

Project Scope

Team 314: Abbott Reusable RF Probes

Project Description

Currently, Abbott's reusable RF electrodes have a lifetime of about 50 uses. This project aims to research and design an improved model to ensure the probes are reliable for at least 100 uses. They must be as efficient as the current models but have a significantly larger life span.

Key Goals

The main goal is to modify Abbott's current reusable RF electrode so that it is capable of enduring at least 100 uses. This will be done by utilizing biocompatible materials that improve the probe's ability to withstand repeated uses and extreme heat stress caused by the sterilization process. A secondary goal for this project is to develop a non-user-dependent closed-loop capability to track how many times each electrode has been utilized. This project ultimately aims to offer a safe and reliable way to improve the reusability of Abbott's RF electrodes to meet the growing needs of the medical industry safely.

Markets

The primary market for this project will be hospitals in the United States. Secondary markets include research centers, private clinics, and national labs.

Assumptions

It is assumed that the probe will operate at a frequency of 2Hz to 460kHz. The customer has access to an autoclave or similar sterilization equipment. It is assumed that the customer will operate this probe with Abbott's RF Generator. It is assumed that the probe will be subjected to temperatures according to the sterilization technique chosen. It is assumed that trained medical professionals will operate this device. It is assumed that the device will go through the FDA approval process.

Stakeholders

The primary stakeholder is the project sponsor, Abbott. Other stakeholders in this product are patients who will receive RF ablation treatment, physicians administering this treatment method, and other biomedical device companies. Facilities such as hospitals, private clinics, physicians' offices. The FAMU-FSU College of Engineering Department of Electrical and Computer Engineering and the Department of Chemical and Biomedical Engineering are also stakeholders, alongside the project advisor Dr. Rajendra Arora.