MACHINE-LEARNING AUDIO SURVEILLANCE INTEGRATED SYSTEM (MALASIS)

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Overview

- Review of Sprint Goals
- Progress on Audio Processing
- Progress on Visualization Software
- Progress on Hardware Casing/Setup
- Progress on Sound Localization
- Completion by Sprint 3/Next Steps
- Lessons Learned

Review of Goals for this Sprint

- Audio Processing:
  - Retraining the model: (in progress)
- Visualization Software:
  - Already completed in Sprint 1
- Hardware Casing:
  - Finish creating the casing: (successfully completed)
- Sound Localization:
  - Commence testing with TDOA values: (in progress)

Progress on Audio Processing

- Accessed model on Raspberry Pi
- 1st Step to integration - simplifying model to binary classifier
- Retrained model with more relevant training data
- .wav files needed to be reformatted, currently holding up integration

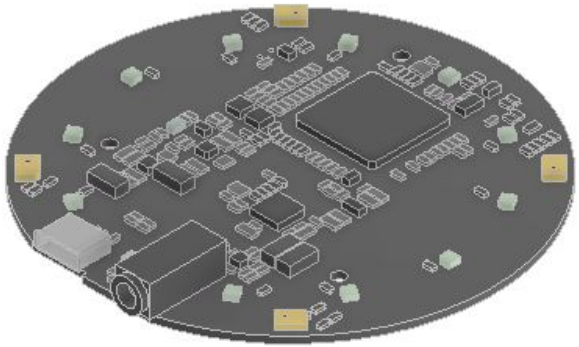
Progress on Visualization Software

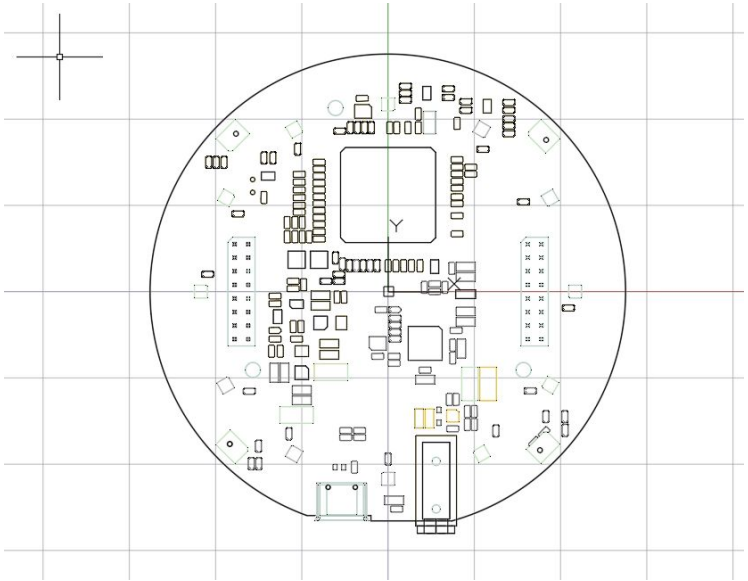
Added grid lines and reference point for room display

Progress on Hardware Casing/Setup

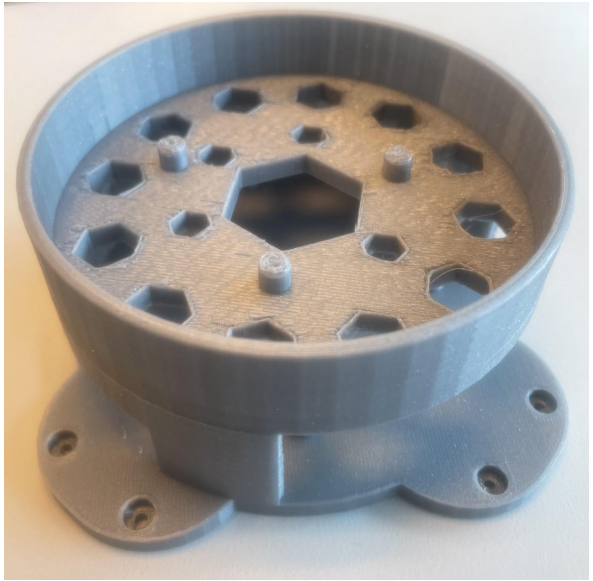
- Hardware-casing creation is complete
- Casing features vents for cooling
- Allows the Raspberry Pi to be set up on the ceiling

