

***TRANSDERMAL GLUCOSE SENSING AND MONITORING SYSTEM***

Georgetown University, Gentag, Inc., and Science Applications International Corporation (SAIC, NYSE: SAI), have combined their intellectual property to develop a transdermal, painless method for glucose measurement and monitoring using disposable skin patches with wireless sensors and cell phones. The skin patches, in combination with new sensor-chip technology, eliminate the traditional pain and discomfort of the current “finger prick” technology used by diabetic patients. Each patch can be used for 100 or more glucose readings that can be taken at any desired time interval over prolonged periods of time. The glucose measurements can be read-out through a cell phone, which can be programmed to provide additional benefits, such as control of an insulin pump and emergency geolocation of patients.

The novel transdermal monitoring system can be used by both Type 2 and Type 1 diabetes patients, with either throw-away patches or continuous monitoring devices, respectively. The cost of this sensing device per measurement is a small fraction of current “finger prick” methods and is anticipated to provide an estimated annual savings of \$3,000 per year for Type 1 diabetics and \$300 per year for Type 2 diabetics.

Preliminary research and development was funded by the Defense Advanced Research Projects Agency (DARPA) at the Department of Defense to monitor the status of injured soldiers in a battlefield by measuring lactate or other metabolites in the body’s interstitial fluid. The prototype work was a collaborative effort of Georgetown University and SAIC.

The current prototype patch is made using standard silicon fabrication techniques commonly used in the manufacturing of integrated circuits. Interstitial fluid is accessed by a microburst of heat which ablates the stratum corneum non-intrusively. The fluid then rises through capillary action to the detector layer of the patch. Up to 100 sampling sites may easily be fabricated on a single patch. High density patches of up to 40,000 test sites can also be designed to greatly increase the number of measurements per chip.



Medication Pump

Smart Wireless Patch

The SAIC and Georgetown glucose sensor technology can be combined with Gentag’s cell phone RFID-sensor reader platform technology in a variety of formats, including remote sensing, increased-distance radar responsive tag technology, or use of a “card” sensor that is read by a cell phone. The technology is protected by 21 issued and pending U.S. and international patents.

For more information about acquisition or licensing, please contact  
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