



TECHNOLOGY

Biologically-Inspired Visually Implemented Blending in a Local Environment (B-InVisIBLE) Active Camouflage

OVERVIEW

A flexible, conformable display mechanism has been described that is capable of creating a wide variety of color combinations and spatial patterns, which uses the chromatophores and reflective underlying layer of cuttlefish skin as biological inspiration. Basic operation is similar in concept to the operation of passive-matrix LCDs, whereby the application of voltage may be indexed to a particular location on the display so as to localize the display of color and pattern. This device is likely to prove useful as a means of providing active camouflage capabilities in that it provides a highly flexible and therefore wearable display mechanism. It may also be of interest to clothing manufacturers and advertisers as it could provide a means of wearable and highly changeable personal expression to the consumer market.

The novel features of this device are as follows:

- It is capable of displaying variable color and pattern over a large surface area.
- It is comprised of inexpensive elastomers that lend themselves well to mass production.
- It is made of highly flexible elastomers capable of functioning under strains on the order of 10% and surviving strains as high as 100%, allowing it to be flexible and conformable, and therefore can be worn as clothing or wrapped over complex geometric surfaces (e.g.. Aircraft wings, automobile surfaces, surface and under-water vessel surfaces, etc.).
- The device requires small amounts of power to operate, where power consumption is proportional to the activated surface area and the frequency at which the 'pixels' are cycled on and off.
- This device is self-contained and does not require a separate light source (e.g. backlighting). The device utilizes ambient light to create the display. However, a separate light source such as a backlight could easily be incorporated to create flexible displays that are visible in low-light situations.

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Additional Information

INSTITUTION

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PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Devices

EXTERNAL RESOURCES

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