MICHIGAN STATE UNIVERSITY

Project Plan

Mobile Maestro

The Capstone Experience

Team Urban Science

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From Students…
…to Professionals

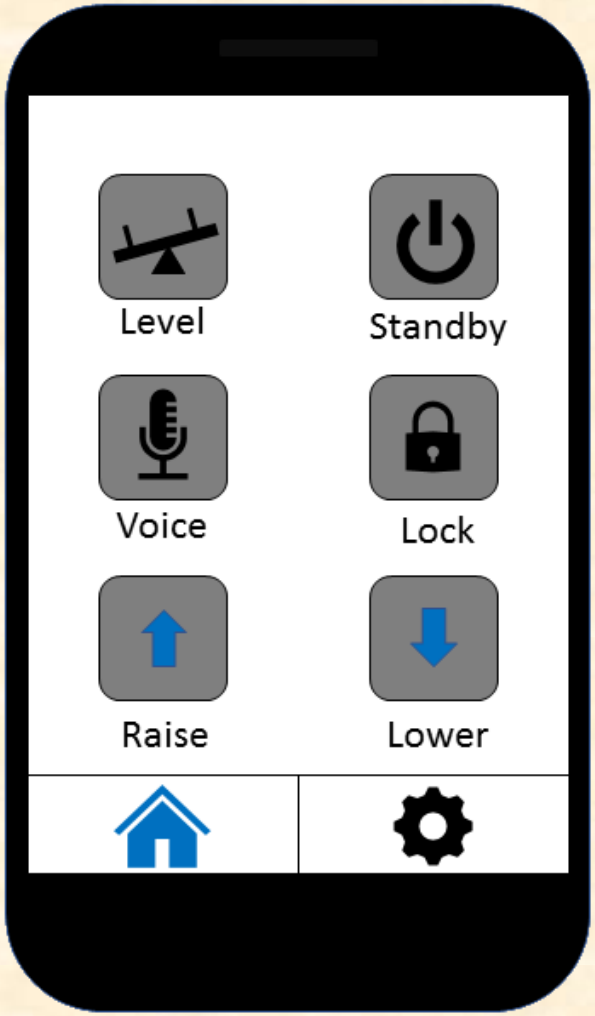
Functional Specifications

- Makes adjusting the Maestro arm easier and accessible to all users
- Get rid of need of difficult-to-use remote
- Allows user to tilt device up and down, lock arm joints, and set arm to standby
- Utilizes voice command and auto leveling to extend accessibility
- Tracks user data

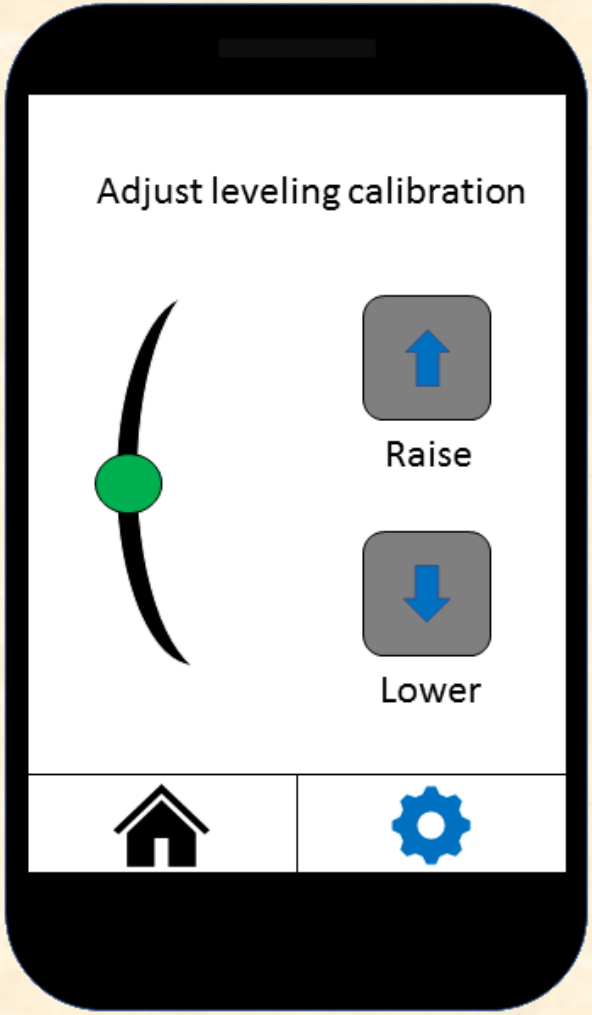
Design Specifications

- Simple 7 button layout
- Runs on Android and iOS
- Follows accessibility guidelines
- Voice and auto level enable hands free use
- Locally stored profiles to keep track of state as well as user preferences
- Allows easy access to customer support
- Allows globalization

