



### Project Overview

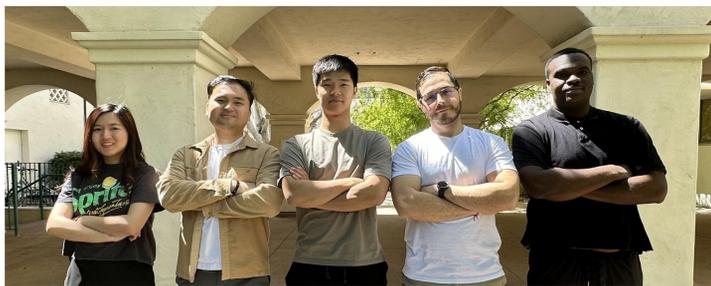
- Navicane is an RFID assisted smart cane that will harness passive tags to help navigate the visually impaired indoors. The device will feature a RFID reader assembly that will identify the data coded on door tags, convert it to digital data which will be passed to an embedded microcontroller.

- The microcontroller will identify the data and pass accurate information over Bluetooth to a smartphone application. This technology will allow for easier and quicker identification of key entrances and exits

### Key Specifications

- Bluetooth Programming Interface - Android Studio using Kotlin programming language and XML for UI formatting
- Microprocessor – UART Serial 38400 Baud interface, Arduino IDE using C Programming, 500 ms Scan pulses for detection
- Battery - 4.5 Voltage AAA batteries with 66 hours battery life
- Detection distance – From 0 to 21 inches

### Team Member



Yen Pham, Mike Cao, Jason Wu, Cesar Gonzalez, Sean Clark

# NAVI CANE PROJECT

### Key Technologies



FM-504 RFID and an accompanied 902MHz antenna at the back



Seed Studio XIAO nRF52840 is the soul of our project which is responsible for transmitting and processing data



