Project Description

The overall project is to create a talking calculator designed to use text-to-speech and tactile indicators on the buttons. This will be designed with modularity and replaceable components in mind. My part of the project will be creating the hardware and working with the low-level integration of the hardware and software.

Research Required

I will need to research how to create an interface with buttons, switches, and other potential input devices integrated with a microcontroller. Circuitry and schematics will also need to be researched. Additionally, I will research how to control output speakers and battery charging and power. More information on microcontrollers, specifically the ESP32, will need to be investigated. The case will also need to be created in SolidWorks and fabricated which will require me to learn about different types of 3D printing and alternative fabrication.

Required Tech

I will be using SolidWorks and 3D printing for the case. I will use some PCB design software and fabrication to create the main board. Speakers, buttons, switches, and interfaces with microcontrollers running C++ will also be used. Battery control and batteries will be included as well.

End Project

There will be a working prototype of the calculator along with various parts from the experimentation and failure phase of the project. I would like to also include computer models and initial sketches.

Project Objectives

- Learn how to work in a team and integrate several different parts in a functional manner
- Learn how to communicate progress through journals and writing
- Learn how to use CAD software and design devices from scratch
- Learn how to make functional circuits with microcontrollers
- Learn how to create code that interfaces with physical hardware in a portable way