to transmit up

to 6,700 measured values per second over large distances. The rotating torque sensors of another enterprise operate at a sampling rate of up to 2,500 measured values per second, albeit with a reduced power consumption at the USB level. This lets you use a PC or laptop as a display and evaluation unit for the scaled measuring values.

Density A simple means of determining the density of a liquid is by using a hydrometer. Floating hydrometers made of unbreakable plastic can be found for various measuring ranges. With optional, DAKKS-certified, in-house calibration, reliable measurements are available for quality-assurance systems, e.g. in the food industry

Dynamic Parameters The advent of MEMS technologies has made mass production of vibration and acceleration sensors viable, along with gyroscopes for detecting rate of rotation and position. Some such, labeled as "next generation" . The wide spectrum of sensors for flow, rotation, speed, etc. may surprise the visitor. Take a sensor for mass-flow measurement in gases with a high degree of humidity or water vapor. The thermal measuring process, patented in the U.S.A., is used in medical technology, semiconductor production, or analytical applications. This exhibitor will also present a handheld device with integrated data storage for mass-flow gas metering, used for gas chromatographs, air sampling, or leak detection. Sterilizable and biocompatible is a Swiss flowmeter with a measuring range of 0 to 120 ml/min, especially designed for applications in medical technology and diagnostics. It works very precisely, measuring microthermally through the flow channel's capillary wall and has no moving parts or obstacles to the flow. Its measuring rate is 1 ms. Designed to target suppliers of water and heat flow meters, is a system-on-chip development. With only a external components, the chip offers a measuring rate of 8 Hz at a power consumption of only 7 μ A. The concept clearly distinguishes

show. It boasts a gyro bias instability of less than 7 $^{\circ}$ /h. Also available from this company are further IMUs providing measuring rates of 2 kS/s. These have inputs for external trigger signals and a reset function for the internal counters to enable better synchronization with GPS modules, for instance. Coming from China, a triaxial vibration sensors, developed for acceleration applications in vehicular or aerospace projects. The measuring ranges extend from ± 2 g to ± 1000 g. The gas-dampened sensors are able to detect slow vibration frequencies and long impact pulses. Designed in capacitive 3D-MEMS technology is a sensor system that meets the international Automotive Electronics Council (AEC) standard Q100 and provides multiple options for self-diagnosis. The sensors for all three spatial axes are shock-resistant up to 20,000 g and the temperature range can be optionally upped to +125 $^{\circ}$ C. Typical applications include vehicle suspension and electronic stability control (ESC). Triaxial measuring is not solely a domain of mobility – it is also of significance in real estate. Such vibration monitors are also used to monitor buildings, bridges, towers, or pipelines. Applications at temperatures of up to 650 $^{\circ}$ C are accessible to piezoelectric vibration sensors. Such hermetically sealed sensors, with bandwidths of 5 or 10 kHz, are used on turbines, vehicle engines, or in the exhaust tract. Suitable stainless-steel cables with fiber-optic sheathing are available. A speed sensor can be made by combining a GPS sensor with an inertia sensor. The down side of either technology is surmounted by a CAN interface for passing accurate data for acceleration, speed, or length during brake tests, for instance. For non-contact speed (or length) measurement

in an industrial environment, optical sensors are to be shown by a Belgian enterprise. The sensors overcome the disadvantages of contact encoder wheels.

Thermal Parameters The market for temperature sensors and measuring devices seems endless in regard to size and variety. Besides standard sensor elements, such as NTC, Pt100/Pt100 or the numerous types of thermoelements,

non-contact temperature measurement is strongly represented. For experts, the probability of finding the right solution even for very special applications is thus is extremely high. To obtain the price level for white goods or HVAC applications, platinum-chip temperature sensors are being offered now with metallic blank nickel wires. Such wire can be easily processed without reducing the quality of the measuring results and is clearly much cheaper than platinum. Targeting the HVAC

sector as well is a high-precision chip sensor. We are talking about a complete IC with an integrated 24-bit ADC. This sensor has an SPI and an I2C interface, does not take up much space thanks to its QFN package, and is eminently suited for mobile or battery-operated devices due to its low power consumption (sleep mode). A special kind of non-contact temperature sensor originates in France. It makes use of surface acoustic waves (SAW) technology and achieves an exactitude of up to $\pm 0,5$ $^{\circ}$ C in a range of -15 to +165 $^{\circ}$ C. The size of the passive chip is 5 x 5 mm and does not require a power supply of its own. The distance to the interrogation system can be up to 5 m. The applications are mostly in process technology, but also for tasks in involving smart grids for electric power supplies, where insulation clearance is an important factor. The manufacturer will also present a novel interrogation module that can process up to 6 measuring points. A sensor with radio-frequency identification (RFID) technology and thus non-contact interrogation has a diameter of only 15 mm. Technical product data and calibration data are stored internally to enable identification during queries.

Temperature Measurement Devices

The state of the art in infrared pyrometers and cameras are digital infrared pyrometers for measuring dynamic processes or short temperature peaks are to be found. A response time of 0.5 ms in a range of 50 to 1,800 $^{\circ}$ C increases process reliability, especially for induction hardening, welding, soldering, annealing, forging, and sintering or in manufacturing processes for ceramics, graphite, and other carbon-based materials. The optics can be manually focused and parameterization and signal processing can be delegated to the included software. The supplier will also present a UV pyrometer for a measuring range of 650 to 1,300 $^{\circ}$ C, set to a spectral wavelength of 400 nm. This is particularly useful for measuring wafer temperature during the production of LEDs for displays. Complemented by a laser reflectometer, the thickness and growth rate of GaN layers can be observed during epitaxy. Handheld pyrometers and quotient pyrometers are also in the product range. A thermal imaging camera with the largest commercially available, uncooled microbolometer-detector (native resolution of 1024x768 pixels) . The capability according to NATO standards is 6.1 km for identification of persons and 10.1 km for vehicles. The integrated telephoto lenses offer an exceptional aperture ratio, uses a high-performance coating, and is exactly calculated for the detector resolution of 17 μ m. For users in industry and re-



between the measuring task itself, device management, and external (wireless) communication. Signal processing is carried out in a 32-bit processor, providing a calibratable, digital output signal at an SPI. Thanks to the development of a special IC, a Japanese company was able to reduce the size of its previous design down to 10 x 12 x 4 mm and a weight of approximately 1 g. This "world's smallest inertial measurement unit (IMU) in its class" is to be presented at the trade

search, this supplier also offers a high-speed thermography camera. The detector has a resolution of 640 x 512 IR pixels, a sampling rate of 350 Hz at full resolution – 1,000 Hz can be attained in the quarter-frame mode. The thermal resolution is 25 mK. An integrated trigger interface and other digital I/O ports are for synchronization with fast, repetitive sequences. Features, such as changeable optics, spectral filters, motorized focusing, etc., are available. Thermography can also be used to reliably monitor parts made by injection molding and allows the observation of up to eight areas of the part's



surface. Each measuring point has individually set fault tolerances and every measured result can be allocated to a specific part. The camera can control a scrap gate through a control signal. However, its application is designed to improve the entire production process. Measurements on high-voltage assemblies are dangerous and require compliance with safety regulations. This entails the use of safe, certified measuring devices. A measuring transducer for thermo-element sensor probes of type K has absolved the required tests and received the proper certification. Each of its inputs is protected by a voltage divider for up to 800 V. With protection class IP67 and an operating temperature range from -40 to +100 °C, the device can usually be operated in the vicinity of an HV battery in hybrid vehicles. The included thermo-cable is certified as well.

Temperature Probes One exhibiting enterprise supports its customers from prototype to series production. About 600 temperature sensor elements can be selected, the stress being on Pt, NTC, or KTY types. Customized designs for medical technology, racing, energy technology, or measuring and control technology in general, all of it is on sale. And that includes the attachment of special extensions, such as a cross-section of 0.02 mm², PTFE insulation for temperatures of up to 200 °C, or lately the customization of Peltier elements. A fiber optic thermometer for the range of -200 to +300 °C is characterized by an exceptionally low sensitivity to electromagnetic radiation up to the microwave range. A number of interfaces as well as analog and relay outputs enable diverse applications in the lab and industrial environments. Today a series of temperature probes, especially designed for food-industry production and monitoring are now on the market. Probes for cooking and baking are manufactured under hygienic aspects in regard to material, form, and cable. They use a number of different sensors. Similar designs have been developed for applications

in sterilizers. Screw-in probe or bolt-on probe? The former is a temperature probe with a measuring rod, held in position by a threaded stud. The latter is usually a hex bolt, in which a temperature sensor is inserted and encapsulated. The temperature-measuring applications differ accordingly: either in ducts, pipes, and conduits; or on the surfaces of plant and machine equipment. Last, not least, an offer for all involved with thermoelements: To cut costs for special metal wires on thermoelements, extension and compensation cables can be used..

Climatic Parameters This section is mainly about a combination of humidity and temperature measurements. There are also plenty of sensors for barometric air pressure, atmospheric gas concentrations, smoke, dust, or solar radiation. A combination of capacitive humidity sensor, temperature sensor, and suited ASIC was integrated in a 3-by-3-mm DFN chip housing with a height of 0.9 mm to arrive at applications with a large number of units. Each of the sensors is individually calibrated. The response times are within a few seconds, even after reaching the dew point. With its I2C interface it can easily be integrated into higher-level systems. Especially designed for the completely new market for wearable electronics, smartphones, and other consumer products, a chip is presented in Nürnberg for temperature and humidity measurement with the exceptional dimensions of 1.3 x 0.7 x 0.5 mm. At a sampling rate of 1 Hz, the power consumption is 2 µW. The measuring ranges are specified to go from 0 to 100% RH and -30 to +100 °C. The integration in higher-level systems can be accomplished via an I2C interface. For application in autoclaves, dryer systems, or other such processes, a humidity/temperature module is to be presented in Nürnberg, that is condensation resistant and can withstand an ambient pressure of up to 16 bar. Tolerances of ±1,8% RH are reached. The modules are provided in customized housings. The supplier is also presenting a humidity and temperature measuring module for building automation and the interiors. In a wall-mount housing are a capacitive polymer sensor and a Pt resistor as well as a signal-processing ASIC for the standard output signals at 0 to 10 V. Designed for the HVAC equipment and climatic chambers is an Italian humidity/temperature module. It has the usual analog process signals as well as an RS485 interface for bus systems. A rain detector for automatic control of roof windows or awnings is shown at the SENSOR+TEST. Its adjustable sensitivity can also be set for fog or snow detection. The major fields of application are in building automation and nurseries. Also made for building management is an air meter for tracking ventilation costs. Like a water or electricity meters, the device is to ensure a just distribution of ventilation costs, e.g. for shopping-mall tenants. Dust is raised occasionally and easy to detect. The same cannot be said about fine-dust measurement in real-time or for long-term monitoring of concentrations of up to 300 mg/m³.

