

Embedded Wireless Temperature Sensor for Orthopedic Implants

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.

Summary Bullets

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

Solution 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 and More Information

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.

Inventors

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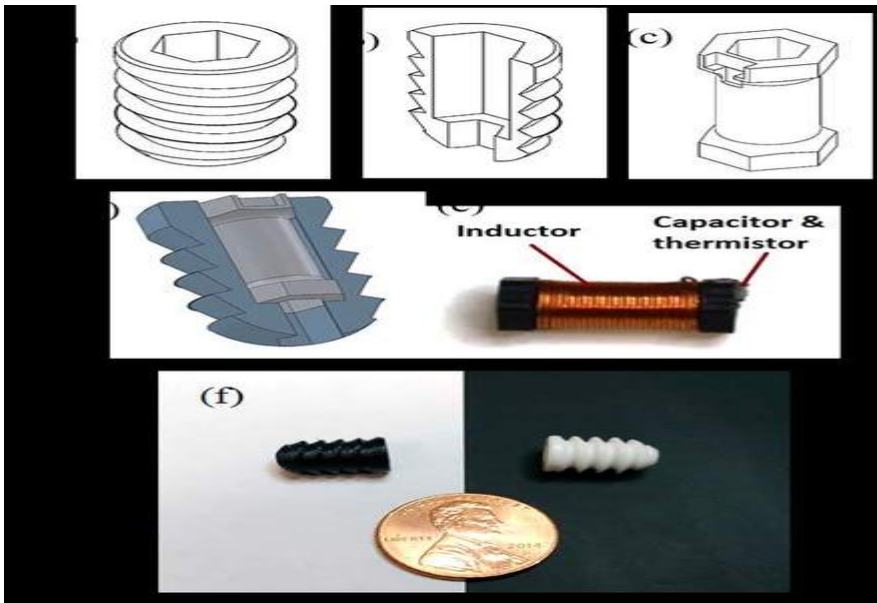
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