UHF RFID PVC PET passive tag

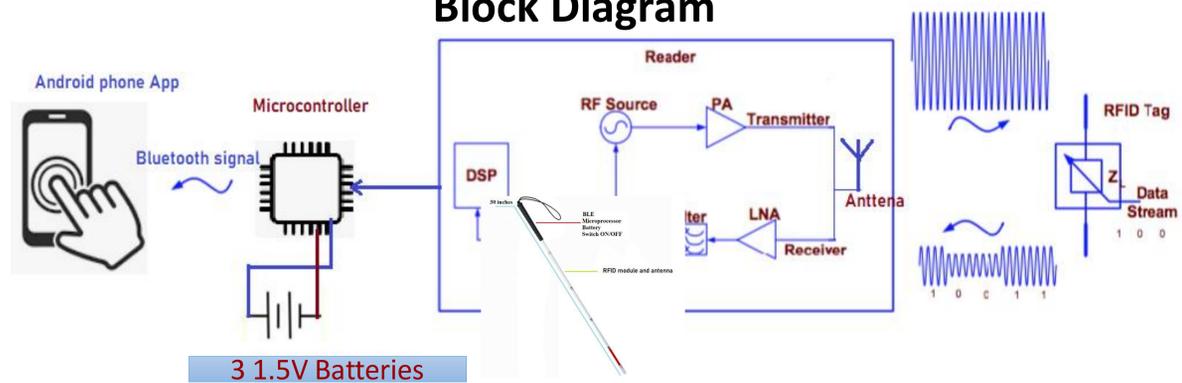


3 AAA 1.5V batteries

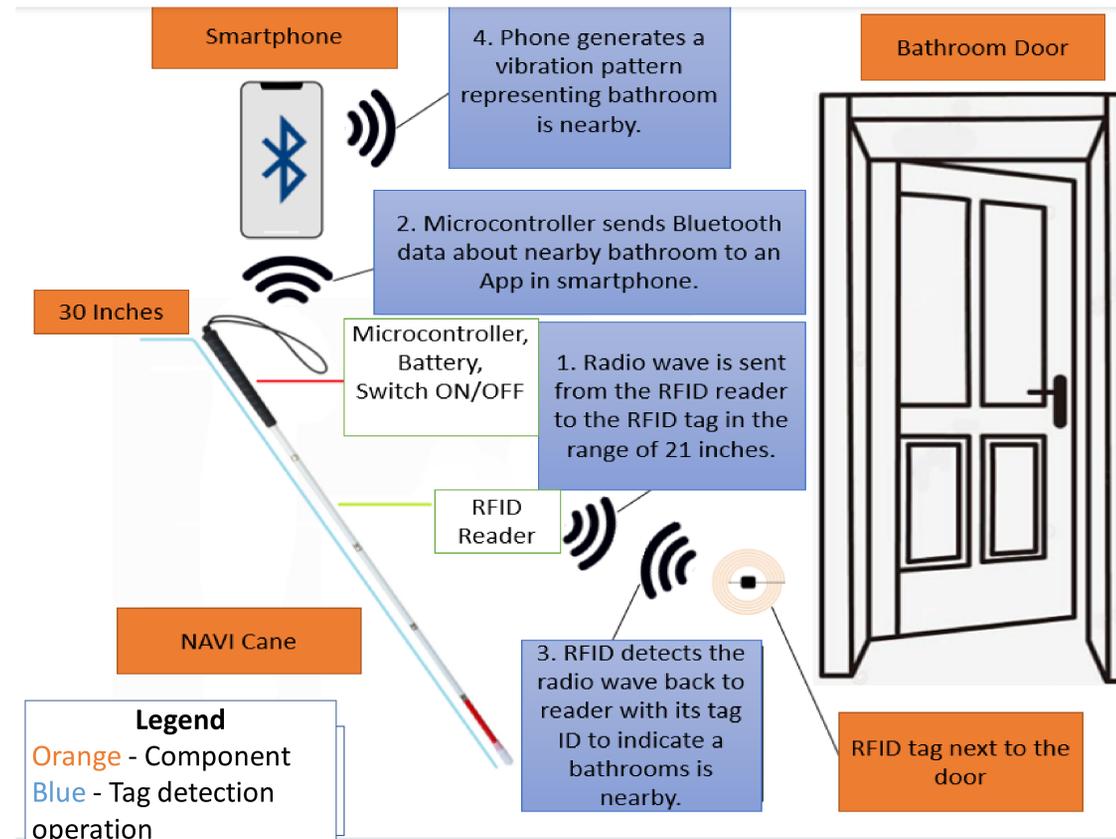


NAVI App on Android platform

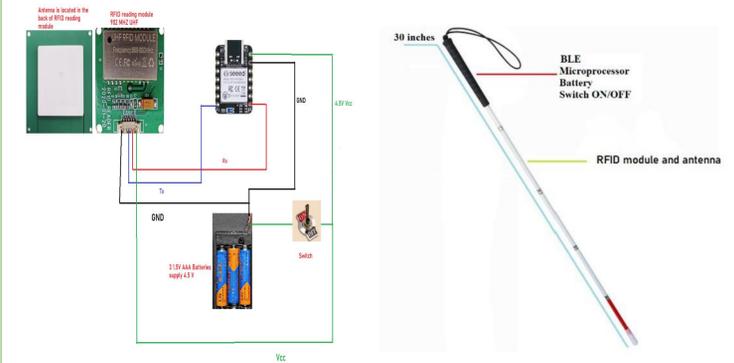
### Block Diagram



### Use Case

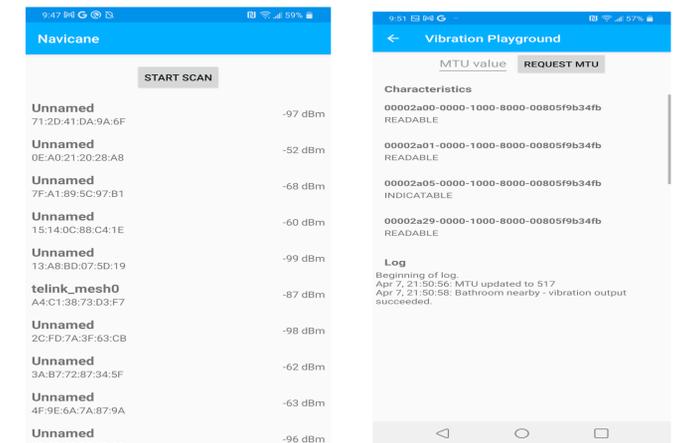


### Product and App GUI



Wire Diagram

Product



APP GUI

### Acknowledgement

NAVI team thanks professor Hakan Toreyin ( SDSU ECE Department) for giving us the guidance and advice for the project, and thanks Dr. Andrew Y.J. Szeto (Emeritus Professor) for being our project funding.

Spring 2023