A portable device for doing exactly that using light scatter technology is presented in Nürnberg as well.

Optical Sensors / Sonic Measuring Systems There are more than enough fields of application for optical sensors: gas and particle measurement, fluorescence and analysis techniques, spectroscopy, temperature measurement, motion detectors, high-resolution positioning systems, etc. Among the major characteristics besides sensitivity relative to wavelength is always the signal-to-noise ratio. Not only sensors are used in these applications, but special light sources – often laser diodes – as well. Panchromatic photo-sensors with InGaAs detectors offer a sensitivity range of 450 to 2,000 nm. They are integrated in a housing with an M12 thread and can be networked. They also have a measure-on-demand function, internal memory, a digital and analog output. The data can be tagged with a time stamp as evidence. Monitoring the color temperature of an object, for instance, was realized by two silicon PIN photodiodes integrated in a TO-5 housing. Their bandwidths add up to 300 to 1100 nm and the ratio of the two photo streams can be evaluated. Whenever we need to consider an increased sensitivity in the UV spectrum, SiC is the material of choice for photo-detectors. These are then used for high-resolution position measurements. The active surface area of the new models is 1.6 mm², the wavelength having the highest sensitivity is 270 nm. A supplier from Saxony is showing highly sensitive IR sensor arrays for applications in spectroscopy and gas measuring technology in Nürnberg. Sensors with radiation-sensitive surfaces of 3 x 3 mm² and 8 x 8 mm² are being presented, for example. A thermally compensated 2-channel sensor for the spectral range above 1.3 µm is also available. New at the fair are linear sensor arrays with 128 to 510 pixels for compact spectroscopic measuring systems including a test board with a USB port. Not just spectral sensitivity, but surfaces on organic photodiodes can be customized. They can be integrated on flexible polymer films or combined into arrays. Moreover, today it is possible to also place OLED light sources on the same component. These organic photodiodes are shown in Nürnberg for the first time. A multi-channel pulse scaler for applications, such as a photon counting, is presented by a British exhibitor at the SENSOR+TEST. The modul has a trigger input and a USB port. Data retrieval is controlled by the supplied software. Compared to conventional laser diodes, vertical cavity surface emitting lasers (VCSELs) have the advantage of consuming considerably less power at the same light output and providing excellent temperature stability. A new VCSEL attains an efficiency of 0.4 W/A at 850 nm and a CW output of up to 20 mW. The supplier also presents a world-wide novelty in Nürnberg: a laser diode for 785 nm, optimized with VBG technology and an internal temperature control. The wavelength has a bandwidth of only 0.1 nm at an optical output of 120 mW. Fields of application include Raman spectroscopy and medical technology. Also designed for spectroscopic applications are distributed feedback (DFB) lasers with high output power. They are partially equipped with integrated Peltier cooling elements for wavelengths from 1278 to 1650 nm. Also to be seen is a new generation of pulsable infrared emitters with a considerable yield above 4.5 µm. For liquid phase spectroscopy or spectroscopic analysis at the tip

of atomic-force microscopes are quantum cascade lasers that can be used as tunable light sources in a range of 3.2 to 12.5 μm .

Sonic Measurement Thanks to the big topics dealing with measuring and testing technology – especially in the area of vehicle development – visitors can obtain information on the state of development of measuring microphones and acoustic measuring technology in general. Suppliers of acoustic cameras, for instance, who present their improvements and expansions in the area of evaluation software. One such platform does not only provide localization of sound sources, but also far-field measurements and evaluations of sound power levels.

Chemical Sensors Sensors for determining the concentration of combustible (explosive), toxic, or other gases, have been at the focus of the technical world for years along with their various technologies. This year, optical processes are emphasized. Alongside catalytic sensors, there is a wide offering of wet chemical sensors for determining parameters, such as pH value, oxygen concentration, or conductivity. A laboratory device is designed for odor evaluation of products by random sampling. It has a high rate of reproducibility, which according to the supplier clearly sets it apart from conventional artificial noses. Its software records complex signal patterns from the sensors and classifies the examined products on the basis of a statistic process in reference to trained values. The major users are the cosmetic, food, packaging, plastic, and pharmaceutical industries. By means of selective IR filters, thermopiles, which actually detect temperature changes, can be used as single-channel detectors for analytics, while dual-channel thermopiles are used in non-dispersive infrared (NDIR) gas measuring. As a sensor system they usually have an I2C interface and an evaluation board with a USB port. The sensitivity of conventional thermopiles can be improved by dividing the irradiated surfaces into pixels and adding up the respective voltages. The output signal of these low-noise pyroelectric detectors is ten times greater than the usual value. Up to four detectors can be placed in a TO39 housing. New detectors with tunable Fabry-Pérot (FP) filters are equipped with an ASIC for integrated control to compensate low-frequency vibrations, gravitation effects due to turning portable devices, and temperature drift. This allows the stabilization of the wavelength down to ± 2 nm. The expanded filter tuning range now allows the detection of the CO₂ absorption band. Portable multi-detectors for highly inflammable gases operate with new sensor systems in NDIR technology, have an extremely low energy consumption of 3.5 mW, while maintaining a 10-s response time. The devices have an intrinsically safe design and are equipped with a microprocessor, which allows customization of characteristics. For applications in vehicles running on natural gas, searching for leaks on pipelines, or in portable devices, a Japanese methane sensor in MEMS technology is presented in Nürnberg. According to the supplier, it presently has the lowest energy consumption compared with other sensors on the market. A single lithium battery (2.8 V/2400 mAh) is expected to have a service life of 5 years. This supplier also makes catalytic sensors for liquid or natural gas in vehicles or domiciles. They are distinguished by their high degree of reliability. As opposed to the aging process

of conventional sensors, the sensitivity of these sensors increases in the long term. Cross-sensitivity was reduced and the resilience to corrosive gases increased. Based on infrared absorption (NDIR), a module is available for CO, CO₂, SF₆, methane, n-butane, and propane. It can be optimized for a variety of refrigerants used in refrigeration-system applications. The same measuring principle is applied in industrial gas analyzers, capable of measuring concentrations of six or eight gases simultaneously. They are set up according to customer specifications and are equipped with interfaces for process control. A new generation of NDIR gas sensors comes from Italy and has an integrated microprocessor for measuring concentrations of hydrocarbons, carbon-dioxide, refrigerants, or SF₆ gases. The amperometric sensor from a Japanese manufacturer monitors the ammonia concentrations inside of refrigeration systems at temperatures down to -30 °C, regardless of the ambient temperature and humidity. Another Japanese exhibitor is showing electrochemical sensors that can measure concentrations of hydrogen in inert gases, such as nitrogen, without being impaired by silicon or sulphur compounds and without the need for oxygen. A carbon-monoxide sensor makes use of the fuel-cell principle. It can be used for monitoring buildings, detecting smoke, controlling ventilation in car parks, or monitoring campers and RVs. Its typical life cycle is seven years. For monitoring on-load tap-changers or transformers, gas sensors with NDIR technology suited for gas-in-oil. Based on a dissolved-gas analysis (DGA), the supplier offers condition monitoring of energy generation, transmission, and distribution systems, including temperature monitoring of transformers. Another monitoring system from this supplier can evaluate air samples taken serially at up to 24 locations. The sensors are boasted on the photo-acoustic principle and available for the most diverse gases. Typical applications include monitoring of enclosed spaces for concentrations of toxic gases, ethanol concentrations from tailpipe emissions, monitoring of gases released in chemical processes, etc. Sensitivities down to the ppb range can be attained with additional optical filters. A galvanic measuring cell has practically no cross-sensitivity to carbon-dioxide and a good linearity of about 30%. Typical applications are in biochemistry, the food industry, and numerous monitoring tasks. A particularly good long-term stability distinguishes a measuring cell that uses an acidic electrolyte. Cross-sensitivity to CO₂ or other acidic gases were not observed. Another oxygen sensor is based on fluorescence. It requires very little energy and can be used in a temperature range of -20 to +50 °C. A zirconium-oxide sensor is used to measure oxygen concentrations from 50 ppm to 95% at temperatures of up to 300 °C. The applications extend from monitoring of combustion processes, gas analysis, food storage, incubators, respirators, etc. Another model of this kind was specially designed for monitoring and optimizing combustion processes. Besides the sensor for determining oxygen concentrations in gases, the visitors to the SENSOR+TEST in Nürnberg will also see sensors for dissolved oxygen. By means of an optical process, particularly long-term stable, low-maintenance sensors are applied in potable water monitoring, water pollution protection, or fish farming.

Air Quality Another focal area in gas sensors this year is the subject of air quality. A

low-cost complete system detects CO₂ concentrations – and optionally oxygen concentrations. The display is based on the traffic-light principle and has adjustable levels. An air-quality sensor with diverse functions and a low power consumption is used to improve the energy efficiency of systems for providing buildings with air. A hygrometer also in the area of HVAC with an infrared-optical CO₂ sensor was enhanced with a patented autocalibration process that promises high precision over many years. Two superlatives are claimed by a Japanese supplier, who wants to present the smallest air-quality sensor with the lowest energy consumption of 15 mW. A silicon emitter used as an IR light source is used by a sensor in MEMS technology that can also measure humidity and temperature within the probe. It is said to be exceptionally efficient and robust. Thanks to special housing techniques, gas sensors based on DNIR can be used at temperatures of up to +200 °C – with a protective gas atmosphere down to -50 °C. These sensors are suited for applications with cyclic high temperatures. The type of gas is set by appropriate IR filters. For setting up IR sensors, an easily modulated radiation source based on MEMS technology is presented at the SENSOR+TEST. It has a bandwidth of 2 to 15 μm . The power take-up is typically at 450 mW.

