Smart Test Strip Enabled by Inkjet Printed Microfluids

A smart test strip platform that allows for wireless, real-time data sensing

Georgia Tech Researchers had developed a smart test strip platform that incorporates microfluidics and RFID technologies to enable wireless, real-time data sensing. The testing platform is fabricated using an inkjet printing process, which is a cost-effective, environmentally friendly manufacturing approach. The microfluidic component of the test strip incorporates multiple chemical sensors on a single strip. The information from these sensors can be interpreted using a cell-phone camera. The testing strip is also embedded with electrical sensors, which obtain information such as temperature and transmit that information using an RFID chip. The combination of the microfluidic and RFID technologies create a wireless and portable, testing platform compatible with handheld devices.

Summary Bullets

- Cost effective manufacturing approach
- Eco Friendly
- Light-weight

Solution Advantages

- Cost effective manufacturing approach
- Eco Friendly
- Light-weight
- Zero-power required
- Results are real time and easily accessible
- Information can be transmitted wirelessle

Potential Commercial Applications

- Manufacturing control
- Environmental monitoring
- Point-of-care medical diagnostics

Background and More Information

Test strips are used to obtain chemical and biological information in virtually every industry, from industrial manufacturing control to personal healthcare. There are two distinct types of test strip technologies in the market; microfluidic and radio frequency technologies. Paper-based microfluidic analytical devices are sought after because they can integrate multiple chemical tests into a single testing strip. Radio-frequency identification (RFID) technologies are used in sensors to allow for real-time tracking of information. Current test strip platforms utilize either microfluidic or RFID technologies. Thus, there is a need for a platform that can incorporate both technologies.

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IP Status

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Publications

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