

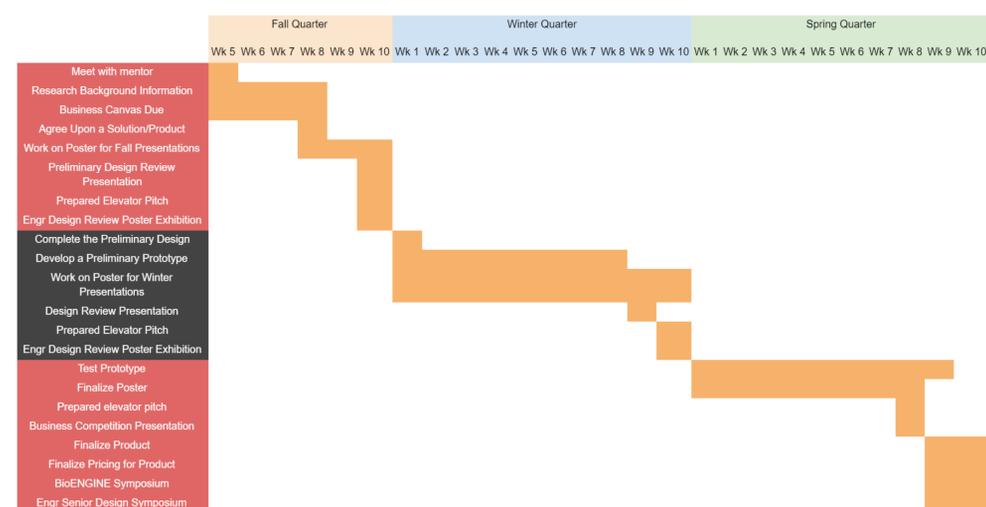
The Problem

Most people dread surgery due to the toll it takes on the body and the innumerable complications which are possible. One such complication is that of having a tool left inside the patient's body. This is known as a case of a Retained Foreign Object (RFO) and our team aims to combat this issue. Cases concerning RFOs are not superfluous - there are approximately 2000 to 4000 cases documented annually according to the national quality forum. However, this is classified as an incident that should never occur which means serious liabilities for when it does. The liabilities include hundreds of thousands in state fines, litigation against the hospital, malpractice litigation targeting the surgeon, and large insurance payouts.

Contact Information

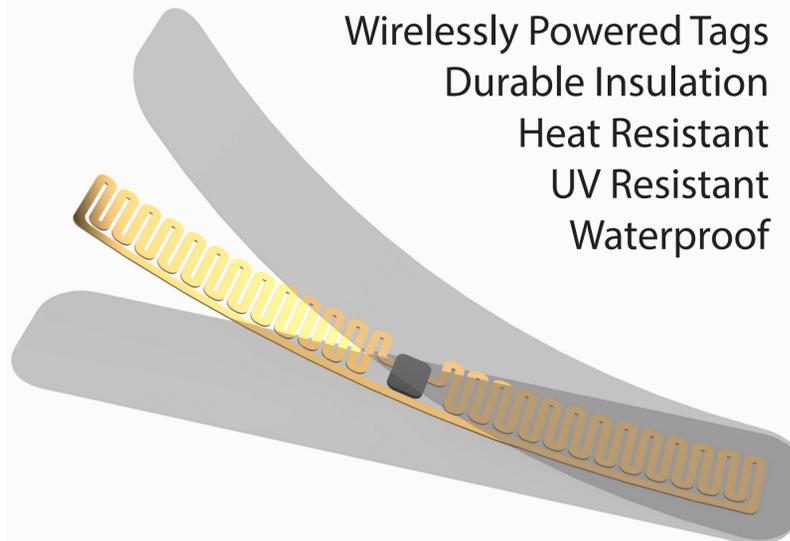
JobertoL@uci.edu
949.910.4924

Timeline



Ultra High Frequency RFID

Wirelessly Powered Tags
Durable Insulation
Heat Resistant
UV Resistant
Waterproof



The Solution

Our proposed solution is to use passive Ultra High Frequency Radio Frequency Identification (UHF RFID) tags coupled with a ceiling mounted scanning device. The UHF RFID tags consist of a flexible flat-wire antenna and an IC chip. These tags will be designed to withstand sterilization temperatures and the adhesive will be UV, heat and water resistant. The overhead scanner will deliver power to the passive UHF RFID tags and be able to detect whether they are in the patient or not. There is currently a similar technology implemented for tracking sponges during surgery which is sold by companies including Medtronic. However, there is no competitor with the form factor or durability to be used on surgical instruments.

RFOID

Team Members

Team Lead: Joberto Lee - MSE & ME
Product Designer: Warren Zhang - MSE
Manufacturer: Gurbir Jhaj - MSE
Business Strategist: Hana Schlosser - BME
Marketing Director: Maggie Yeung - BME

Team Advisors

Engineering Mentor: Christine King, PhD
Physician Mentor: Ninh Nguyen, MD

Overhead Scanning Device

Range of 0-3 meters
Flesh Penetration
Safe Power Levels
Safe Frequencies

References