Other Sensor Technology

Magnetizable components and assemblies can be tagged with magnetic security labels for protection against fakes. The device presented in Nürnberg can visualize high-resolution magnetic stray fields and thus read bank note data, cards with magnetic strips, magnetic encoders, or magnetic tapes. The quality of weld seams can be checked or whether a serial number has been manipulated. Also for evaluating magnetic fields is a 3D magnetic-field camera, which characterized sensor magnets of all kinds. A plasma plant to impart hydrophobic properties to layers, such as how to coat surfaces to repel water or dust. A software application from Beijing allows the creation of interactive, electronic manuals, much like expert systems. A module for interactive fault diagnosis can access service reports, for instance. Such applications are being used in aviation as well as in train maintenance and power utilities. Custom-tailored solutions, such as algorithms and software tools as well as further support for decisions in development and production

Measuring Technology At the SENSOR+TEST, measuring and testing technology can also be found outside its own hall at the stands of many other sensor exhibitors. The state of the art of complex measuring systems for test beds, decentralized monitoring of engineering constructions, machines, and plants or handheld measuring equipment and devices for process instrumentation – all of it can be seen at this trade fair, including some prototypes. Also there is mobile measurement technology, mostly for application in automotive development. Visitors can experience that live in test drives. The idea was to make digital display device for practically all types of sensors. And that is what it turned out to be, albeit enhanced by the storage of numerous profiles of characteristics, a datalogger function, a USB port for data streaming to the nearest PC, interfaces for storage media and controls as well as analog and digital outputs, and so forth. At the heart of the signal capture facil-

The GreenTec Awards

Di Olga Gerke

GreenTec Awards gala as spectacular prelude to the trade fair IFAT. GreenTec Awards and Messe München will turn the Bavarian metropolis into Germany's green capital. After Hamburg and Berlin it is Munich's turn to be the showplace of Europe's largest Environment and Business Prize. With a glamorous award ceremony, the GreenTec Awards 2014 will sound the bell for the IFAT, the world's largest trade fair for the water, sewage, waste and raw material economy. As the host, Messe München will provide the event location: the International Congress Center (ICC) on the exhibition site in Munich.

The GreenTec Awards and Messe München International are entering a strategic partnership and will pull together in the future. For the first time in the upcoming year, the GreenTec Awards will take place within the framework of the trade fair IFAT on Sunday, May 4th 2014 and thus on the evening before the trade fair opens its doors. The generous International Congress Center (ICC), which has access to high quality equipment and the latest technologies, provides the intended exclusive atmosphere for the ambitious event. (Tecnoservi had signing a specifically agreement with GreenTec Awards) Both partners see this cooperation as a great gain and added value for all participants. Marco Voigt, initiator of the GreenTec Awards: "The Messe München International and especially the trade fair IFAT are the optimal framework for our event. Here, we find the appropriate content-related context and can



reach the right target group that is interested and committed to innovative environmental technologies." Eugen Egetenmeier, Manager of Messe München International, values this cooperation very positively: "We are excited to welcome the GreenTec Awards within the framework of the IFAT in Munich. The Awards combine the topics of environmental technologies, sustainability and resource sparing with a positive image. Due to their socio-political focus they also contribute to the advancement and strengthening of the IFAT brand." Dr. Johannes F. Kirchhoff, Chairman of the Advisory Body of the IFAT, is sure that "the Greentec Awards, with their unique



Your Green Stage in Munich

The Messe München IFAT and GreenTec Awards will make Munich the environmental capital of 2014

The IFAT, will open with the GreenTec Awards in 2014. An unforgettable night.



Where?
Messe München
Launch of the IFAT

Stage
The backdrop makes a lasting impression on guests. Partners who present on stage acquire exceptional and emotional visibility. You too can present your products on stage.

Showroom
The attractive exhibition space guarantees diverse sources of inspiration and ensures a lively Get-Together.

mixture of subject specific know-how and entertainment, are the perfect prelude for the IFAT. They combine protagonists coming from highly diverse areas in politics, in society and in the media; a platform that provides a unique communication network for exhibitors and clients."

About the GreenTec Awards

The GreenTec Awards are organized with the goal of promoting ecological and economical commitment as well as excitement for technology. As engineers, the initiators and hosts Marco Voigt and Sven Krüger work enthusiastically towards this goal. This year the



„It is so nice to see that innovative developments get the recognition and attention they deserve at the GreenTec Awards.“
Christiane Paul
 Actress, Representative

GreenTec Awards will be given in nine categories: Automobility, Construction & Living, Energy, Communication, Lifestyle, Aviation, Production, Recycling & Resources and Water & Sewage. In addition, there are five special awards: intelligent urbanization,

Galileo Wissenspreis, Green Music Award, Start-up and WWF. More than 100 journalists and 1,000 invited guests from the economy, science, politics and the media will experience the awarding of the desired prizes. More than 100 partners, over 60 am-

bassadors and 30 exhibitors make this extraordinary event possible.

Unique voting in partnership with ProSieben, WirtschaftsWoche and Messe München Start of Europe's largest online voting for en-

Media Partners*

Trade press, daily press, consumer press

The GreenTec Awards bridge the gap between the trade press and the daily and consumer press. This function is unique in the environmental field. The strength of our media partners effectively guarantees expansive, far-reaching coverage.

präsentiert von



*Selection



„Sustainable technologies cannot be a luxury any longer, they need to be a part of everyday life. PRAG commends the GreenTec Awards for preparing the stage for innovations.“

Nora Tschirner
Actress and Singer
of PRAG Brand, Representative

environmental protection Over 200 projects, of which more than 15 percent are international, have applied to the GreenTec Awards 2014, Europe's largest Environmental and Business Prize. Renowned major corporations

as well as young inventors are among the applicants. Everyone was invited to vote online for the most innovative and sustainable ideas and projects among the remaining TOP 10 in each category, from the 4th of January to

13th of February 2014. The media support about greenTec Awards is a circulated energy magazine with 490,000 copies, six times a year as an insert in the Süddeutsche Zeitung. Over 200 companies, institutions, Bundesliga

Program 2014

Technology, entertainment, winners

The GreenTec Awards offer an extensive program. Sponsors have the opportunity to make an appearance in all aspects of the program and make an impression as a responsible entity at one of the most important environmental events in the world. Media representatives can present and position themselves prior to the opening of the Messe IFAT, among others. Individual programs can be arranged upon request.

Time	Topic	Your advantage
5.00 - 7.00 P.M.	Green Carpet	Photos on the Press Wall, VIP Tickets
5.00 P.M.- 12.00 A.M.	Showroom Get-Together	Reception of select guests in the showroom or the lounge
7.00 - 9.00 P.M.	Gala Award Ceremony	Press / Interviews / Commercials
9.00 P.M. - 12.00 A.M.	After-Show Get-Together	Reception of select guests in the showroom or the lounge

Die Green Stage for Exhibitors

The GreenTec Awards foster an exclusive platform for dialog

The GreenTec Awards present you with the opportunity to draw an interested public of industry leaders, decision-makers and journalists in an exclusive environment, right in time for the IFAT.



Across Industries

Visitors and potential from diverse branches customers meet here: manufacturing, trade, production, capital investment, real estate, the energy, automobile and services industries, government and public institutions.

Showroom on the Green Carpet

Exhibitors present their products and services in an appealing yet approachable way. The stands are centrally located in the middle of the Get-Together. Make yourself be seen before the opening of the IFAT.

soccer clubs and individuals have participated in the competition 2014 and submitted their pioneering contributions. Large companies such as BMW, Deutsche Post, Microsoft, Mitsubishi, Philips, Siemens, Volkswagen as well as renowned research institutions such as the Fraunhofer-Institut IKTS or the institute for aircraft construction of the University of Stuttgart as well as promising start-ups and as young, creative inventors and the two clubs VfL Wolfsburg and Borussia Dortmund, in cooperation with Lichtblick SE, are among the applicants. Marco Voigt, founder of the GreenTec Awards, on the diverse spectrum of applications: "We are especially pleased that we have so many international applications from countries such as China, Japan or the USA. This shows us that the GreenTec Awards enjoy a great reputation far beyond Germany's borders and are of global importance.



It is also impressive that environmental technology plays an important role for the German Bundesliga soccer clubs." Over 50 jury members will determine the nomination of

the other two applicants. The jury is guided by criteria such as level of innovation, contribution to the protection of the environment, profitability, long-term application and media effectiveness. The jury meeting was been occur in Berlin on the 25th of February 2014.



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Categories

The GreenTec Awards create reputation

With these competitive categories, we provide the ideal platform for innovations and developments in specialized environmental fields, supported by their patrons.

Green Music Award

Universal Music Group



Galileo Wissenspreis

ProSiebenSat.1 Media AG



Communication (Requested support)

Markenverband e.V.



Energy

Fraunhofer Institut für Solare Energiesysteme ISE



Special Award

Messe München IFAT



Mobility

Verband der Automobilindustrie e.V.



Aviation

Aviation Initiative for Renewable Energy in Germany e.V.



Recycling/Recycling Products

Bundesverband der Deutschen Entsorgungs-, Wasser- und Rohstoffwirtschaft e.V.



Production

Zentralverband Elektrotechnik- und Elektronikindustrie e.V.



Construction & Housing

World Wide Fund for Nature



Water/Sewage

Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e.V.



