EE/CprE/SE 492 Bi-Weekly Report 04

October 7th - October 21st
Group Number: 18
Project Title: Object Detection and Identification with Sensor Fusion
Client: Danfoss (Michael Olson)
Advisor: Dr. Wang
Team Members/Role:

Tucker Creger - Project Manager
Eric Bishop - Software Developer
Kellen O'Connor - Deep Learning Architect
Clayton White - Hardware Design Engineer
Mitch Hagar - Radar System Lead
Nihaal Sitaraman - Hardware Developer

Weekly Summary:

Over the last two week we were able to build our first system harness. A lot of our time went to finalizing, and putting together the harness, and making it work with our USB to CAN adapter. We will be soon switching over to our CAN controller so we can use the Jetson with our harness and get closer to creating the final product.

To polish the look of our final product we are currently building a mount for our radar and camera system, and a case to house the Jetson inside the cab.

Past week accomplishments:

Tucker built the first system harness

Kellen troubleshooted the harness to find a broken solder connection in the DB9 serial Connector. He also finished a top-down radar visualization graph and got radar points for multiple objects lined up with detections for the neural network, making us ready for testing.

Pending Issues:

- We need to test the radar and neural network detection program on the Jetson to evaluate performance.
- We need to test the CAN controller PCB.
- We need to order a battery and camera to deliver to Danfoss.

Individual contributions:

Name	Accomplishments	Hours This Report	Hours Cumulative
Tucker Creger	I built the first system harness to connect the radar to the Jetson.	9	42
Eric Bishop	I worked with the team this week to solve various issues we had with the initial harness build and troubleshot some errors within code with Kellen.	7	35
Kellen O'Connor	I created a top-down mapping script to visualize multiple radar detections at the same time for a field of configurable size. This runs on its own thread in parallel with the deep neural network detections. I was able to get neural network detections and radar detections lined up and visualized on a screen, which can be seen in this YouTube video: https://www.youtube.com/watch?v=rJdlePVw7dk	13	47
Clayton White	After soldering the PCB, Mitch and I ran continuity tests.	7	32
Mitch Hagar	Soldered PCB and ran continuity tests with Clayton. Assisted with finishing wiring harness. Talked about possible ways of	7	29

	housing the system.		
Nihaal Sitaraman	I developed a couple different designs for the housing unit. Upcoming weeks will consist of tuning design and building	5	24

Plans for next two weeks:

Tucker will be building the harness to connect the CAN controller to the Jetson.
Tucker, Eric and Kellen will be attempting to test the CAN controller with the Jetson.

Kellen will be working on validated radar and neural network detections for multiple users and object types.
Nihaal, Clayton, and Mitch will be working on making the housing for the entire system.
The team will be preparing for the second PIRM meeting.

Advisor/Client Notes:

We met with our Advisor on 10/18 and didn't met with Danfoss, because our client is on vacation.

We are working on scheduling time with both now, as we have class this thursday during when we normally meet and it is difficult to find time that works for all of us.