

NEWS FROM:



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemakingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
La Grotto House, Glendarrach Rd, Rondebosch, Cape Town
Tel: +27 (0) 21 650-3733/2, Fax: +27 (0) 21 650-5682
Internet: www.uct.ac.za

24 January 2012

New applications mark UCT as centre of ‘nanovation’ University’s spin-out firm and Norwegian tech company to develop more efficient temperature sensor system for perishables packaging

The NanoSciences Innovation Centre at the University of Cape Town and the centre’s spin-out company, PST Sensors, have recently introduced joint developments in thermal imaging and sensor imaging technology that can increase efficiency and safety in a number of industries, including food and pharmaceutical packaging, retail, transport and logistics, aerospace and automotive engineering, healthcare, marketing and advertising.

As a result, PST Sensors and Thin Film Electronics, a leading provider of roll-to-roll printed, rewritable non-volatile memory products based in Norway, today announced a partnership to jointly develop a printed sensor system that will monitor the temperature of perishables such as food and pharmaceuticals. The printed sensor system can be manufactured in high volumes for a fraction of the cost of traditional silicon microelectronics. It will be able to monitor individual packages to ensure that their contents have been kept at optimal temperature. The first demonstration prototype is expected this year.

“Our work with Thinfilm has the potential to unlock significant new market opportunities, and is an excellent example of the transformative impact that printed electronics will have on the entire supply chain,” said Margit Härting, associate professor in physics at UCT and founder and chief strategy officer of PST Sensors. “For many applications we need to know not only the average temperature, but its distribution. This isn’t possible using conventional sensors, especially over a large area or an oddly shaped surface,” she said.

Christer Karlsson, chief technology officer of Thinfilm, said: “The team behind PST has been working with the printed silicon technology over the last decade, and PST Sensors is the leading company in its field,” said Christer Karlsson, chief technology officer of Thinfilm. “Its printed silicon sensor technology is uniquely easy to manufacture and offers a low cost point.”

Best in Show at Silicon Valley

PST Sensors and UCT's presentation of a large-area temperature sensor received the Best in Show Award at the recent 2011 Printed Electronics USA Conference in Silicon Valley, California at the end of November. This is their second major award, following their 2010 Printed Electronics Europe Academic R&D Award.

The temperature sensor was designed to look like a decorative graphic. Professor David Britton, co-director of the NanoSciences Innovation Centre, said: "The large-area sensor looks like a novelty gimmick, with the active sensor printed in the form of a graphic design, a zebra for example, using silver ink for the contacts with the black silicon nanoparticle ink for the active semiconductor, or even a tiger, using a copper ink."

Conventional electronic temperature sensors can measure temperature at a specific point only. By contrast, the large-area sensors developed by UCT and PST Sensors can be printed onto a container – or even wrapped around it – to measure the average temperature over a large volume.

Professor Britton said: "The averaging over a large area makes the temperature reading more stable, avoiding the influence of hot or cold spots and poor thermal contact with the object whose temperature is being measured. Imagine the temperature of a fridge or incubator, or even a room, being measured on all the walls at the same time instead of at one position near the door."

The team also displayed a thermal-imaging mat in Silicon Valley. Like an infra-red camera, this device produces a picture of an object's temperature profile – but unlike a camera, it doesn't need a clear line of sight. The technology has many potential applications in advanced engineering, particularly in the aerospace sector, where engineers need to pinpoint temperature distribution in airframes or engine housing. There is also great potential in chemical processing and nuclear engineering, to monitor the process in a reactor vessel.

Professor Härting said: "We're investigating uses in health care and the NanoSciences Innovation Centre is working with a broader consortium that includes members of the Faculty of Health Sciences at UCT."

ENDS

Issued by: UCT Communication and Marketing Department

Patricia Lucas

Tel: (021) 650 5428 Fax (021) 650 5628

Cell: **076 292 8047**

E-mail: pat.lucas@uct.ac.za

University of Cape Town
Rondebosch

Website: www.uct.ac.za