Green IT (Requested support)

Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e.V.



ity is a 24-bit platform with a sampling rate of 4,800 Hz and an accuracy of 0.001%. Conceived for control-panel mounting is a compact multi-channel measuring device for liquid analysis. It performs four tasks: measuring, controlling, recording, and displaying – all in one. A measuring amplifier for dynamic measurements with piezoelectric sensors also works with a 24-bit A/D converter. For vibration analysis or pulsed pressure measurement, single-channel or 4-channel amplifier versions are available via Ethernet on a Web browser. A very new solution is a 4-channel measuring amplifier as a PXI plug-in card. Each channel has a 24-bit resolution



and a 200 kS/s sampling rate. They provide highly stable power to the connected sensors and process voltage and current signals. They are used in motor test beds, for instance. The supplier of this amplifier is also offering a case for eight plug-in modules (PXI, PXI-Express, CompactPCI). It is equipped with a 500-W power-supply unit and operates at temperatures of -20 to 55 °C. Also available is a PXI smart tablet as a new generation of PXI measuring devices. A similar device for a PXI/PXIe channel offers even more connectors and promises a totally new measuring experience with its capacitive touch screen. Also new are charge amplifiers as 19-inch signal-conditioning modules for effective and peak-value measurements via a USB port, for instance. They are used mainly for vibration monitoring. Robust, compact, and interference-free measuring systems for application in industrial environments are generally needed for machine and plant monitoring. The objectives here are quality assurance and early damage detection to prevent production downtimes. Such systems must be able to detect the most diverse kinds of signals at changing speeds. Made especially for 5B measuring amplifiers, this supplier offers backplanes that facilitate sensor connection to a PC measuring system. A similar concept is pursued by another exhibitor, who offers an easy-to-handle interface between the sensor and a USB port of a PC. The measuring transducer offers 5 sensor inputs and 5 digital outputs. Supposedly, it is particularly suited for sensors with strain gauges. Drivers for widely used software packages for acquisition and evaluation of measuring data are available.

Monitoring Tasks The innovation is also system for fiberoptic measurement of strain or temperature at a thousand measuring

points. It provides the capability to query a single optical fiber, thus newly defining condition monitoring. Long-term measurements on constructions, such as bridges, buildings, or other civil engineering projects are the specialty of a decentralized measuring system. The devices are linked via a LAN and are accessible for obtaining a number of parameters. Also used for monitoring constructions are dataloggers, dedicated to measurements with strain gauges. Integrated is a remote monitoring facility via a mobile phone network. Certain events can trigger an SMS. A time-synchronous measuring system will be shown in Nürnberg that is designed for measurements in distributed structures – such as alongside commercial and rail vehicles. It is meant for optical signal transmission with a high bandwidth and low interference levels. Wireless dataloggers are to be used for somewhat simpler tasks. They are applied on rotating systems or in places that are hard to access – such as showcases in a museum – to collect climatic data. Data output is per short-range radio systems, such as Bluetooth. With the proper app, the measuring values can be displayed graphically on a smartphone. Even more convenient is the evaluation, when the data has

been stored on a cloud server, which can be accessed from anywhere. An 8-channel device is specialized in temperature measurement. It is used both as a datalogger and as a limit-value monitor (relay outputs) or as an input module for a PC measuring station. Last, not least, a cloud-based solution for automatic analysis of measuring data is to be presented at the SENSOR+TEST. This is a special kind of data mining, or extraction of metadata from a mass of measuring data. While the plant system is running, the software learns a model for the normal signal characteristic. Subsequently, development aberrations can be quickly identified.

Testing Technology Where would sensor and measuring technology be without the means for testing? Testing technology is a discipline in its own right. Today's quality standards for products and production processes would never have been attained without it. On the other hand, testing technology in turn uses sensors and measurement to provide precise and reproducible results. A French supplier is to present a number of portable testing devices in Nürnberg. They are designed to perform on-site tests in production plants. Force and torque are to be measured. The devices can store the test data and permit to be copied to a USB memory stick for evaluation and archiving on a PC. The application of white-light interferometry makes it possible to characterize surfaces near steep edges, such as drilled holes or on work pieces with large steps. The device can measure areas with diameters of up to 46 mm, a lateral resolution of 26 µm, and height differences of 70 nm. Evenness and parallelism parameters can be checked quickly and with excellent repeatability. The device can also be used directly at the production line. A machine for automatic testing

of equipped or unequipped substrates with a novel rigid-needle adapter. Test points with a 250 µm diameter allow an increase of the test depth for component heights of up to 5.5 mm. As in the previous years, suppliers of test chambers present their latest developments at the event. This includes temperature-shock test chambers. They use two chambers, one heated up to +220 °C, the other cooled down to -80 °C. The alternating time is less than 10 s for a total of 1,000 cycles with defrosting. Other test chambers are designed to achieve a targeted provocation of early defects and for accelerated corrosion testing (salt spray as per DIN). Another supplier offers an environmental simulation chamber with highly dynamic temperature and humidity changes for implementing scenarios, such as 0°C at 30% RH. An integrated compressed-air dryer can be used to attain dew points down to -30 °C. Another specialty is a climatic test chamber dedicated to testing lithium-ion batteries, which can be very reactive. Therefore these chambers are modular and fitted with safety equipment according to the European Council for Automotive R&D (EUCAR). Test chambers for EMC tests or chamber and hall outfitting for EMC tests or antenna measurements are also to be found at the SENSOR+TEST. A test lab certified by the DAkkS tests objects during running operations and is to demonstrate the testing of pressure-change resistance. Other exhibitors offer test systems for wind turbine gearboxes. This is about vibration and sound characteristics as well as rotary speed and temperature, of course. This exhibitor is also offering a current update of the vibration-test software and is also presenting a cubic chassis, which can be equipped with up to 12 I/O cards for on-site autonomous collection and storage of measuring data. It is programmed via Ethernet. An extraordinary datalogger samples data streams from the currently common bus systems and synchronizes them with a central time stamp. The object is to safeguard and troubleshoot in vehicles as well as to provide a fault analysis for function, fleet tests, and acceptance runs. A software platform for knowledge management of the testing and servicing results over the entire life cycle of a system or plant is supplied by an exhibitor from Beijing. The concept is particularly helpful in fault-diagnosis and product-development processes.

Components for Sensors and Measurement There are a number of products especially oriented to applications in sensor, measuring, and testing technology. Magnets are an example of such. They are used for measurement of angular positions in conjunction with magnetic-field sensors. For safety-relevant applications, a redundant design of the sensor technology is required, for instance by the use of two physically separate sensor elements. They must then react to the one and the same material measure, which considerably increases the demand for homogeneity of the magnets or magnetic fields. Such components are also presented at the SENSOR+TEST. Other examples of such components are limit relays in monitoring modules. They could be especially designed with 24 V / 60 A for application in automotive construction or with 10 A / 450 VDC for electric vehicles, or with 5 A / 220 V in compact housings with an optical position indicator for building automation. Glass-to-metal feedthroughs, as often required by pressure sensors, come from China. Laser light sources are needed for Raman spec-

troscopy, interferometry, lithography, or fluorescence measurements..It can get complicated for components: Let us take an ASIC especially developed for tire-pressure monitoring – or seemingly simple: a delivery of measuring cables. However, these must often meet diverse safety standards, must be well shielded, and of course long-lasting. To make measuring cables superfluous, temperature sensor transponders were developed based on RFID technology for passive measurement of numerous parameters. The RFID tag to be presented at the fair works without an integrated sensor and offers the option of connecting external sensors, even with resistive measurement. It is possible to create a completely "battery-less" and wireless sensor measuring system with a diameter of only 15 mm by using a special systems design with a miniaturized antenna and an optimized RFID front end.

Calibration Systems For accelerations of up to 100,000 m/s, for instance, or a number of calibrated impulse hammers for modal testing. Portable pressure calibrators can now build up pressures of up to 40 bar with an electrical pump. And multifunction calibrators for process signals, such as voltage, frequency, and current from the same supplier are able to communicate per HART protocol. Also presented for calibration purposes is a handpump with which pressures of up to 200 bar can be built up. Fine adjustments can then be carried out at a resolution of 0.1 mbar. Other exhibitors are showing pressure calibrators for the range of 800 mbar to 20 bar or block calibrators for low temperatures of -95 to +140 °C..

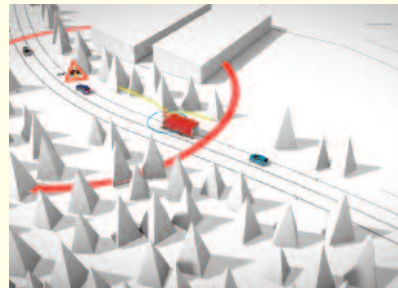
Conclusion With about 550 exhibitors this event is the measuring fair in Europe – with exhibitors from all over the world. From the 3rd to the 5th of June two conferences will be held parallel to the trade fair: the 17th ITG / GMA-Fachtagung "Sensoren und Messsysteme" and the 42nd etc2014 - European Telemetry and Test Conference, as well as two expert forums with presentations in Hall 11 and Hall 12, the Innovative Testing forum, and on the 3rd of June in Hall 12 the lecture forum on the special topic Safety & Security, including a subsequent podium discussion.

A new Age of revolution versus IOT
Di Armando Zecchi

20 years ago, the internet revolutionized computing. Over the next few years, it will revolutionize the car. More companies making cars an active part of the internet – and bringing drivers a range of benefits. "A connected car is always going to be a better car," says Wolf-Henning Scheider, the member of the board of management of Robert Bosch GmbH with responsibility for the Automotive Group. By networking vehicles some companies (Bosch too) are improving the comfort, safety, and efficiency of tomorrow's mobility. At the same time, more attention is bringing to the fascination of the digital world onto the streets of the physical world. Some companies are connecting cars to the internet and creating driver assistance functions with added value. Also more actions will be done to networking cars with traffic infrastructure. "Connectivity is about more than just being able to surf the net on the open road," says Scheider.