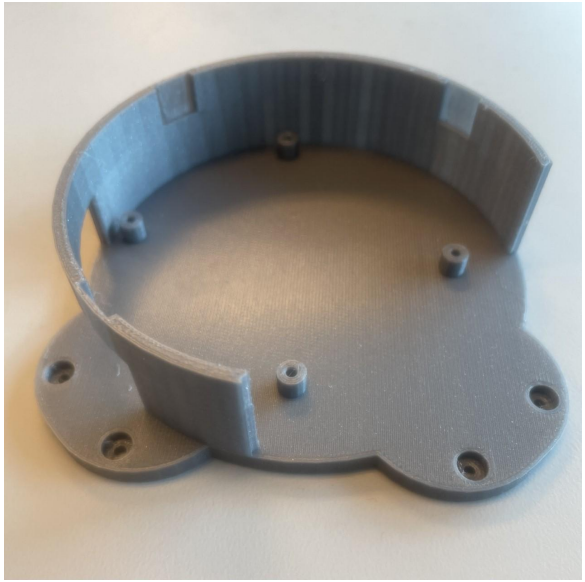
Progress on Hardware Casing/Setup





Progress on Hardware Casing/Setup

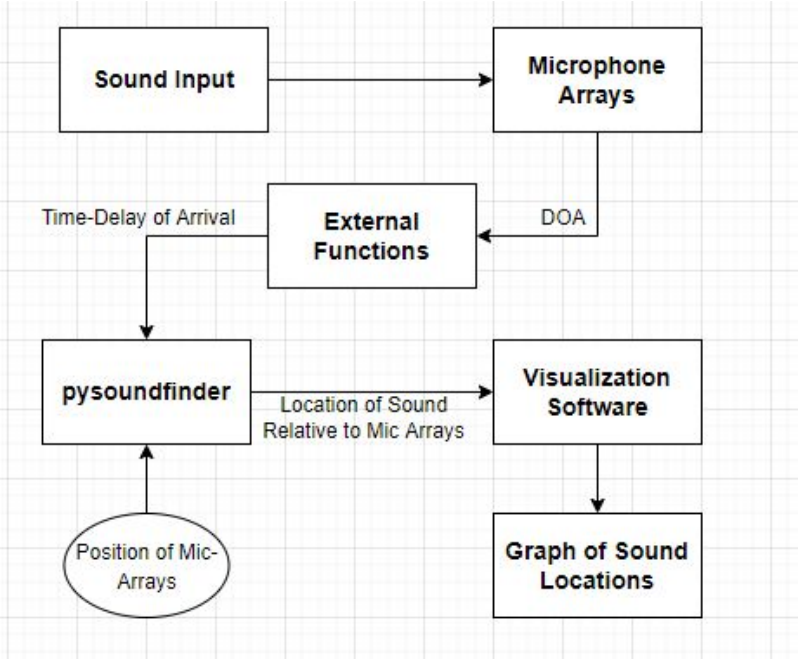


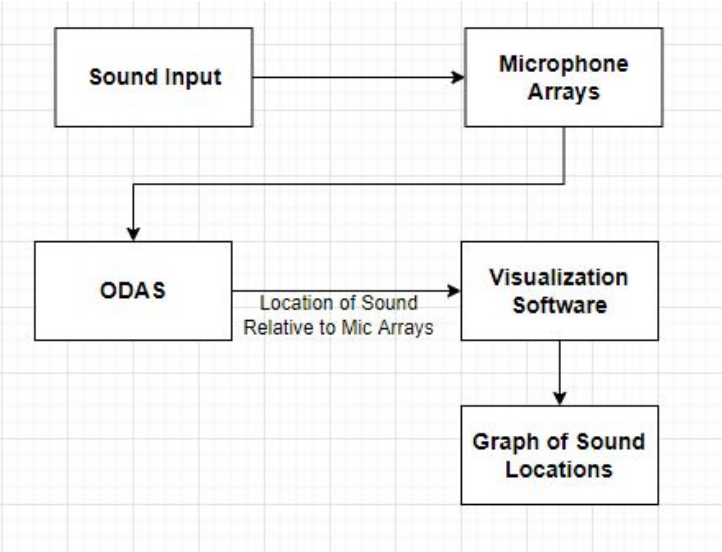


Progress on Sound Localization

- Option 1: ODAS
  - Software recommended by Re-Speaker array documentation
  - Picks up input sounds and calculates location in real-time
- Option 2: pysoundfinder
  - Takes time-delay of arrival and microphone locations as input
  - Returns plotted locations
  - (For this option we are still looking for a reliable way to retrieve TDOA values)

Progress on Sound Localization





Completion by Sprint 3/Next Steps

- Reformat training data to be compatible with model
- Access classification model on Raspberry Pi in real time
- Start experimenting with hardware setup in a lab room
- Determine best option for sound localization
    - Test it with real audio samples

Questions?