EE/CprE/SE 491 WEEKLY REPORT 01 01/22/2018 – 01/28/2018
Group number: 18
Project title: *Deep Learning with Radar for Object Recognition and Tracking*

Client &/Advisor: Michael Olson (Danfoss) and 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

o **Weekly Summary**
This week we conducted our weekly technical review with our Danfoss contact. We also met with a local Danfoss engineer to pick up 3 hardware kits for evaluation and possible testing. We allocated some meeting time to research into UWB radar and available hardware options. We continued to update the system requirements document and had our weekly meeting with our advisor, Dr. Wang. We setup our GitLab project and signed our NDA/IP agreements. We also began work on our team website.

o **Past week accomplishments**
- We spoke to Radek from Danfoss in Ames
  - Tucker drove to the Ames location to collect 3 Walabot kits (these kits use the Vayyar chip we will be testing)
- We teleconferenced with Michael from Danfoss in MN, who is our main client
- Eric got GitLab working and updated our issues and board
- Eric got website running
  - Bios have been updated along with photos
- We researched Vayyar Radar and alternatives (ie. TI radar)
  - By the next meeting, we hope to have a list of possible radar chips to use.
- Kellen researched various deep learning tools and compiled a list of possible APIs to use with Python.
  - He is considering Keras or Caffe as two main possibilities.
- We updated system requirements document with input from our faculty advisor Dr. Wang
  - This is still a working document
- Half of us have signed NDA/IP agreements thus far

o **Pending issues**

The major pending issue we have this week is our system requirements. Our original project schedule had a deadline of 2/4/18 for completion of them.

o **Individual contributions**

Name	Accomplishments	Hours This Week	Hours Cumulative
Tucker Creger	Handled communications with Danfoss, Picked up hardware kits, researched UWB and TI evaluation kits, wrote system requirements	12	12
Eric Bishop	Worked on some groundwork for the website, and git. Also put in time to looking more into Deep Learning and the available resources for the topic	7.5	7.5
Kellen O'Connor	Researched methods of real time object detection for traditional computer vision applications. Also began research on the basics of radar to understand what to expect from radar imagery.	5	5
Clayton White	Researched deep learning but mostly expanded my understanding of the Vayyar radar's applications and design.	5	5
Mitch Hagar	Worked on understanding what	5	5

	type of radar systems we will need to use. Also watched youtube videos on the basics of Python.		
Nihaal Sitaraman	Worked on understanding how the Vayyar radar works. Used 15 antenna array Walabot unit. Currently researching (Andrew Ng, YouTube) how deep learning works to better understand neural nets.	5.5	5.5

o **Comments and extended discussion**
A student of Dr. Wang, Austin Chesmore, has joined our team as well. He will be working on some parallel development and testing. He will also be observing and learning alongside us.

o **Plan for coming week**
This week we will continue work on system requirements and preparing for a onsite meeting with our Danfoss contact, Michael. We plan on having a meeting to further update the system requirements document.

o **Summary of weekly advisor meeting**
This is covered in the above sections.