Internet part of the car Connectivity is well

on the way to becoming a megatrend in the automotive industry, as digitalization changes the lives of more and more people. And cars themselves will be a factor in how digitalization spreads. Engineers are working on solutions that are both intuitive and sophisticated. One of them is MySpin, a system that integrates iPhones and Android smartphones fully into the vehicle, with the phone's display appearing on the vehicle's main display. This makes using apps in the vehicle much easier, safer, and more convenient. Companies are also bringing the internet into the car without the help of cell phones. Today's navigation systems can, for instance, find you a French or Italian restaurant. Future services will save drivers of electric vehicles the trouble of looking for charge spots by guiding them directly to the nearest available one, as well as letting drivers reserve the nearest parking space and guiding them to it. Bosch i.e. is even connecting the powertrain to the internet. eHorizon system lays the groundwork by bringing together decades of systems competence in powertrains with innovative software pro-



gramming. "We are bringing the mechatronic world and the digital world together," says Scheider.

Making the car part of the internet

But the data highway in cars is no one-way street. Vehicles will not only use information from the internet, they will also provide information to their environment. "In connecting vehicles to the cloud, we see data protection as a fundamental requirement. The benefits have to far outweigh the potential risks," says Scheider. To this end, encrypt solutions are necessary tailored specifically to cars, such as standalone encryption. Vehicles will in the future become sensors in their own right, gathering information about their surroundings and exchanging them with each other or with a server. Known as floating car data, this information is required both for highly dynamic maps and to improve vehicle safety. Whereas the driver sees no more than a bend ahead, the navigation system is already aware that just beyond it is a patch of ice or the tail end of a traffic jam. This means cars or trucks can be stopped from causing a pile-up or plowing into a line of standing traffic; the system can either warn the driver or automatically initiate a braking maneuver. "Connectivity is a building block in automation – and vice versa," says Scheider. There are already some applications in which vehicles communicate with the outside world. One example is the eCall, which will be mandatory in the European Union from 2015. When accidents occur, vehicles will automatically call the emergency services, with the call activated by the same sensors that trigger the airbag. This can reduce the time it takes for emergency crews to reach the scene by 50

percent in rural areas and by 40 percent in urban areas.. Quite apart from improving safety, this approach to collecting vehicle data will also help to save money – especially for companies and fleet operators. Many companies are talking about solutions for preventive maintenance. For instance, engine data from diggers or wheeled loaders can be sent to a database, analyzed, and compared with a constantly growing archive of data from similar vehicles under similar stresses. It is very important allows to predict whether, and more importantly when, an important component will reach its wear limit – so that the component can be replaced in good time. Taking the example of the digger, this would avoid downtime and save lots of money: every hour that this kind of machinery is out of action costs its operator up to 2,000 euros. In the future, this type of functionality could also feature in passenger cars. One application could be a wear indicator for engine parts. This would let drivers replace a damaged part before they suddenly end up stranded at the side of the road.

Making the car part of the internet of things

Connecting the car to the internet is something that goes far beyond even these applications. "Automotive connectivity marks the start of a new era – until now, cars were isolated from their surroundings, but now the two will interact," says Scheider. An entire metropolis, infrastructure included, could be networked to guarantee optimum mobility. Anyone wanting to travel from downtown to



the outskirts could use a train in central districts and then switch to a car-sharing scheme later in the journey. Platforms with service brokering allow public transportation companies, electric car hire companies, and e-bike rental companies to work together to offer an integrated mobility service. Software platforms already manage the infrastructure for major electromobility trials. One example is Huject, the roaming system for charge spots, which allows customers to charge their electric car at charge spots belonging to various companies and pay conveniently via their normal electricity bill. Truck Secure Parking, for instance, is an online booking service for truck parking spaces along free-ways. All the spaces feature video surveillance and are networked with a call center, which guarantees safety for drivers and freight.

Consumer electronics market in China tumbles

China's consumer electronics market declined in 2013 as demand for products like televisions and digital still cameras decelerated, compelling the country's manufacturers to devise new strategies for growth. Combined unit shipments for the chief products comprising the overall Chinese consumer electronics industry fell last year to 710.2 million units, down a steep 9 percent from 781.0 million in 2012. "Last year was the third straight year of declining shipments and the second consecutive year of revenue contraction for the Chinese consumer electronics space," said Horse Liu, principal analyst for the connected home at IHS. "The cessation of government subsidies for consumer electronics products played a major role in the annual decline. "But while shipments will continue to decelerate during the next few years, revenue will continue to be strong. This is because of surging shipments in white goods such as air conditioners and refrigerators. The vigorous white-goods market, in turn, will make up for distressed device segments like digital still cameras and portable media players. Total shipments for the major device categories this year will amount to a projected 674.2 million units. Meanwhile, revenue is forecast to reach \$104.8 billion, up from \$99.0 billion last year and \$98.1 billion in 2012. These findings can be found in the report, "China Consumer Electronics Market Changes Strategies," from the Consumer Electronics service of IHS.

China makers adjust strategies

The market for traditional consumer electronics products is maturing in China, much as it is throughout the world. And with the government continuing to push for urbanization and progress coming to the countryside, Chinese OEMs are retooling their growth strategies to keep up with the changing dynamics of domestic demand. For several years the country's consumer electronics market had relied on subsidies from Beijing to help stimulate demand, encouraging the populace to buy new appliances like televisions. Those subsidies, which ended in May 2013, were primarily targeted at the rural and low-end markets—also the focus of production among Chinese OEMs. Today, makers are adopting a new approach, aggressively developing high-end products to appeal instead to urban consumers with the purchasing power to buoy the domestic consumer electronics industry. "Chinese manufacturers are investing more resources on high-end products carrying expensive prices in order to push up sales revenue, but they must also be careful to adjust production capacity to reduce the risks of overproduction," Liu observed. Among Chinese OEMs, export-oriented players faced distinct challenges in 2013.

Sensor Market 2014

A cura della Redazione

The sensor and measuring industry wound up last year with a three-percent revenue increase and a stabilized export quota. The sensor industry is investing heavily in re-

search and development and also expects a continued need for further personnel.

Berlin, March 2014 - The AMA Association for Sensors and Measurement (AMA) polled its members on the economic development in the year 2013. The sensor and measuring industry looks back on an overall positive business year and is counting on a continued positive development for the current year. The annual revenue of the sensor industry shows a growth of three percent, compared with the results of the previous year. Thus, sensor and measuring technology is evidently in a better position as the manufacturing industry. The latter had to bear a drop in revenue of 0.2 percent in 2013, according to Destatis, the German Federal Statistical Office. Asked about their outlook for the current year, the AMA members anticipate a continued, distinct growth in turnover of seven percent.

The sensor and measurement industry proved to be exemplary in research and development. The generally small and medium-sized enterprises invest ten percent of their revenue in research and development. The AMA members' export quota stabilized at 40 percent overall, the level of the previous year. Exports to other European countries rose by three percent to an overall 25 percent. The export quota to countries outside Europe dropped by two percent to 17 percent in all. The sensor and measuring industry is investing and has augmented investments last year by an additional three percent. For the current business year 2014, AMA members reckon with an increase in investments of eight percent. This development also affects a growing demand for personnel, which rose by two percent last year. "The business expectations of our members point to growth," says Thomas Simmons, Managing Director of the AMA Association for Sensors and Measurement, summarizing the evaluation. "Characteristics, such as precision, longevity, and efficiency define the quality of processes and products. An 'Industry 4.0' can't be implemented without intelli-

gent sensors and measuring technology. That's one of the reasons for our branch of industry to look forward to the current business year with confidence."

Segnali positivi

A cura di Andrea Fenzi

Abstracts : Stando ai segnali che giungono da SIA e da WSTS, due delle principali aziende di ricerche di mercato del settore semiconduttori il settore è in forte ripresa, e si prevede che questo trend sarà stabile fino al 2015. The Semiconductor Industry Association (SIA), announced that worldwide semiconductor sales for 2013 reached \$305.6 billion, the industry's highest-ever annual total and an increase of 4.8 percent from the 2012 total of \$291.6 billion. Global sales for the month of December 2013 reached \$26.6 billion, marking the strongest December on record, while December sales in the Americas increased 17.3 percent year-over-year. Fourth quarter global sales of \$79.9 billion were 7.7 percent

(cent), but fell sharply in Japan (-15.2 percent) in part due to the devaluation of the Japanese yen. Sales trend lines for Europe and Japan are pointed in the right direction, perhaps indicating that 2014 could be a stronger year for both regions. Although semiconductor sales in Q3 are often stronger than Q4, sales in the Americas grew by 4.5 percent in Q4, defying seasonal trends. "The World Semiconductor Trade Statistics (WSTS) has released its updated semiconductor market forecast that the world semiconductor market in 2013 will be US\$304 billion, up 4.4% from 2012. The market is expected to recover throughout 2013, driven mainly by double digit growth of Memory product category. By region, all regions except Japan will grow from 2012. Japan market is forecasted to decline from 2012 in US dollar basis due to steep Japanese Yen depreciation

Analisi di Mercato sulla Sicurezza industriale

A cura di Andrea Fenzi

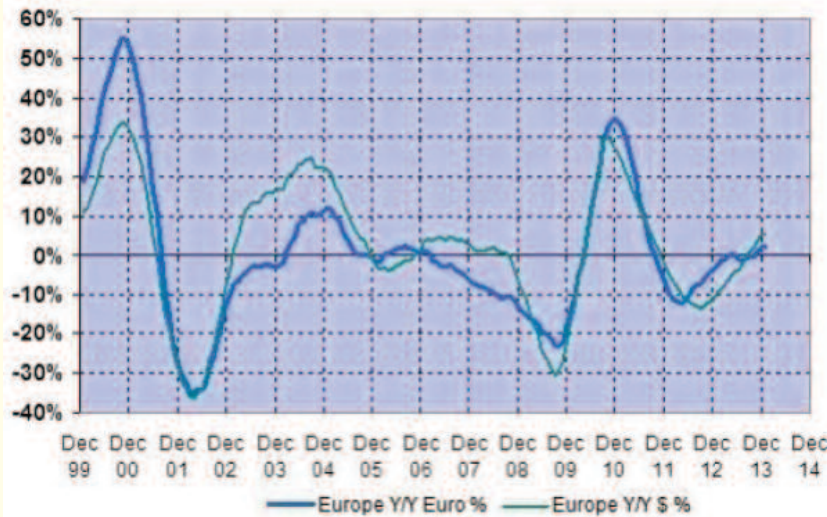
This article is about Industrial Safety and Security Market and trends in Italy. Many segments are estimated with informations by several Italian associations. Questo documento è stato realizzato da Tecnoservizi SRL sulla base di varie documentazioni e collaborazioni con varie società di settore.

