

НОВІТНІ ТЕХНОЛОГІЇ ДИСПЛЕЇВ FLEXIBLE SCREEN TECHNOLOGY

Hewlett-Packard researchers say, they expect to deliver to the U.S. Army a working prototype of what they're calling a "Dick Tracy wristwatch" - a lightweight, wearable device that soldiers in the field can use to view digital maps and other data on a flexible plastic screen that won't shatter or crack like glass. Though it will be spartan by design, researchers say HP's prototype could be one of the first in a new wave of products incorporating flexible electronic displays. Freed from the constraints of a rigid glass screen, designers could one day build flexible plastic displays into clothing, wall coverings and perhaps even e-readers or tablets that can roll up like a newspaper. "Unlike glass, plastic doesn't break when you drop it on the floor," said Taussig, whose employer has a vested interest in electronic displays, as the world's biggest seller of personal computers. Standard components for liquid crystal displays, used in most portable computers today, generally require a rigid glass to keep images from being distorted. Traditional displays also depend on transistors that are embedded in glass through processes that involve temperatures high enough to melt or distort plastic. The process starts with rolls of plastic that has been treated with thin layers of metal and other material. [1]. The plastic is run through a press that imprints a microscopic, three-dimensional pattern, which can then be etched to create transistors on the film. These can transmit instructions to electrically charged particles or diodes contained in a second layer of plastic, which then displays text or images. Advantages: Flexible plastic displays can be thinner, lighter and more durable than glass, which can lower manufacturing costs, increase product life and make new designs possible. Applications: First will likely be smart phones, tablets and notebook computers. It could eventually be used in clothing, wall displays and other products that can be curved or rolled. Challenges: Requires new manufacturing processes and transistor materials. Hewlett-Packard is working on a method for imprinting and etching spools of plastic film; others are working with sheets of plastic temporarily bonded to glass. In similar fashion, the film is then etched to create the layer of transistors that form the lower plane of the display. The transistors will convey digital signals to charged particles or diodes in a top layer, creating symbols or images. Next will come products with screens that are curved or molded permanently into innovative shapes, he added, while a screen you can roll up and stuff in your pocket may be several years away.

1. *<http://www.physorg.com>*