

Scientists develop 'e-paper' to stem e-waste generation

One can store info on device by writing on it, and can also erase it and rewrite

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Scientists from Raman Research Institute, Bengaluru, and University of Malaysia have created an optical device which behaves like 'paper', but with a difference. Not only can a person store information on the device by writing on it, he/she can also erase it and rewrite on it, all using ultraviolet light. According to the research team, while some modification and developments are needed to make the device commercial, the aim of the technology developed is to reduce the use of paper as well as generation of e-waste.

The optical storage device is made up of a new series of liquid crystals, that is gold nanoparticles decorated with compounds called azobenzenes. An optical storage device is a display device which can store energy when light of suitable wavelength falls on it.

According to the experts, there have been extensive developments of nanomaterials for their application in high-technology and medical devices. Liquid crystals have attracted scientific communities for their application in display devices, sensors, drug delivery vehicles, controllable lenses and lasing devices.

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-AR Yuvaraj, research



changes occur in the photo-sensitive system, when light of suitable wavelength falls on it. These chang-

es are visible to our eyes. Hence, information/text/picture can be written by the light illumination.

This is an approach to stop the use of papers," A R Yuvaraj, research at RRI and one of the authors of the study, told Bangalore Mirror.

The team has been working on developing this technology for four years. Their findings have also been published in the Journal of Colloid and Interface Science. Yuvaraj said that this patented technology could replace anything that uses paper to store information.

"This technology may replace papers. We would also like to collaborate with industry to make liquid crystal blackboard, which may replace the present black boards," added Prof Sandeep Kumar from RRI.

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"It is all about energy storage by the light illumination, via photoisomerisation of materials which is coated inside the device. In photoisomerisation, molecules undergo a structural change, when energy, in the form of light, is given to the molecules. The molecules, which are in a stable configuration, are changed into an unstable configuration, when light falls on them. This enables a person to write on the device and store what has been written," he added.