

Transcript for Engineering Newswire 8: Glasses-free 3D and a near replacement for Knight Rider

Editor

Welcome to Engineering Update, brought to you by Mouser Electronics, the electronic components distributor with the widest selection of the newest products. With this week's headlines, here's Executive Editor David Mantey

David: In this week's headlines:

The Fastest Electric Car On The Market
Capturing Energy From Waste Heat
Longer-Lasting Lithium-Sulfur Batteries
Charging Phones Without Electricity
and 3D Screens ... Without the Glasses

Melissa: A new screen protector from Nanovue, called the EyeFly, gives mobile devices a glasses-free 3D display. The EyeFly is made out of a thin, transparent film that works in portrait and landscape mode, while leaving the original brightness of the screen undiluted. The nano-engineered EyeFly is essentially a piece of plastic film with thousands of finite lenses on the surface that use nanoimprinting technology.

Jeff: The miniaturized integration of lenticular lens technology, which uses multiple lenses to magnify separate sections of an image and render stereoscopic 3D images, means the glasses hold over 500,000 miniature lenses at a thickness of .1 mm.

In order to implement the EyeFly, a viewing app must be downloaded, which uses specific calibrations to sync the film with the screen. The EyeFly lets you view images and video in 3D for a mere \$34.95.

Melissa: Detroit Electric has reportedly created their first purely electric sports car. It's also boasted to be the fastest of its kind and first to be fully integrated with a smartphone. The SP.01 is an open-topped roadster with a mid-mounted motor and lightweight battery pack. Using a re-engineered sports car platform, the vehicle weighs in at 2,403 pounds, reportedly one of the lightest available. This is largely in part to its bonded aluminum structure and carbon-composite body panels. Additionally, the integrated smartphone at the center console not only makes phone calls, but also manages the in-car infotainment system, allows for making regenerative braking adjustments and controls the interior lighting while providing vehicle system status updates. This handy smartphone system can even help locate your car, remotely turn on the climate controls or check the charge status.

Jeff: The SP .01 is operated by an air-cooled asynchronous AC motor, which distributes power through a re-engineered gearbox. Power comes from two lithium polymer battery packs that can charge in 4-8 hours.

Detroit Electric claims that the SP.01 can also reverse the charging in the event of a power failure. Using its 360 Powerback feature, the car can detect a loss in current and feed electricity from the batteries back into the plug. Detroit Electric plans on beginning production of the SP.01 in 2014.

Melissa: A new process for thermoelectrics has been discovered by the Fraunhofer Institute. Through the use of a technology similar to inkjet printing, the scientists created flexible, thin sheets of thermoelectric generators, called TEGs. The printer-like cartridges used in the process deposit ultra-thin layers of cost-efficient thermoelectric polymer paste.

Researchers working on the new technique hope the generator film could one day be applied to walls on the inside of concrete cooling towers at power stations. The film could help stabilize the difference between the cool outside surface and the steamy interiors. A station's waste heat, which traditionally escapes through the towers, could possibly be contained and used for energy.

Jeff: Currently, the most efficient thermoelectric techniques are only able to convert about 15 to 20 percent of heat waste into electricity. However, with this affordable polymer material, a wider area of the towers could be covered with the energy-conserving substance. The TEG material is even said to be less toxic than other TEG materials, which are typically made from such hazardous materials as lead.

Melissa: In another recent advancement made by the Fraunhofer Institute, researchers have reported significant progress in the development of longer-lasting batteries. Scientists at the Institute for Material and Beam Technology in Dresden have reported the production of a long-lasting, cost-efficient lithium-sulfur battery. The lithium-sulfur batteries produced in the past didn't keep their charge long, but that may change with a new design that was shown to increase the lifespan of button cells up to 1400 cycles.

Jeff: Rather than using the traditional metallic lithium material, the stability of the battery was improved through a combination of anode and cathode material. The anode is made from a silicon-carbon compound, while the cathode is made from elemental sulfur, making it much cheaper to produce than cobalt cathodes. Though the researchers have yet to break the official lithium-ion density record of 400 watt-hours per kilogram, they plan on refining the process exponentially. This could mean significant applications for use in electric cars, smartphones, and other portable electronic devices.

Melissa: A new concept has been developed for charging your cell-phone battery when there is no source of electricity. With a soon-to-be funded project on Kickstarter, SOS Ready has created a charging feature called the SOSCharger. The charger works through the use of a crank that generates power manually during an emergency situation or other instances where there is a lack of a traditional power source.

Airport officials were especially pleased as this could significantly reduce violence at the gate where battles for outlets have caused nearly as many casualties as the shock of inflight alcohol prices.

Jeff: For every 3-5 minutes of manual cranking, the SOSCharger provides 5-12 minutes of talk time. Included in the charger is a standard USB port, which allows a variety of devices to be used. Also included with the SOSCharger are indicator lights and an integrated power switch that keeps the battery from excessively draining during periods of non-use.

Once the battery is charged, the SOSCharger acts as a backup power source for just about any USB-powered devices. The SOSCharger works with all modern smartphones, including the iPhone, iPod, Blackberry and Kindle. The device is boasted to be very user-friendly and conveniently pocket-sized. Even though the project has a few more days to go, it has already far surpassed its original funding goal.

That wraps up this week's report. I'm Jeff Reinke, and this has been your Engineering Update!

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