



## India develops affordable nano sensors to detect heart attack

A team of Indian scientists and engineers has developed affordable sensors using nano materials to detect a heart attack quickly. The device with nano sensors can not only detect a heart attack, but also transmit its signal through a wireless interface to doctors located remotely for quick diagnosis and treatment. The three-dimension sensors use nano electrical mechanical system (NEMS) of its polymer material to convert any abnormal movement in the heart muscles into an electrical signal for detecting a cardiac symptom. The team has built a cantilever in the sensor using tiny or nano-particles of the polymer to measure the stress symptom (myocardial infarction) in the heart and convert it into an electrical signal. Nano-particles, measured as one billionth of a metre (39 inches), in a polymer generate electrical current through biochemical process of the enzymes produced in the heart.



The study also revealed that half of all heart attacks across the country occur to people below 50 years and 25 percent under the age of 40 due to unhealthy diet, smoking, chewing tobacco, physical inactivity and changing lifestyle of the growing urban populace.

## Indian made e-reader to take on Kindle

After two years of hard work, Vishal Mehta, an ex employee of Amazon.com, launched the Infibeam Pi, an e-reader that looks like the Amazon Kindle. It has the same e-Ink screen that the Kindle sports.

Mehta, who is having an engineering degree from Cornell and an MBA from MIT-Sloan, worked in Amazon.com for five years and was a senior manager at the company in 2007. To start his own online retail venture, Mehta quit his job, sold his house and his car.

The Infibeam Pi, which is priced at Rs.10, 000, can be ordered online now and is likely to be shipped in February, is priced at Rs. 10,000. The Amazon Kindle, when shipped to India, costs about Rs.18,000. The Pi supports 13 Indian languages. Infibeam.com, an online retailer that sells everything from flowers to jewellery to books to electronic goods, has more than one lakh ebooks.



Mehta said, "It's pointless in India, there is no 3G. When we have wireless connectivity, we probably won't restrict what users can browse. Our essential philosophy is to be as open as possible."

The Pi has also a micro USB port to connect to a PC. Users will just be needed to create an account with Infibeam.com, register the device and then download the ebooks. The ebooks can be read on the PC as well as on the Pi. The ebooks typically cost 5-20 percent less than the hard copy versions, but in some cases, especially with bestsellers, digital rights are expensive and it's cheaper to buy the physical books. With the help of Pi, users will be able to read any documents (word or pdf, for instance). "A test prep firm can load their proprietary content on this device and give it to students, without worrying that the material will get passed around," said Mehta.

The company plans to sell about 10,000 devices in the first few months. The company has started accepting pre-orders on the website and is motivated by the initial response.

## **Punjab farmers shown food processing methods to improve profits**

Latest food processing technologies to produce green chilli powder, guava bars and peanut milk have been developed by the Central Institute of Post-Harvest Engineering and Technology (CIPHET), a premier institute of Indian Council of Agriculture Research (ICAR) in Ludhiana. The technology was showcased to farmers, self-help groups and small entrepreneurs by CIPHET.



CIPHET does research in post-harvest engineering and technology that is appropriate to agriculture production and agro-industries. Established in 1989 in Ludhiana, the organization also conducts research and development on fruits and vegetables and commercial horticulture crops. The organization helps farmers to add value to their crops, leading to better income and increased employment opportunities in the rural sector.

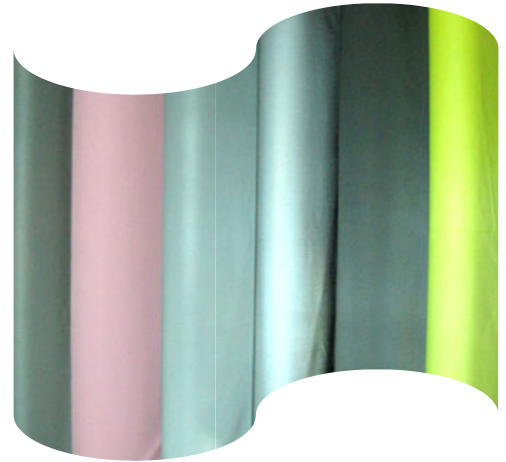
According to Dr. Dilip Jain, senior scientist at ICAR, the time is appropriate for value addition. Earlier, products were sold at low profits leading farmers to leave farming. However, if the opportunity was provided, farmers could increase their profitability.

Take the case of chillies. India is the largest and biggest exporter of chillies in the world with a production of more than eight lakh tones of dry chilli from an area of over nine lakh hectares. Punjab has around 9,000 hectares under chilli and produces more than 14,000 tonnes of chilli every year. As the production of powder/puree from green chilli is now possible with technology intervention of CIPHET, farmers would not require to keep their fields occupied for a month more waiting for the green chillies to turn red.

## **New sorting system enables production of new clothes from old**

Used clothes are collected in all major European countries, but what really happens to these textiles? About half are wearable and find their way back into consumer textiles. The other half are either recycled for industrial purposes, for example as insulation material, or they are disposed of. A new European project plans on offering an alternative: Making new clothes from old clothes.

Dutch and German project partners, including the Laser Zentrum Hannover (LZH), are working on a production chain which will turn old clothes into new clothes. The first step is sorting. First wearable clothes are sorted out manually. The rest are automatically sorted according to material and colour the batches are, the better they can be further processed. The goal of material identification is to reach a 95-99% sorting accuracy at a speed of at least 10-kg/min.



### **Spectroscopy system**

The heart of the sorting line is a spectroscopy system developed by the LZH. Based on the reflection spectrum of each material in the visible and infrared range, the system will recognize not only which material it is (cotton, wool, polyester), but also the colour. The LZH is responsible for the conception of the identity unit and the software development.

After identification and sorting, the textiles are shredded and spun into new threads, which are then woven into new clothes. Commercialization of the technology should lead to at least 10 sorting plants in Europe. The 30 month project is supported by the Eco-Innovation Program of the European Commission.

**Source:** [www.efytimes.com](http://www.efytimes.com), [www.siliconindia.com](http://www.siliconindia.com), Processed Food Industry, Feb 2010, Chemical Weekly.

**Note:** The author may have used various references in the preparation of this article. For further details please contact him/her.

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