Premessa

Il mondo della sicurezza industriale è assai variegato. Uno degli aspetti fondamentali della sicurezza è la manutenzione industriale. Un secondo aspetto è il cosiddetto rischio legato all'utilizzo di macchine industriali (automatizzate) e delle Interfacce uomo macchina (HMI). UN terzo aspetto è quello dei sistemi e componenti utilizzati per la prevenzione e messa in sicurezza degli impianti e delle macchine. Iniziamo a trattare il tema della manutenzione

Manutenzione

Secondo la norma europea 13306 1, la manutenzione è la «combinazione di tutte le azioni tecniche, amministrative e gestionali, eseguite durante il ciclo di vita di un elemento — posto di lavoro (edificio), apparecchiatura o mezzo di trasporto — destinate a preservarlo o a riportarlo in uno stato in cui possa eseguire la funzione richiesta». La manutenzione incide sulla sicurezza industriale (e sulla salute dei lavoratori) in due modi: innanzitutto, la manutenzione regolare, programmata ed eseguita correttamente è essenziale per mantenere le macchine e l'ambiente di lavoro in condizioni di sicurezza e affidabilità; secondariamente, la manutenzione stessa deve essere eseguita in sicurezza, programmando adeguatamente gli addetti alla manutenzione e le altre persone presenti sul luogo di lavoro.



higher than the total of \$74.2 billion from the fourth quarter of 2012. Total sales for the year narrowly exceeded expectations from the World Semiconductor Trade Statistics (WSTS) organization's industry. All monthly sales numbers are compiled by WSTS and represent a three-month moving average. "The global semiconductor industry exceeded \$300 billion in sales for the first time ever in 2013, spurred by consistent, steady growth across nearly all regions and product categories," said Brian Toohey, president and CEO, Semiconductor Industry Association. "The industry finished the year on a strong note with its best December on record, indicating that recent momentum is likely to carry over into 2014." The industry saw strong demand in several product segments during 2013. Logic was the largest semiconductor category by sales, reaching \$85.9 billion in 2013, a 5.2 percent increase compared to 2012. Memory at \$67.0 billion and MOS micro-ICs at \$58.7 billion rounded out the top three segments in terms of sales revenue. Memory was the fastest growing segment, increasing 17.6 percent in 2013. Within memory, DRAM performed particularly well, increasing by 33.3 percent year-over-year, while NAND flash experienced strong growth of 8.1 percent. Other positively performing product segments include optoelectronic products, which reached \$27.6 billion in sales (5.3 percent annual increase) and analog, which reached \$40.1 billion in sales (2.1 percent annual increase). Regionally, the Americas market continued to show signs of strength, increasing annual sales by 13.1 percent in 2013. Annual sales also increased in Asia Pacific (7.0 percent) and Europe (5.2 per-

cent). Worldwide semiconductor market is forecasted to be up 4.1% to US\$317 billion in 2014 surpassing historical high of US\$300 billion registered in 2011. For 2015, the market is forecasted to be US\$328 billion, up 3.4%. All product categories and regions are forecasted to grow positively in each year, with the assumption of macro economy recovery throughout the forecast period. By end market, wireless and automotive are expected to grow faster than total market, while consumer and computer are assumed to remain



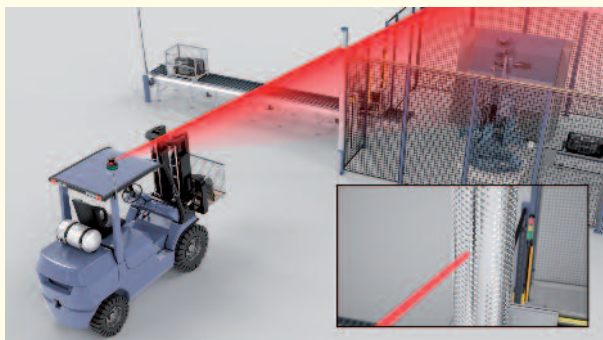
Si possono distinguere diversi tipi di manutenzione : manutenzione correttiva: quando le operazioni sono volte a riparare un sistema per renderlo nuovamente funzionante (ad esempio, riparare o sostituire componenti rotti). Questo tipo di manutenzione è anche noto come «manutenzione reattiva», perché l'azione viene intrapresa quando si verifica un guasto imprevisto di un macchinario; manutenzione preventiva: quando vengono eseguiti interventi di manutenzione ad intervalli predeterminati o secondo criteri stabiliti volti a ridurre la probabilità di guasto o degrado del funzionamento di un elemento funzionante. In questo caso le azioni sono programmate, proattive e volte a controllare il processo di deterioramento che porta al guasto di un sistema (ad esempio, sostituzione, lubrificazione, pulizia o ispezione).

Interfaccia uomo macchina (HMI)

Va osservato che i prodotti dell'HMI & SW non sono coinvolti direttamente nella direttiva si-

curezza macchine in quanto l'HMI non è determinante nel funzionamento della macchina essendo un componente passivo quando si parla di safety. La security è invece parte integrante delle soluzioni di visualizzazione in quanto il terminale od il computer sono uno dei punti di accesso al sistema e quindi possibile punto debole della catena. Oltre alla classica protezione con password ed integrazione con eventuali domini a livello aziendale, i sistemi attuali offrono un buon livello di protezione per il controllo accessi. Eventuali connettività verso l'esterno (es. Internet) dell'impianto/rete locale aumentano il livello di complessità ed in questi casi diventa indis-

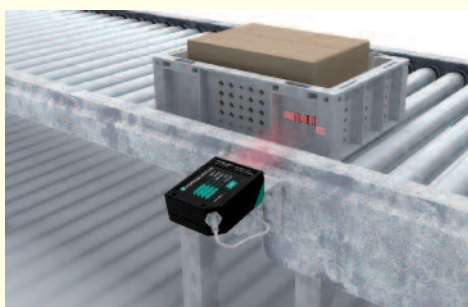
tente di avere elevati standard di sicurezza evitando l'impiego di hardware esterno di sicurezza con risparmio sui costi di cablaggio e installazione oltre che riducendo lo spazio occupato all'interno degli armadi elettrici. In futuro molto probabilmente chi non sarà in grado di fornire prodotti che permettono di integrare le diverse funzioni di safety non potrà più essere considerato tra i fornitori preferiti di azionamenti elettrici. Un'altra delle attività emergenti nello scenario nazionale ed internazionale dei sistemi e componenti per automazione è quello dell'energy saving dove gli azionamenti giocano un ruolo molto importante.



Direttive europee

Per promuovere il concetto di mercato aperto nell'Area Economica Europea (EEA) tutti gli stati membri sono tenuti ad adottare una legislazione che definisca i requisiti di sicurezza fondamentali per le macchine e il loro uso. Le macchine che non soddisfano tali requisiti non possono essere commercializzate all'interno dei paesi EEA. Esistono diverse direttive europee applicabili alla sicurezza delle apparecchiature e delle macchine industriali.

pensabile cautelarsi in modo serio da accessi indesiderati. In tali situazioni, la realizzazione di architetture appropriate (router, VLAN, Firewall, etc.) per rendere non accessibili dall'esterno i dispositivi di automazione, viene demandata direttamente agli utilizzatori finali. Per far ciò ci si avvale di oggetti standard di IT per la protezione che in alcuni casi possono essere stati "adattati" per l'ambiente industriale (ad es. switch o router industriali). Parallelamente si pone il problema di cautelarsi da "infettamenti" dei dispositivi da virus, malware o altro che possono avvenire sia dall'esterno o attraverso la copia diretta di file infetti (tramite Pen Drive via USB). Anche in questo caso ci si avvale di antivirus standard che devono essere eseguiti sulle macchine a rischio ed essere mantenuti costantemente aggiornati. Da alcuni anni, attraverso l'azione di importanti agenzie europee, si sta diffondendo anche in Italia una maggiore attenzione alle problematiche di sicurezza industriale legate alle interfacce uomo macchina (HMI).



istono diverse direttive europee applicabili alla sicurezza delle apparecchiature e delle macchine industriali.

La Direttiva Macchine 2006/42/CE

La Direttiva sull'uso delle attrezzature di lavoro da parte dei lavoratori durante il lavoro 89/655/CE modificata dalle direttive 95/63/CE, 2001/45/CE e 2007/30/CE. Queste due direttive sono direttamente correlate e i requisiti essenziali per la salute e la sicurezza (EHSR) previsti dalla Direttiva Macchine possono essere utilizzati per confermare la sicurezza delle attrezzature descritte nella direttiva sull'uso delle attrezzature di lavoro. L'attuale Direttiva Macchine è entrata in vigore dal 29 dicembre 2009 e comprende chiarimenti ed emendamenti, ma non introduce modifiche sostanziali ai requisiti essenziali per gli EHSR previsti.

