Microfluidic pH sensors

UTA (14-04)

Technology Need:

It takes an average of 12 years for a drug to travel from the research lab to the patient. Microfluidic devices that are used in various applications ranging from cell biology to drug discovery reduce the analysis time. Due to size limitation and inflexibility, the conventional microfluidic device is difficult to use for in vivo bio medical or clinical applications. To achieve small sizes and robust designs pH sensors were proposed. However, current fabrication methods have several disadvantages including potential contamination, photo bleaching and narrow dynamic responses.

Solution/Offering:

Researchers here at UTA have developed a unique miniature pH sensor that can be embedded in a microfluidic device. It can be used in more complex and sensitive biological and chemical reaction mechanisms. The apparatus is designed to detect a small amount of sample resulting in increased sensitivity. The pH sensors exhibited a long-term stable and linear response during testing. The fabrication process is simple with low-cost projected manufacturing.

Meet the Inventor

J.-C. Chiao received his B.S. degree in the Electrical Engineering Department, National Taiwan University in 1988, M.S. and Ph.D. degrees in Electrical Engineering at California Institute of Technology in 1991 and 1995, respectively. Dr. Chiao has published and edited numerous peer-reviewed technical journal and conference papers, book chapters, proceedings and books.

Value Proposition:

☑ Improved sensing range
☑ Decreased consumption of sample and reagent
☑ Simple fabrication process with mass production
☑ Increased reproducibility

Industrial application:

☑ Healthcare: Fertility clinics, Drug discovery
☑ Biomedical: Laboratories

Patent Status:

☑ Patent pending PCT

Current Stage:

☑ Prototyped and Tested

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