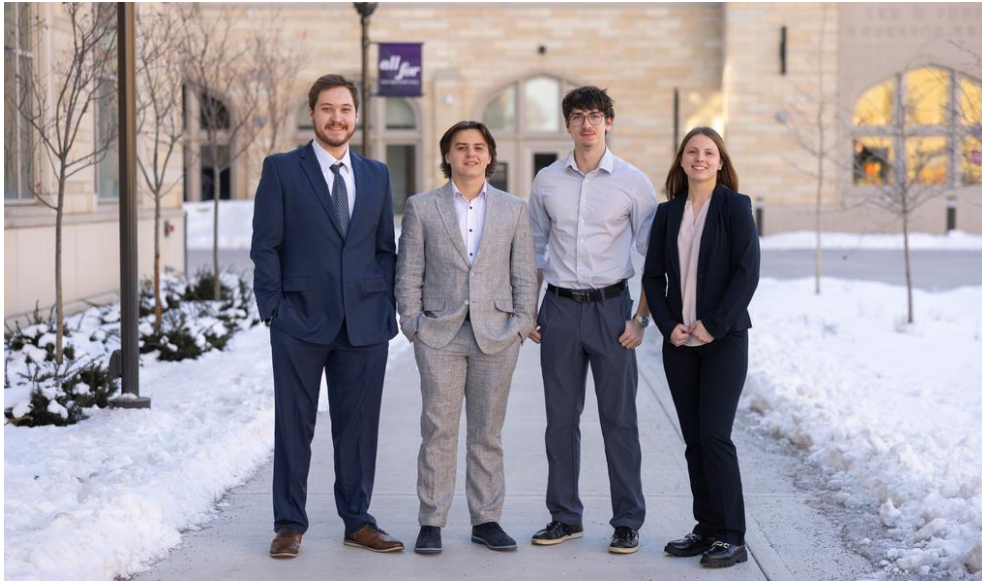


# Pediatric Implantable Cardioverter Defibrillator (ICD)



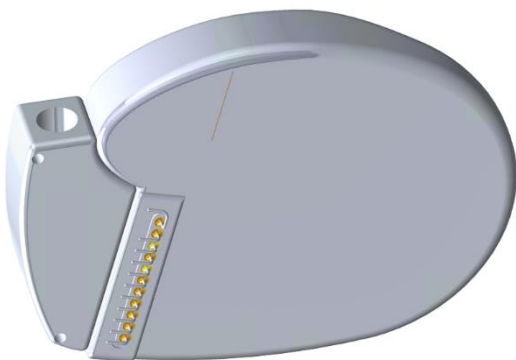
From left to right: Kaleb Nelson, Mason Osberg, Mason Horgen, and Shyanne Wagner

## PROJECT BACKGROUND & DESIGN GOAL:

An implantable cardioverter defibrillator (ICD) detects abnormal heart rhythm. When detected, the ICD quickly sends a therapeutic electrical shock to the heart. A pediatric ICD would be intended for patients who are too small to have an adult ICD implanted. **The goal is to design a device that minimizes total volume and thickness, for implantation in smaller bodies.**

## DESIGN OUTCOMES:

The final design adjusted the transformer's position within the device. The transformer size was reduced by removing one of three circuits while maintaining the same performance time and electrical output. The design primarily utilizes existing Medtronic components, with only minor modifications where necessary.



Full Pediatric ICD Device including Texas A&M header and modified shield



## INDUSTRY REPRESENTATIVES

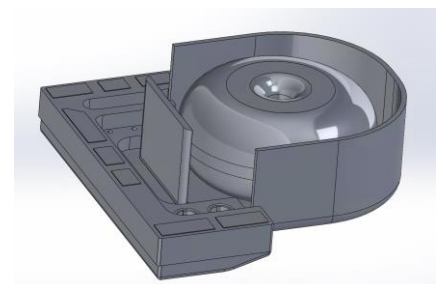
Matthew Deutsch and Rachel Brucker

## FACULTY ADVISOR

Paul Mazanec

## DESIGN CONSTRAINTS:

- **Electrical Properties:** Shall maintain electrical charge and discharge time.
- **Existing Components:** Shall use existing Medtronic components or component modifications that do not require significant testing and expense to implement.
- **Design Integration:** Shall integrate with the header made by a team at Texas A&M.



Rotated Transformer Design