

Embedded Wireless Temperature Sensor for Orthopedic Implants (#7682)

A wireless and battery-less temperature sensor that can be embedded inside an orthopedic implant, such as an interference screw

A wireless and passive (battery-less) temperature sensor that can be embedded inside an orthopedic implant, such as an interference screw. The sensor is based on an inductive-capacitive (LC) resonant circuit that is inductively powered so temperature at the implant can be measured wirelessly. The application of the sensor is to monitor internal wound temperature for the diagnosis of local infection at the implant site.

Benefits/Advantages

- Utilizes temperature as indication of deep tissue infection
- Deep tissue measurement vs. only reaching skin surface
- Non-invasive monitoring

Potential Commercial Applications

- Research tool to investigate infection
- Simple, early detection of infection at implant site
- Orthopedic Implants

Background/Context for This Invention

Infections are a significant risk to patients who receive orthopedic implants, and can often lead to implant failure, tissue necrosis, and amputation. Current approaches for diagnosing orthopedic implant-associated infections include blood tests, radiographic imaging and histological studies. The issues with these methods are that they are slow, tedious and nonspecific. In recent years, thermographic imaging has been used to monitor local temperature at the external surgical sites as a mean to detect infection, but its applications are limited to surface or near surface wounds.

Dr. Robert Erling Guldborg

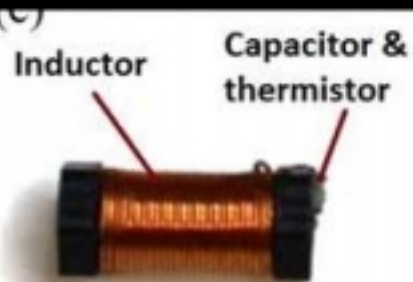
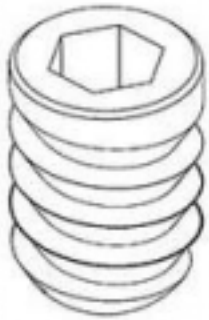
Department of Bioengineering/ Mechanical Engineering- Professor

Keat Ghee Ong

Michigan Technological University- Professor

Salil Sidharthan Karipott

Michigan Technological University- Graduate Research Assistant



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For more information about this technology, please visit:

<https://industry.gatech.edu/technology/embedded-wireless-temperature-sensor-orthopedic-implants>