Researchers at the University of South Florida have developed a fully implantable long term Silicon Carbide (SiC) RF antenna for continuous sensing/monitoring glucose in a diabetic patient.

Over the decades, the major problem that affects the daily life of patients of permanent disease such as chronic diabetics is obtaining blood samples at regular intervals in a day to monitor the glucose levels. Such intermittent testing is laborious, often painful and requires significant diligence to adequately reflect true glycemic patterns. In recent years, considerable progress has been made in developing implantable biosensors that can continually monitor the glucose levels. But the biosensors developed thus far can only remain functional up to 10-30 days after their implantation in the body. Factors like degradation and fouling of the sensor and the changes in the tissue surrounding the sensor such as fibrosis and inflammation contribute for this loss of functionality in the biosensor.

In order to address all this inadequacies USF inventors have developed a fully implantable long term continuously monitoring antenna sensor fabricated using fully implantable biocompatible Silicon Carbide material that will remain functional in the body for years. When implanted under the skin, the biosensor will monitor the glucose levels and thus transmit the data to near by personal computer with the help of antenna fabricated over the biosensor. Further, The device will potentially impact the lives of 25.8 million patients in the united states alone living with diabetes. Because continuous monitoring is vital for efficient management of glucose levels, the device will potentially eliminate substantial number of hospitalization due to complications of poor management thereby saving millions of healthcare dollars. It will not only save money but because of the miniature size of the device, both children and adults will benefit from this technology.

The invention is immediately applicable for mass health, commonwealth care and commercial use.

ADVANTAGES:

- Long term glucose monitoring
- Improved sensing potentiality with silicon carbide
- Reduce the risk of the devastating long-term complications
- Reduce chronic diabetic complications
- Avoid hospitalizations
- Improved quality of life of patients

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