Invece, comprende delle modifiche da tenere presente a livello di tecnologie e metodi. Inoltre, il suo campo di applicazione è stato ampliato per coprire alcuni tipi di macchine in più (ad es. montacarichi per cantieri edili). Ora inoltre, è richiesta esplicitamente una valutazione dei rischi per la determinazione degli EHSR applicabili e sono state apportate delle modifiche relative alle procedure di valutazione della conformità per le macchine indicate nell'Allegato IV (macchine pericolose e alcuni componenti di sicurezza). La Direttiva riguarda la fornitura di macchinari nuovi e di altre attrezzature, compresi i componenti di sicurezza. La fornitura nei Paesi dell'Unione Europea di macchine non conformi alle disposizioni e ai requisiti di questa direttiva costituisce un reato. La definizione di "macchina" nell'accezione più ampia riportata nella Direttiva è la seguente: "Insieme

equipaggiato o destinato a essere equipaggiato con un sistema di azionamenti diverso dalla forza umana o animale diretta, composto di parti o componenti, di cui almeno uno mobile, collegati tra loro solidamente per un'applicazione ben determinata." È compito del produttore o di un suo rappresentante autorizzato assicurare la conformità alla direttiva dei macchinari forniti. Tutti i macchinari devono soddisfare i requisiti fondamentali di sicurezza e salute. La Direttiva sull'uso delle attrezzature da lavoro è rivolta agli utilizzatori delle macchine ed è rispettata utilizzando macchine e macchinari conformi alle norme. Riguarda l'utilizzo di tutte le attrezzature da lavoro, compresi macchinari di sollevamento e attrezzature mobili, in tutti i luoghi di lavoro. Le attrezzature di lavoro devono essere adatte all'uso e garantire la sicurezza nel tempo, attraverso una corretta manutenzione. Pertanto come visto con l'introduzione del mercato comune europeo le disposizioni di legge nazionali che regolano la realizzazione tecnica delle macchine sono state uniformate e armonizzate tra loro. Nell'ambito della sicurezza, perciò, sono stati stabiliti requisiti di base che in parte si rivolgono al costruttore, e sono definiti nell'articolo 95 sulla libera circolazione delle merci, e in parte all'utilizzatore, ovvero il gestore, e sono definiti nell'articolo 137 sulla sicurezza sul lavoro. stagnant.

Led Luminaries Market

A cura di Roberto Frizzo

The market for light-emitting diode (LED) luminaires, or optimized permanent light fixtures, is expected to grow more than 12-fold over the next decade – from \$2 billion today to \$25 billion in 2023 — according to the latest report out from Lux Research. Christopher Hwang, the lead author of "Casting the Light: Illuminating the Opportunities in 2023's LED Luminaire Market," says the team's research is based on observing industry trends, interviews with key technology developers, and interviews with component suppliers. In its news release, Lux states, "LED package costs will fall over 80% to less than \$4 for a standard 3,500 lumen recessed modular luminaire on improved efficiency, increased manufacturing yields and utilization. As a result, the bill of materials (BOM) will fall 35%, from \$85 in 2013 to \$55 in 2023." Hwang mentioned elements that are already present in the industry, but have not come into play. For example, three years ago the Chinese Government was providing up to 50% of the funds needed to purchase a MOCVD (metal organic chemical vapor deposition) tool. MOCVD's normally cost \$2 million and a lot of Chinese companies took advantage of this offer, but they have not yet ramped up production. The industry is still young and LED package efficiency has increased from 70 lm/W to 130 lm/W in 2012. This trend is expected to continue. "As LED packages rapidly fall in cost and improve in efficiency, the cost structure of LED luminaires will shift, and present opportunities in other components such as secondary optics and drivers," said Hwang. We can say that Average Lumen per Watt has more than Doubled in only Five Years "This trend, in turn, influences the rate of adoption of emerging technologies, such as alternating current (AC) LEDs and high-CRI LEDs in recessed modular, high-bay and roadway luminaires," he added. "The sec-

ondary optics market will be the single biggest growth opportunity in components, growing to \$6.9 billion in 2023, while the drivers market will reach \$4.9 billion. High-CRI LED is expected to remain a niche product used in high occupancy applications, that will only attract about 9% of the market. A High-CRI LED res-

tratta di apparecchiature particolarmente adatte a un ampio spettro di applicazioni in tutte le industrie di processo, adatte anche per l'uso in applicazioni igieniche e in ambienti difficili. Il design modulare delle quattro versioni base, con numerose opzioni di configurazione, consente la misurazione di livello nelle indu-

Printed and flexible sensors
A cura della redazione

Printed and flexible sensors are playing an increasingly important role in printed electronics. The biggest market is currently glucose sensors used by diabetics. However, other types of printed sensors are emerging. IDTechEx forecasts the market for printed sensors will have increased by more than \$1 billion by 2020.

Sensors in general have a much simpler structure than displays or logic circuits. The technology barrier against commercialisation is therefore less steep compared to many other printed electronics applications. In fact, some types of sensors have always been printed. And there are many types of sensors, therefore many addressable markets.

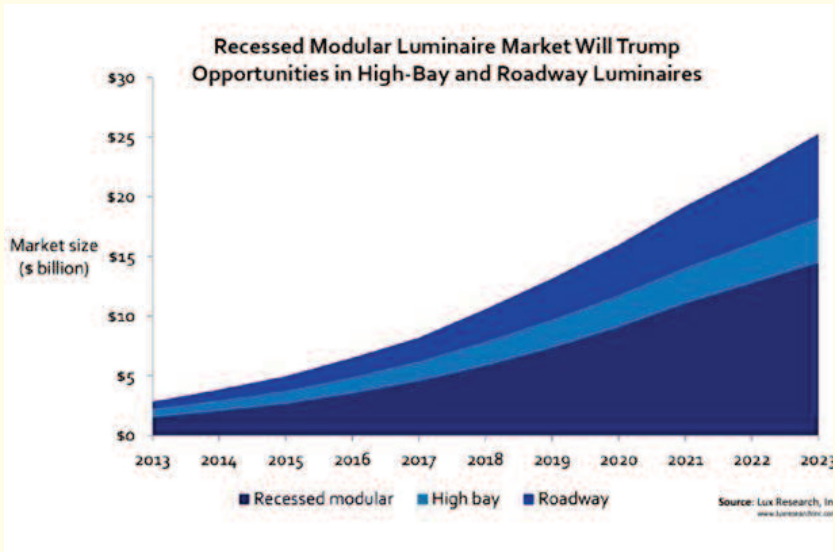
This report covers the following categories of printed and flexible sensors: biosensors capacitive sensors (not including touchscreens) piezoresistive & piezoelectric (pressure, force, or strain) sensors, Photoelectric (photodetectors, hybrid CMOS image sensors and digital X-ray sensors), Temperature sensors, Gas sensors

Opportunities in established and emerging markets
Printed and flexible sensors already represent a value of \$6.3 billion in 2013. The biggest market is currently biosensors, where disposable glucose test strips are used to improve the lives of diabetics. However, other types of printed sensors are emerging, taking advantage of the latest materials. By 2024, these emerging applications will take a significant share of the total printed sensor market:

Relative market size for printed and flexible sensors in 2024

IDTechEx expects new hybrid CMOS image sensors to quickly become the second largest market, with organic or quantum dot semiconductors replacing silicon as the photosensitive material in several applications. Piezoresistive sensing is already an established market.

Growth in piezoresistive sensors will however get additional momentum, explained by a combination of favourable trends. While the two biggest market segments are currently in Consumer Electronics and Healthcare, the next five years will see Automotive take a larger share, ultimately outgrowing Healthcare. In this scenario, IDTechEx expects the piezoresistive sensor market to triple by 2018, corresponding to 23% CAGR. Other types of printed and flexible sensors such as photodetectors, temperature sensors or gas sensors are only emerging but they promise better performances, new form factors and ease of customisation. Now is the right time to enter the market and some companies are already positioned to reap the benefits.



idential bulb was marketed for \$10 in March 2013, but this is an exception in a sector whose primary concern has been the quality of color rendition. The specifications are generally high, which makes CRI one of the most expensive LED products. Hwang identifies the optics market as a huge opportunity. "The LED package market will be dwarfed by opportunities in optics and drivers. The secondary optics market will be the single biggest growth opportunity in components, growing to \$6.9 billion in 2023, while the drivers market will reach \$4.9 billion.

Trasmettitori radar per sicurezza industriale

La nuova famiglia di prodotti Sitrans LG è costituita da trasmettitori di livello radar che utilizzano la tecnologia delle onde guidate. Si

tratta di apparecchiature particolarmente adatte a un ampio spettro di applicazioni in tutte le industrie di processo, adatte anche per l'uso in applicazioni igieniche e in ambienti difficili. Il design modulare delle quattro versioni base, con numerose opzioni di configurazione, consente la misurazione di livello nelle industrie del petrolio, chimiche e farmaceutiche, ma anche in quelle alimentari. Il trasmettitore radar modulare copre un ampio spettro di applicazioni per la misurazione di liquidi e interfacce ed è conforme allo standard di sicurezza SIL2. Sitrans LG240 è stato specificatamente progettato per applicazioni igieniche nell'industria farmaceutica e alimentare e possiede i certificati EHEDG, FDA e 3A. Sitrans LG250 è sviluppato per la misurazione dei livelli di liquido, come nel trattamento delle acque. La versione Sitrans LG260 misura con precisione i livelli di solidi, granulati e polveri anche con molti detriti. Queste apparecchiature possono operare in ambienti particolarmente gravosi ad alte temperature, fino a 450 gradi Celsius (842° F) o alte pressioni fino a 400 bar (5800 psig), come quelli nella chimica o petrolchimica



IoT , Sensors and Embedded

A cura di Armando Zecchi

Abstract : L'introduzione sul mercato di IoT è strettamente correlata allo sviluppo di sensori di nuova concezione, adatti ad essere utilizzati in collegamento diretto ai nuovi algoritmi necessari .Nella recente edizione di CES 2014 (LAS VEGAS) e nella recente edizione di Embedded World (Norimberga) si sono poste le basi per trasformare il puro interesse generico in soluzioni realmente disponibili sul mercato.

Challenges abound as designers deal with the analog nature of sensors, IP issues and the new algorithms required by the IoT. This Articles reflect some ideas from some designers . This is also about Eco Design Sensors and new trend. Sensors represent both the great enabler and unique challenge for the evolving Internet of Things (IoT). Innovation in the market will come from surprising places. Everyone talks about the importance of sensors to enable the Internet of Things (IoT) but few seem to appreciate what that means. Sensors are one of our key initiatives, especially from a microcontroller viewpoint (more on that shortly). But there is another aspect to sensors that both designers and even companies overlook, namely, the algorithms for processing the sensor data. These algorithms, from companies like Hillcrest, bring a unique value to the IoT market. And the algorithm software represents a real intellectual property (IP). I think people are missing out on the IP that is being created there. Most people overlook the IP aspects and simply focus on the processing challenges needed to condition analog sensor signals into a digital output. We can say that processing power is critical, because is there where distributed local and cloud computing comes in. But there are many other factors, such as energy harvesting to power sensors in areas you never thought of before. Both body and mess network communication challenges are another factor. Conversely, one enabler of sensors is their inexpensive cost. Ten years ago, an accelerometer was a really expensive piece of silicon for an automotive airbag system. Now, they are everywhere, even in cell phones which are very cost sensitive. The MEMS market has evolved with a very interesting mass and that's the reason. There is still a lot of evolution there. You see a lot of new comers with MEMS applications but I think you'll see a lot of consolidation because only the strong will survive. Another factor is that few vendors use only one sensor, but rather a lot of sensors. A common example is multi-sensor accelerometers: one sensor gives you a good

pitch, the others give you yaw and roll. So you will always need three of four sensors, which means that you have to have software to handle all of them.

