Researchers at the University of South Florida have developed a Continuous Glucose Monitoring System based on remote sensing of variations of parameters of a SiC implanted antenna.

Continuous monitoring of blood sugar levels is necessary for patients with a high risk of hyperglycemia. All currently approved continuous glucose monitoring (CGM) systems require a disposable needle–like insertion into the body and only lasts up to a week. It also requires calibration four times a day with a finger stick blood sample technique. Non–invasive technologies lack accuracy due to being susceptible to external factors, making it not reliable.

Our Inventors have developed a novel method that would allow the monitoring of glucose via an implantable passive antenna, which relieve patients from constant pricking, yet giving a reliable and accurate result.

This device is composed of two main sections: 1) A passive antenna made from biocompatible silicon carbide (SiC), modeled to a desired frequency, which is permanently implanted subcutaneously. 2) An external-to-the-body transmitting antenna is used to detect changes in the blood glucose level by sending a radio signal at the frequency of the implanted passive antenna. Changes in the glucose level lead to modifications in the signal and can be used to determine the blood glucose level externally.

This technology would improve the overall costs and patient comfort level as it can potentially reduce painful blood collection procedures, eliminate the constant replacement of current CGM disposable needles, and will not elicit skin irritation and burning which has accompanied many of the non-contact CGM currently available.

Advantages:
- Eliminates constant pricking for blood samples
- No internalized power source
- Highly biocompatible

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