
EE/CprE/SE 491 WEEKLY REPORT 5

11/03/2019-11/10/2019

Group number

sdmay20-40

Project title

IC Chipz

Client & Advisor

Dr. Henry Duwe

Team Members/Role

Andrew Kicklighter - Mobile Developer

Alexander Weakland - Mobile Developer

Nicholas Dykhuizen - Machine Vision Developer

Justin Elsbernd - Machine Vision Developer

Joshua Heiser - Embedded Developer

Paul Kiel - Embedded Developer

Weekly Summary

This week we continued the teams continued to further develop and finish their applications. The Embedded Team worked on understanding the machine vision algorithm used by the previous team, and begun to run videos and photos through the algorithm. The algorithm began to recognize the video feed from the previous years recordings. The Mobile team finished developing the iOS application and began to work on connecting the new mobile application to the embedded board. The Machine Vision team continued to work on the wifi-drivers, though they came across an issue as the storage on the embedded board ran out of space, so they requested a new means of storage from Professor Duwe.

Past week accomplishments

- Create brand new mobile application - Andrew & Alex
 - Previous teams application was deemed unfinished and with little documentation, it was determined that it would be better off to restart the app then try and understand their code
 - Started a new application from the ground up
 - Created a page to have start/stop recording for implementation with the board
- Looked at old computer vision/ rebuilding it- Paul & Josh
 - Took a look at old teams computer vision projects
 - Looked into original repository
 - Got darknet and yolo algorithm to compile into executable and tested with provided models as well as old teams trained model.
 - Had successful tests identifying target objects with old weight model and old data
- Started setup process of WiFi adapter - Justin & Nick
 - Determined which drivers to download and install on the board
 - Worked through issues of making the adapter compatible with Linux
 - Found out we need a bigger storage device on the board in order to have the computer vision program, videos, and drivers all on the same storage device

Individual Contributions

Name	Individual Contributions	Hours this Week	Cumulative Hours
Andrew Kicklighter	<ul style="list-style-type: none"> ● Create brand new mobile application ● Created a page to have start/stop recording for implementation with the board 	10	29
Alexander Weakland	<ul style="list-style-type: none"> ● Create brand new mobile application 	5	23
Nicholas Dykhuizen	<ul style="list-style-type: none"> ● Began WiFi adapter setup ● Found suitable drivers for WiFi USB device ● Ran into complications with disk usage 	5	23
Justin Elsbernd	<ul style="list-style-type: none"> ● Started to setup WiFi adapter ● Researched drivers to use to make adapter compatible with Linux ● Determined we need a larger storage device on the board 	5	23
Joshua Heiser	<ul style="list-style-type: none"> ● Began to debug darknet application ● Decided to attempt to rebuild repository ● Successfully cloned darknet repo from original owner and attempted to run 	4	26
Paul Kiel	<ul style="list-style-type: none"> ● Began to debug darknet application ● Decided to attempt to rebuild repository ● Successfully cloned darknet repo from original owner and attempted to run ● Successfully ran application with random images ● Successfully ran application with skeet shot images from last year 	7	29

Pending Issues

- Need more storage on the device in order to have programs, videos, and drivers on the same storage device

Plans for the upcoming week

- Integrate the mobile application with the board via WiFi - Andrew, Alex, Nick, & Justin
 - Make it so that the mobile app can send a command to the board to start/stop recording video
- Complete setup of WiFi adapter - Nick & Justin
 - Determine how to finish setup of adapter if we can't get a larger storage device

Summary of weekly advisor meeting

Dr. Duwe talked to each individual team at this week's advisor meeting and discussed what they did in the past week and what they planned to do next week. The Embedded Team first discussed how they had continued to work on debugging the previous team's machine vision code and their struggles in getting the previous teams machine vision to analyze the pictures/videos from last year. Then, the Embedded Team discussed how they had found one of the authors of the machine vision algorithm that was used by last year's team. This meant that they would have a point of contact in case they have issues running this algorithm. Lastly, they explained their understanding of the Machine Vision algorithm to Professor Duwe so that he can understand what was going on in this application, and so that he could give suggestions on things that he would want implemented. The Machine Vision team then explained their progress on getting the Wi-Fi setup. They were able to find the drivers to set up peer to peer networking, but there was not enough storage on the embedded board to install them. After this, the Mobile Team showed a demo of the Android application that was created by last years team. The Mobile Team also explained that they began to work on the iOS app, and the progress that they made.