

Press Release

Bartels Mikrotechnik at Hanover Fair 2008

!! press presentation !!: April 21st 2008, 2 pm

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From Droplets to Pixels

Electrowetting displays enter the world of digital microfluidics

A novel kind of microfluidic display will be a central part of Bartels Mikrotechnik's presentation at this year's Microtechnology in Hanover. The display developed on behalf of ADT GmbH applies the power saving technology of electrowetting.

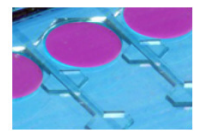
This technology, which has been realized for low content displays so far, is based on a simple principle: The surface tension of droplets on a hydrophobic substrate is being modified by applying a potential difference. Switching on the voltage underneath a droplet causes the liquid to expand, turning it off makes the droplet return to its contracted form. When an electrode next to a contracted droplet is being energized, the droplet moves over – and remains in its new position when the voltage is switched off again. Thus only in the short moment, in which the displayed content changes by the movement of droplets between hidden reservoirs and the visible surface, energy is required.

These power saving and bistable displays can for example serve as on/off-displays or memory state indicators in mobile phones, PDAs, USB sticks or mp3 players. But the technology is in no way restricted to such small dimensions. The fluid pixels with its highly light-transmission properties and a reflector mounted behind them, the electrowetting display warrants full visibility even when used in bright sunlight. Temperature is not a limiting factor either, because the ADT droplet driven display works in an extremely wide temperature range. Thus it has decisive advantages especially for large-scale outdoor advertising applications as for example variable billboards.

Beyond display technology, electrowetting shows great future potential in further sectors. In micro optics, electrically controlled fluidic lenses already are being built into mobile phone cameras. In highly integrated microfluidic

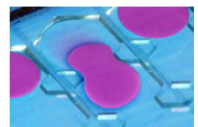
Voltage

OFF



← 2 mm →

ON



OFF



Droplet movement by electrowetting

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systems as 'lab-on-a-chip'-devices, liquid samples can be controlled by electrowetting as either a continuous flow or as single micro droplets. The latter can be transported, processed and analyzed one by one without a channel geometry. They can be programmed and moved freely upon a surface.

As electrowetting provides control over binary states of singular droplets, it marks an important step towards a whole world of digital microfluidics. Visitors of this year's Hanover Fair can join the journey at booth F 16 / K 1 in hall 6, where amongst other demonstrators a seven-segment droplet driven display will be presented for the first time.

About Bartels Mikrotechnik

Bartels Mikrotechnik utilizes its broad MEMS background to provide innovative technologies and product solutions for various branches. Over twelve years of experience and a reliable network of partners distinguish the company. Combining engineering services for industrial customers with the development of its own products and components, Bartels Mikrotechnik generates a growing stock of knowledge and IP every customer benefits from.

At the Hanover Fair 2008 the company demonstrates its creative competence and the innovative potential of fluidic MEMS by showing solutions developed for customers as well as its own micropump family and microvalves.

Bartels Mikrotechnik at the Hanover Fair

April 21st to 25th 2008 at the MicroTechnology, [hall 6, booth F 16 / K 1](#)

!! A general [presentation for journalists](#) is scheduled for April 21st 2008, 2 pm, at the booth.

If you are interested in an interview or further picture material in the run-up to Hanover Fair, please contact

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