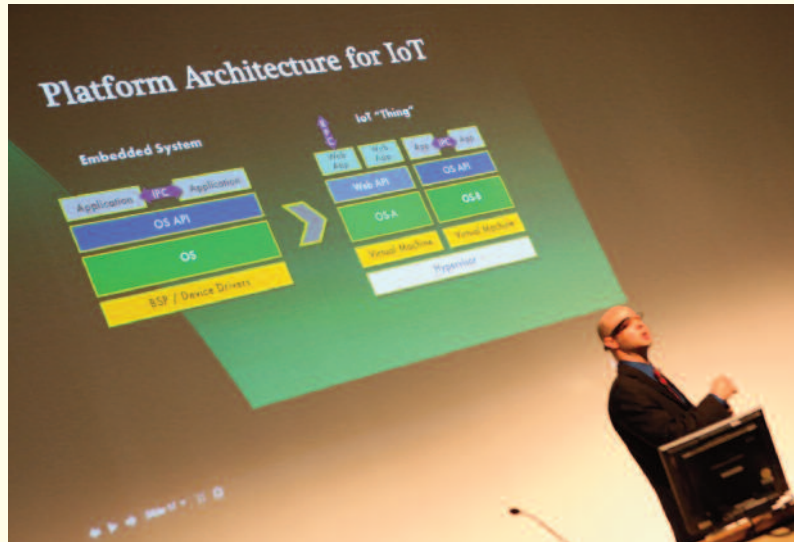
Software to control and integrate data from the various sensors is one way. Others Designers are oriented to think software algorithms to deal with the resulting data. In my opinion the solution is about 50% each one.

Software is needed to control and ensure the accuracy of the sensors. But developers are also doing more contextual awareness

Sensors require a microcontroller, something with analog inputs. But there are still lots of designers who ask, "Why do you need to integrate the microcontroller with the sensor? It's just an accelerometer." They seem to forget that data acquisition is an analog process. The sensor data that is acquired must be conditioned and digitized to be useful in contextual or predictive applications. And that requires lots processing. Another thing designers forget about is calibration (see Figure 3). Calibration is a big deal to get the accuracy necessary for all the contextual awareness applications. Calibration of the MEMS device is only part of the issue. The device must be recalibrated as part of the larger system once it is soldered and packaged to a board, to deal with temperature affects (of the solder) and flexing of the board. All of these things play a part of the system-level calibration. You might think that, well, the sensors guys should do that. But the sensor guys are good at making a MEMS device. Some MEMS manufactures are vertically integrating to handle calibration issues, but others just want to make the device. This is another area where innovate IP can grow, i.e., around the calibration of the MEMS device to the system.

When we talk about IoT we can have many informatins about the world. I.E. at CISCO Live, (Milan 27.1.2014) Professor Decina (Politecnico of Milan) said that at Milan University , a formal course was there from 4 years, and many Engineers are working to research and developing new solution for IoT. But we can think Where will innovation come from as the IoT evolves? The ecosystem is where innovation will emerge. Part of this will come from taking application developed in one area and applying them to another. Recently, several automotive developers (and companies) are thinking to start with IoT solutions Probably they lack of expertise in developing certain types of algorithms – the same algorithms that companies about Digital World have already created for mobile consumer applications. We can think that in some months they will be able to integrate to handle calibration issues, but

others just want to make the device. This is another area where innovate IP can grow, i.e., around the calibration of the MEMS device to the system.



and predictive analysis. By contextual, I mean that a smart phone turns on when it's being held next to my head. Predictive refers to what I'll do next, i.e., having the software anticipate my next actions. Algorithms enable those capabilities

This is the next evolution in handling the data. You can use sensor fusion (sensors plus processors) to create contextual awareness. That's what people are doing today. But how does that evolve into predictive algorithms?

Anticipating what you want is even more complex than contextual awareness. It's like using Apple's Siri to anticipate when you are hungry and then order for you. Another example is monitoring a person's glucose level to determine if they are hungry – because their glucose levels have dropped. It could be very intuitive or predictive down the road. Smart algorithms are another reason why processing power is a key enabler in the IoT evolution. About really need of designers we can sa that the major request is about scalable processing power.

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produce in the automotive market a new algorithm about sensor platform for automotive technology. We can say IP creation in that space market. That is where innovation is coming, by taking that raw sensor data and making it do something useful. Consolidation is occurring throughout the world of semiconductor design and manufacturing, especially at the lower process nodes. WE can talk about similar consolidation happening in the sensor space. Right now there is an explosion of sensor companies, but there will be a consolidation down the road. The question one should ask is if integration key to the sensor and IoT space. In this moment is difficult to say, yes or no The semiconductor company would like to see a microcontroller (MCU) next to every sensor or sensor cluster – whether it is directly integrated to the sensor array or not. This is where scalability is important. Processing will need to be distributed; low power processing near the sensor with higher performance processing in the cloud. It is very difficult to put a high-powered fan based system in a sensor. It just won't happen. You have to be very low power near the sensor. Not only is the sensor node a very power constrained environment but it is also resource constrained, e.g., memory. That's why embedded memory is critical – be it OTP or flash. In addition to low power, it is the cost of that memory is actually more influencing than the CPU.



We can also see that also the zigbee consortium is very connected to this tema. During the 2014 edition of CES a new concept was introduced by Arrayent.

Internet of Things technology demonstrations

IOT platform for connected products and systems was exposed at CES 2014 by Arrayent a company that work in virtualization technology for the Internet of Things. During the 2014 Consumer Electronics Show this company announced a lineup for new connectivity solutions and showcased its solution as part of its IOT Platform for Connected Products and Systems.

On the heels of its 11.9 million dollar Series B Funding Round led by DCM Ventures and Intel Capital in December 2013 Arrayent exposed several new products that are designed to enable manufacturers of consumer products, retailers and service providers to strengthen their relationships

with consumers. Arrayent is taking a differentiated approach to the Internet of Things. Its device virtualization technology minimizes the hardware and software complexity associated with adding Internet connectivity to consumer products. Device-virtualization places most of the compute power and software in the cloud, rather than in the device itself. By shifting complexity and functionality into the cloud, Arrayent customers reduce the cost of connected devices such as smoke detectors and thermostats while making them more reliable and much easier for consumers to install and use. Among the highlights this year, The San Francisco Company had demonstrating a new low cost multi-protocol manufacture-ready design that supports ZigBee HA1.2, Z-Wave and Arrayent's 900/868MHz protocol. Arrayent will also unveil its Mobile Framework, a new extension to the Arrayent Connect Platform. The framework accelerates mobile application development for partners building compelling, best-in-

class user experiences on iOS and Android. Arrayent used the framework to develop a 'smart home' mobile application that lets a user remotely monitor and control connected devices such as lights, smart plugs, thermostats and sensors.

New Solutions for Marquee customers

Arrayent's broad ecosystem of customers, including Whirlpool®, Pentair and Chamberlain, was showcased several new products at this year's CES, all of which are powered by the

Arrayent Cloud Connect Platform and was demonstrated during the show at the Arrayent booth): Chamberlain/Lift Master – MyQ Garage is a universal Internet connected garage door opener retrofit kit, supporting any garage door opener brands. The accompanying Chamberlain MyQ Garage smartphone app enables consumers to control and monitor their garage doors from anywhere in the world, at any time. MyQ Garage was recently introduced to the Apple Store and other leading retailer channels. First Alert - SmartBridge Smoke Detector – is at the heart of First Alert's new DIY home security system. Homeowners can monitor their home at any time, from any place. The system is modular so that consumers can add to their system easily and affordably over time. Pentair Water - Virtual Water Assistant battery backup sump pump - combines a powerful battery backup sump pump with Internet-connected technology that allows homeowners to monitor and test their



backup system from anywhere in the world. Salus Controls - IT 500 Internet connected thermostat – Launched by leading heating controls specialist, SALUS' iT500 enables European consumers to control their home heating and hot water from anywhere via their smartphone or PC. Whirlpool Smart Appliances with 6th Sense Live™ Technology – allows consumers to know everything is running smoothly at home, including sending alerts on the appliance status and notification of progress during their daily functions (i.e. load complete).

IoT and Embedded

Another reference about IoT was developing the keynote of Embedded world Nurnberg on 24.02.2014. During this important public speech, the migration concept from embedded to IoT was defined in scientific mode. It is a very important step to create a real world of IoT. Green Hills Software CTO David Kleidermacher delivered the Conference Keynote on Tuesday, 25 February, in the Conference Keynote Theatre, on the topic "Securing the Internet of Things:" To the world, the Internet of Things (IoT) is the latest technology megatrend and buzzword. But to our community, it is the natural progression for embedded systems, which enjoy increased capability in ever-smaller designs, year after year. Nevertheless, we have reached an inflection point where even the most resource-constrained devices, such as battery-powered industrial sensors, can host sophisticated communications stacks, enabling an exciting world of possibilities that some have claimed represent a \$14 trillion business opportunity over the next decade due to increased efficiency and new revenue models. Security is largely an afterthought: businesses almost never design in security for the sake of protection. Rather, businesses must be compelled by government regulation or see a clear business advantage. This talk will discuss the security and privacy challenges introduced by IoT and how developers in the IoT world can use security to gain competitive advantage in their designs and their businesses.