

# Research team turns real paper into changeable display medium

November 1 2012, by Bob Yirka

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(Phys.org)—Researchers at the University of Tokyo's Naemura Group have succeeded in creating a changeable display medium using paper coated with a photo chromatic material. The system allows for drawing on paper using a pen that applies Frixion's friction thermo sensitive ink which becomes transparent when heated. The images created are captured by a camera and are sent in real time to a computer which can be used to alter the image. Erasing parts of the drawing are caused to occur on the paper by projecting light heat onto it from below. The resultant system allows for drawing images that can be changed

automatically, such as having areas fill in, parts being removed or highlighted or even reproduced elsewhere on the paper. The research group calls their system a new kind of paper computing technology.

The system is made up of two projectors – one above and one below – a laser, a UV light source and a pen. Images are drawn on the paper using the pen, which appear via thermo sensitive ink. The paper is then transferred to the [lighting system](#) platform where the images are captured from a camera placed above the platform. The laser and UV light source allow for capturing additions to the images on the paper while the projector below allows for erasing portions of it (at intervals of .024 millimeters).

The new paper [computing technology](#) differs from others in that images are not simply projected onto paper, or captured using a [digital pen](#), instead they become as much a part of the paper as regular ink on regular paper even while allowing real time changes to occur. The system is a possible [precursor](#) to technology that would allow more than one person to work with a shared image on pieces of paper being used at more than one location – a form of shared drawing that can be edited by more than one person at the same time in different locations – similar to document editing systems that allow people in separate locations to simultaneously change words and graphics in text documents. The advantages of such a system would be hard copy based graphic output that can be viewed without the need for electronic equipment.

**More information:**

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Citation: Research team turns real paper into changeable display medium (2012, November 1)  
retrieved 25 April 2024 from

<https://phys.org/news/2012-11-team-real-paper-changeable-medium.html>

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