

LOPE-C 2011, June 28-30, 2011: Forum Messe Frankfurt

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Printed Electronics Powers 'Car of the Future'

Stuttgart, Frankfurt, February 22, 2011: *Organic and printed electronics is well on its way to mass markets. Cost-efficient roll-to-roll printing drives electronic systems for consumer goods and industrial control to ultra-compact layouts and energy efficiency. The 'car of the future' will sport elegant and ergonomic cockpit designs with embedded illumination, displays and touch sensors. Thin yet highly brilliant OLED backlights will be glued directly to the car's body. LOPE-C 2011, held June 28 to 30 in Frankfurt, Germany, features automotive electronics as a timely agenda.*

'Car of the Future'

The topic 'Car of the Future' imposes no limits to fantasy: electric and/or hybrid drives, hydrogen or fuel cells come to mind - even the classical if CO₂-optimized combustion engine. Amid all these, one thing is clear: electronics will play a lead role. Novel illumination systems, 'smart textile' seats, solar cell generators, and more. Above all: new information systems will bring revolutionary changes to the car's interior, interactively networking driver and vehicle with ambient traffic flows - in a delicate balance of assistance and autonomy.

The road ahead to the automotive future is printed electronics, based on flexible substrates of functionalized polymer films. Printed electronics covers large areas while being less than a millimeter thin. By mid-decade there will be fully integrated, smooth and aesthetically pleasing interiors with embedded displays and switches. They will show only when needed and activated by slight touch.

Brilliant Displays and Touch Sensors

The decisive advantage of printed electronics: it makes brilliantly colored displays and capacitive touch sensors to be integrated in the curved surfaces of the car's interior: dashboard, central console, seats, ceiling, armrests, kick plates, and more – positioned exactly where they provide touches of luxury and add ergonomic value.

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Thus, the bulky rims and knobs of the past are gone - mutating to smooth operating surfaces for highest functionality and perfect, futuristic cockpit designs. A forerunner of these ideas is the Porsche Cayenne. In 2008, automotive supplier Schreiner PrinTronics based in Oberschleissheim near Munich, Germany, demonstrated its core competency of functional printing by fitting the show car's interior with blue light emitting electroluminescent films – creating a distinctive ambient light experience.

Significant Gains in Packaging Density

Utilized as embedded displays and switches, printed films are less than 2 millimeters thick, when including protective lamination and graphical overlays for crisp text and animated gauges, brightly colored indicators and touch-operated switches. They are fitted on the car's curved or bent interior surfaces. This also pertains to the exterior: very thin yet brilliant OLED backlights are directly glued to the car body. Printed conductors connect with the car's electrics. No screws, no parts protruding to the densely packed innards. A decisive gain of usable space.

Longer Lifespan

A special advantage of capacitive touch sensors is that they are proximity switches. They can be activated by gestures, not to distract the driver's attention. Of course, for vital functions they work by applying definitive pressure to a marked area with visual and/or auditory feedback.

The crucial factors that speak for printed switches are their robust behavior and long service life, says Judith Ihle, Product Manager at Schreiner PrinTronics: "The number of possible activations is significantly higher than those of mechanical switches. The sensor function of printed films is not subject to wear."

Organic Electronics Drives IT and Design

BMW, ten years ago the first European car maker to offer a head-up display based on laser projection onto the windshield, thus creating the first free-form display integration, regards printed electronics a vast opportunity. "Printed and organic electronics has the potential for realizing illumination embedded in the design and significantly more brilliant displays than doable with LCD screens", says Robert Isele, at the BMW Group in Munich responsible for the perceived value of the car interior.

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"Flexible displays and sensors can easily functionalize the complicated geometries imposed by car designers. Plastic electronics introduces a significantly higher degree of freedom in system layout and space-saving integration." Not just in premium cars, but especially in smaller model series. At LOPE-C 2011, Isele will present a keynote "Flexible Electronics as Key for a New Perceived Value of the Car Interior."

Over the mid term, Isele says, LCD and laser projection will hold on to their positions before functionalized printed films will take over. "Integration of functional elements at minimal space constraints, low energy consumption and simplified assembly has the highest priority."

Information and Control Display

BMW is introducing an exciting new, alternative drive control system, called "Vision ConnectedDrive". It's a free-form display embedded in a flat screen like a tablet PC, realizing novel design features. As the main information monitor it will emulate the car's drive-relevant instruments. Multiple layers of transparent OLED films allow for displaying simultaneous information. "Display and illumination, realized as free-form design," Isele says, "is the core application of flexible plastic electronics." Unfortunately, laser projectors are rather voluminous. "Future driver assistance systems need adequate information methods for intuitive interaction."

LOPE-C 2011: the Future of Automotive

Automotive applications are among the key topics at LOPE-C 2011 held June 28 to 30, 2011, at Messe Frankfurt, Germany. Offering more than 150 conference presentations by leading experts from industry and research, LOPE-C represents the state and the trends of printed and organic electronics, including its applications, maintaining highest professional standards. With more than 850 conference participants and visitors expected and more than 85 exhibitors anticipated, LOPE-C 2011 is set for new records in attendance.

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More about the fascinating world of organic and printed electronics in the new OE-A Video 'Printed Electronics - Ready to Go!'

<http://www.vdma-webbox.tv/english/filmdatabase/printed-electronics-ready-to-go.html>

About LOPE-C

LOPE-C (Large-area, Organic & Printed Electronics Convention) is the leading, fully industry-sponsored annual conferences and exhibition of organic and printed electronics. LOPE-C presents the economic trends and the scope of scientific achievements in the field. The convention focuses on the production and application of organic and printed electronics. LOPE-C is jointly organized by the Organic and Printed Electronics Association (OE-A) and Mesago Messe Frankfurt GmbH. www.lope-c.com

About OE-A

Formed in 2004 as a Working Group within VDMA (German Engineering Federation), the OE-A (Organic and Printed Electronics Association) is the foremost professional body representing the worldwide organic and printed electronics industry. With more than 150 members throughout Europe, North America, Asia and Australia, OE-A represents the entire industrial value chain. www.oe-a.org

About Mesago Messe Frankfurt

Mesago, founded in 1982 and based in Stuttgart, is one of the world's leading organisers of special interest exhibitions, conferences and seminars. The company belongs to the Messe Frankfurt international network, employs 60 staff and annually organises exhibitions and conferences all over the world attracting over 2,500 exhibitors and 100,000 trade visitors www.mesago.de.

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Captions:

Schreiner PrinTronics:

1. The Interior of the Porsche Cayenne Show Car Illuminated by Electroluminescent Films



2. Multifunctional Operating Surfaces Realized as Printed Films



Source: Schreiner PrinTronics

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These hi-res pictures are downloadable from www.lope-c.com

BMW Group:

Hi-res pictures regarding this press release can be downloaded from www.press.bmwgroup.com