EE/CprE/SE 491 WEEKLY REPORT 5
11/18/2019-12/08/2019

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 - Integration Developer
Justin Elsbernd - Integration 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 WiFi and Bluetooth were successfully setup; these two interfaces listen for traffic from a mobile device to start video footage, stop video footage, mark as a hit or miss; moving to the appropriate folder, and take pictures for camera calibration. The mobile team began work to connect the mobile application with the wireless protocols.

Past week accomplishments

- Continue to work on the mobile application - Andrew & Alex
  - Fix minor bugs
  - Add ability to save scorecard for each shooter
  - Adjust the UI to make it look cleaner
- Set up mobile application so it can connect to the board WiFi - Andrew & Alex
  - Wrote code (using sockets) to connect to the board via WiFi
  - Connected the mobile application to the board successfully
  - Make it so that the mobile app can send a command to the board to start/stop recording video
- Started setup process of WiFi adapter and file transfer - Justin & Nick
  - Began WiFi adapter setup
  - Found suitable drivers for WiFi USB device

Individual Contributions

Name	Individual Contributions	Hours this Week	Cumulative Hours
Andrew Kicklighter	- Continue to work on the mobile application - Fix minor bugs - Add ability to save scorecard for each shooter - Set up mobile application so it can connect to board WiFi	16	45
Alexander Weakland	- Continue to work on the mobile application - Fix minor bugs - Add ability to save scorecard for each shooter - Set up mobile application so it can connect to the board WiFi	8	31
Nicholas Dykhuizen	- Setup Wifi Hotspot - Setup Bluetooth Hotspot - Build program to accept commands - Command for video capture and auto data labeling implemented	40	63

	● Command for picture capture ● Command for file transfer of picture ● Priced out SDcards for video file storage		
Justin Elsbernd	● Configured Wifi adapter ● Found out camera drivers would not work on the needed Wifi adapter drivers; therefore Nick rerolled changes and converted on-board Wifi/Bluetooth to hotspot ● Documentation of code implemented ● Helped with mobile app connection to board	9	32
Joshua Heiser	● Ran darkent on my own system and got accurate results to better understand how the algorithm works ● Got darknet algorithm running on Jetson board ● Began to write a script that will create matrix of actual versus results given by darknet ● Began cross checking files to make sure that no files in training dataset are contained in the actual datasetM	10	36
Paul Kiel	● Got darknet algorithm running on Jetson board ● Began to write a script that will create matrix of actual versus results given by darknet ● Began cross checking files to make sure that no files in training dataset is contained in actual dataset	7	36

Pending Issues
- Need more storage space on Jetson board for storage of video and image files.

Plans for the upcoming week
- Display the scorecard on a separate page on the application - Andrew & Alex
    - Currently the scorecard is saved in a data structure, display it on another page on a button click

Summary of weekly advisor meeting

   In this meeting, Dr. Duwe talked to each individual team about what they did in the past week and what they planned to do next week. The Embedded Team first discussed how they had been able to successfully clone the darknet repo that was being used and ran used by the previous years team and showed an example of the output by the algorithm. The Embedded Team then discussed with Dr. Duwe about the results and his opinion on the next steps that would need to be taken. They came to the conclusion that they would need to develop a confusion matrix that would help determine the accuracy of the algorithm, so that the embedded team could see how close the algorithm is to the 95% accuracy goal set in this project. The Machine Vision team then explained their progress on getting the Wi-Fi setup. They were able to flash the kernel to install the drivers, but that the drivers did not work well, since the Econ-Systems camera that was installed on the board needed its own custom kernel, meaning that the Wi-Fi drivers could not actually ever be installed on the embedded board. Because of this, they explained that they would instead use bluetooth and a Wi-Fi hotspot to set up the network. Lastly, the Mobile Team showed a demo of the iOS application that was developed, showing the layout of the newly developed app while explaining their progress and issues with getting the mobile device to connect to the embedded board through Wi-Fi and Bluetooth.