Screen Mockup: Home Screen



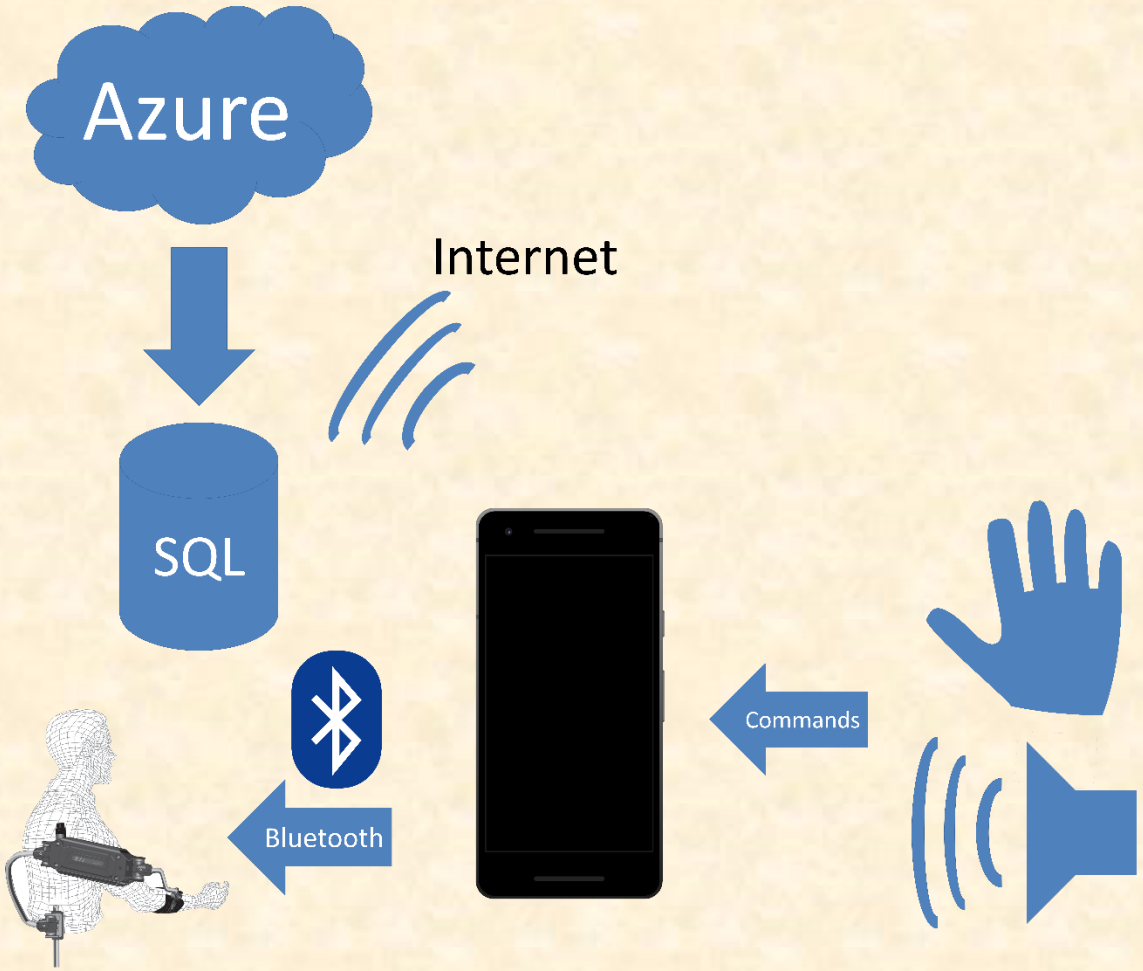
Screen Mockup: Leveling settings



Technical Specifications

- Natural Language Processing
- Gyroscope and Accelerometer Sensors
- Bluetooth Low Energy
- HTTPS POST for data upload
- Relational Database (SQL)

System Architecture



System Components

- Hardware Platforms
  - Azure Server
    - SQL Database
- Software Platforms / Technologies
  - Cordova/Ionic
    - CSS, JavaScript, HTML, AngularJS
    - MVVM

Risks

- Bluetooth connection
  - Setting up BLE connection to Arms and be able to send message
  - Cordova BLE plugins, learn and research about the send message
- Voice activation
  - Using vocal commands to control arms at all times
  - Using Siri and Google Assistant
- User Experience
  - UI needs to be simple and accessible
  - Fellows accessible guidelines
- Auto-Balancing
  - Automatically balancing the Arms when on an incline
  - Using phones Accelerometer/ Gyroscope to level the system

Questions?