EE/CprE/SE 492 Bi-Weekly Report 03

September 24th - October 7th
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 received many parts that we have been waiting on for the harness, and as well as the ordered PCBs themselves. This will allow us to finally connect our system together, by connecting the Jetson, to the CAN controller (our PCB), to our RADAR so we can hook it together, to write some final software and soon start testing and refining the final product.

The software is also now put a bounding box around the object we are detecting, and then also displaying the RADAR coordinates over layered on the video stream with OpenCV

Past week accomplishments:

The team received 3 PCBs from OSH Park.

Kellen, Eric, and Tucker got the USB CAN adapter drivers built on the Jetson.

Kellen got a single detected object matched up with a radar point with on-screen visualization.

Pending Issues:

- We currently don't have any major pending issues until the final product is put together, most likely there will be some software issues.

- One issue we may have is the fact that our RADAR is not precise as we would like it to be

Individual contributions:

Name	Accomplishments	Hours This Report	Hours Cumulative
Tucker Creger	I worked with Kellen and Eric to get the necessary drivers for one of our CAN adapters loaded onto the Jetson for testing of the Radar with the Jetson. I also worked with the team to create slides for the PIRM.	9	33
Eric Bishop	I worked with Kellen and Tucker to get the CAN data into the Jetson so we can start doing initial object detection with the RADAR to ensure that the Jetson doesn't use up all its GPU space. Will need to also work on software to make a presentable demo, and potential testing software to find any issues with the RADAR input data.	8	28
Kellen O'Connor	I worked on getting our main script set up to have the image processing occur on one thread and CAN/image acquisition occurring on another. Using a deep neural network that we worked with last semester, I mapped a	10	34

	radar point to a detected object. I will need to work on scaling it up to work with multiple objected detected by the radar.		
Clayton White	Created slides for PIRM. Soldered 2 PCB's for CAN Controller interface.	13	25
Mitch Hagar	Updated our timeline diagram. Made a few slides for the PIRM. Helped with soldering the CAN controller PCB.	10	22
Nihaal Sitaraman	Helped with soldering the CAN controller PCB. Worked on PRIM slides.	7	18

Plans for next two weeks:

Tucker will be working on finishing building the harness after the last part arrives on 10/8

Kellen, Eric, and Tucker will be working on testing the final harness with the radar and Jetson

Kellen will be working on mapping multiple detected objects to an image and incorporating it with the MobileNet-SSD. He'll also test the radar and detection process on the Jetson to prepare for a system demo.

Eric will be working on the website, and further improving software for testing where needed.

Advisor/Client Notes:

We will be meeting with advisor on 10/18 and Danfoss on 10/25.