EE/CprE/SE 491 WEEKLY REPORT 02

9/20/2024 – 9/26/2024

number: 36

Project title: ***Ultrasonic Object Detector***

Client &/Advisor: Professor Jiming Song

Team Members/Role:
Nathaniel Clarke - Project Software Designer
Brock Dykhuis - Circuit Analysist
Nicholas Jacobs - Electronics
Jonathon Madden - UI Designer & Software Tester

Weekly Summary

The week was still primarily in the planning and preparation phase of the project. The next steps are to start working on creating a circuit design or sketch. Until then software side of the project will involve experimenting with methods of creating the radar's display.

Past week accomplishments

- Investigated past project's code base (sdmay23-22) - **Nathaniel Clarke**
    - Noticed use of .pde file for graphics which can be potential alternative to HTML
        - Underwent further investigation on .pde with https://processing.org/environment/
            - Stands for Process Development Environment and is used to produce sketches.
            - May need further investigation to compare quality to HTML canvas.

- Began experimenting with HTML Canvas - **Nathaniel Clarke**
    - Tested out commands for creating shapes, and other customization.
    - Started potential background design of radar display.

- Researched setting up a server - **Brock Dykhuis**
    - Looked at which raspberry pi to order or get from esg.
    - Will need to connect to our hardware.
- Researched radar systems and 3D imaging: **Nicholas Jacobs**
    - Studied the principles behind radar technology, focusing on how radar waves can be used to create 3D images.
    - Explored methods for using radar data to visualize objects in three dimensions by analyzing time delays and signal reflections.
- Tested Arduino with ultrasonic sensor: **Nicholas Jacobs**
    - Used an Arduino board to simulate radar concepts with an ultrasonic sensor.
    - Implemented basic code to measure distances and simulate real-time detection of objects using ultrasonic waves.
    - Verified the accuracy of the sensor by testing its response to different object placements and distances.
- Looked over past projects code: **Jonathon Madden**

Individual contributions

NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Nathaniel Clarke	Viewed past code for potential display alternative, and began experimenting with HTML canvas.	7	13
Brock Dykhuis	Looked into setting up a server	5	10
Jonathon Madden	Looked over past projects information	4	8
Nicholas Jacobs	Viewed previous implementations and tested knowledge with Arduino sensors	6	12

Comments and extended discussion

Optimally we will have an initial design concept next week to begin researching particular parts to order. This should allow for the team to stay ahead of past implementations of the project to ensure the resulting device is timely despite having a smaller team. We will need to ask for further clarification on the 3D image and design requirements during our next client meeting.

Plans for the upcoming week

Nathaniel Clarke: Will Continue to work with practicing using a HTML canvas for designing a potential display design. Potentially will experiment with .pde design.

Jonathon Madden: Research more about how to create a 3D display and how past projects code relate to that. Compare code from the two different projects.

Brock Dykhuis: Continue to work with setting up a server, look into which raspberry pi to order.

Nicholas Jacobs: Continue to do research on ideal radars and how to portray them in 3D, as well as begin to create circuit designs and figure out necessary parts.

Summary of weekly advisor meeting

The project advisor was out of town this week, so we did not meet. Next will meeting will be next Monday (9/30/24).