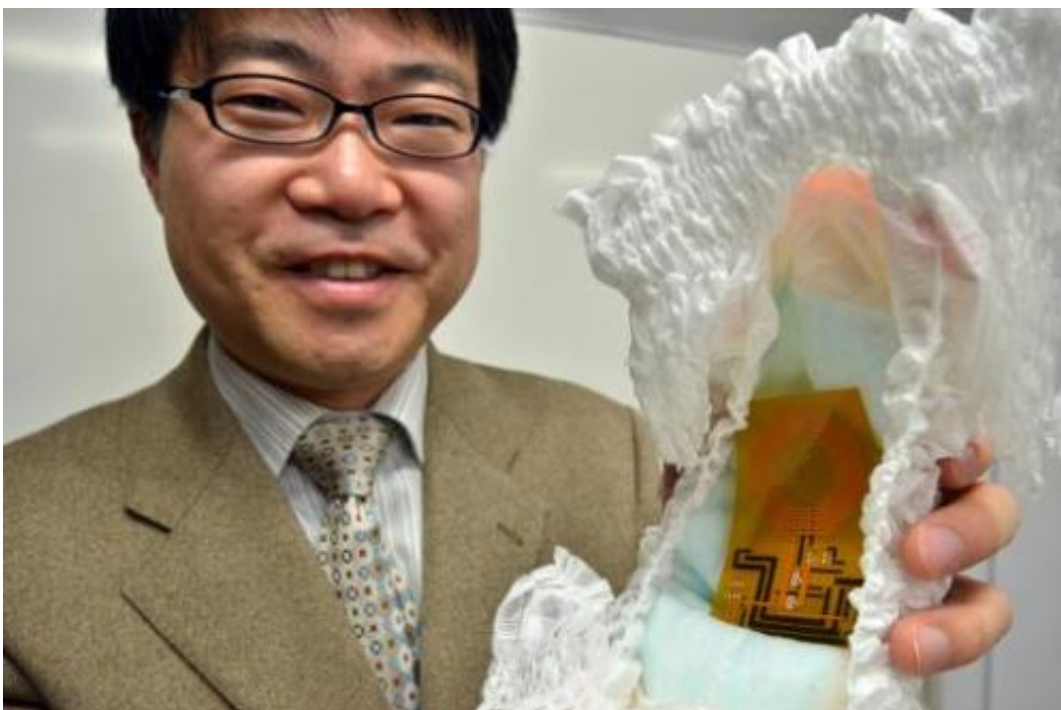


Japan sensor will let diaper say baby needs changing

February 10 2014



University of Tokyo professor Takao Someya pictured with the world's first disposable wireless organic sensor embedded in a diaper on February 9, 2014

A disposable organic sensor that can be embedded in a diaper and wirelessly let a carer know it needs changing was unveiled by Japanese researchers on Monday.

The flexible integrated circuit printed on a single plastic film transmits

information and receives its power wirelessly, and could potentially be manufactured for a few yen (US cents), the developers told AFP.

The system, which uses organic materials that can be printed with [inkjet technology](#), was developed by a team led by professors Takayasu Sakurai and Takao Someya at the University of Tokyo.

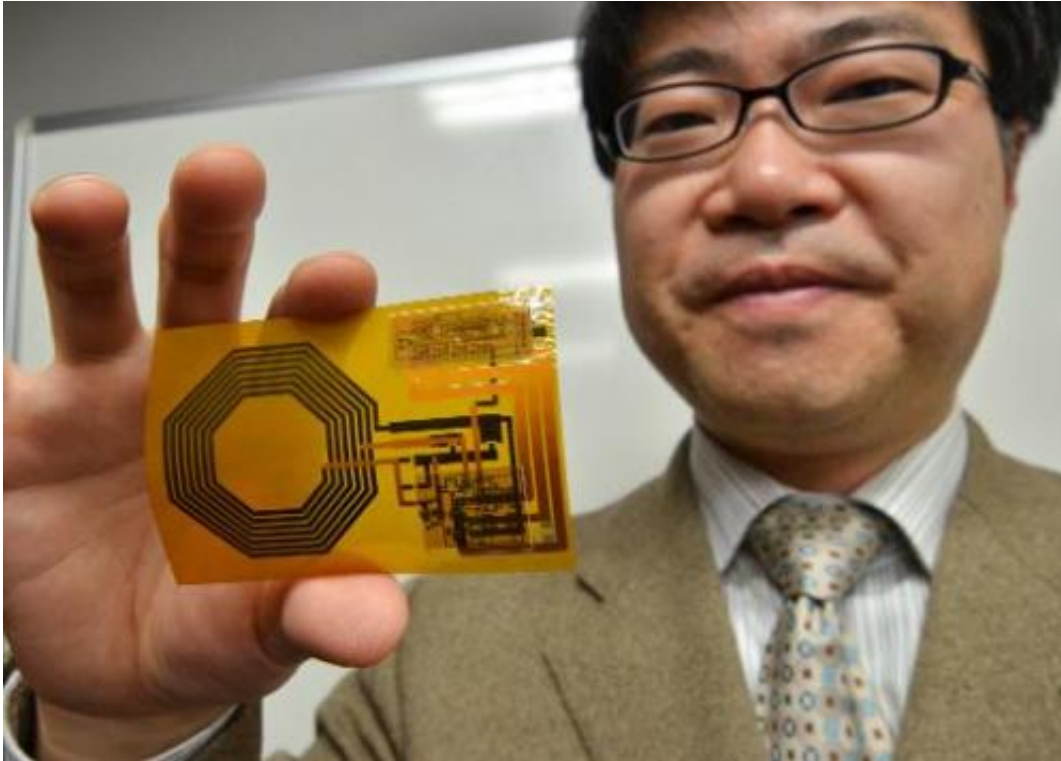
In addition to use in infants' diapers, the technology can be applied to adult nappies, which are a big-seller in rapidly-ageing Japan.

Regular diapers change colour to indicate they are wet, but a care-giver still needs to take off the wearer's clothes to see.

"If sensing is done electronically, you can tell simply by coming close to the wearer—without unclothing him or her," Someya said.

The technology could also be put directly on the skin like a plaster, in place of often ring-shaped devices currently used in hospitals to monitor pulse and [blood oxygen levels](#), he said.

Healthcare sensors often use silicon and other relatively rigid materials that can cause their users discomfort.



University of Tokyo professor Takao Someya holds the world's first disposable wireless organic sensor on February 9, 2014

The flexibility of a single sheet of [plastic film](#) reduces discomfort for wearers and means it can be applied to a larger number of places—offering greater potential for doctors or carers to monitor well-being.

The prototype system that has been developed is capable of monitoring wetness, pressure, temperature and other phenomena that cause a change in electrical resistance, said Someya, but the team would like to refine it to reduce its power consumption before it goes into widespread use.

Currently the data-reading device needs to be a few centimetres (inches) from the sensor, but Someya said the team was exploring how practical this is and whether they can boost the distance.

Researchers are to unveil their work at an academic gathering now under way in San Francisco.

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