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*EE/CprE/SE 492 BI-WEEKLY REPORT 1*

1/13/2020 - 1/27/2020

*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

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**Bi-Weekly Summary**

For the first few weeks of the semester we met with the team's client, Dr. Duwe, to obtain the initial round of deliverables and tasks. A moderate amount of changes were made to the integration application to streamline application setup and reduce application errors. The mobile team set up Test Flight through Apple so that non-mobile team members can download the application as Beta Testers. This also allows the client to use the application themselves to give feedback. In addition, the embedded team began working on a confusion matrix to determine the difference between the neural network status of the clay pigeon and the actual status. In summary, the first couple weeks of the semester were spent getting back up to speed after break and laying out the framework for what the general plan is for the rest of the semester.

## Past week accomplishments

- Set up Test Flight with Apple - Andrew
  - Add every team member to the application as Beta Testers with Apple's App Store "Test Flight" so that other members can download and access the application
- Mobile UI Changes - Andrew & Alex
  - Make some minor UI tweaks to the mobile application to make it look more professional
- Researched possible algorithm implementations - Josh & Paul
  - Researched ways to make the neural network more accurate
  - Researched ways to score the skeet shots based off the neural network returns
- Made security and bug fixes to the code on the device - Nick
  - Added in OpenSSL encryption so the communication over the air waves or wire is fully encrypted
  - Fixed the crashed app -> infinite loop server bug
  - Added in the following modes: training, testing, and scoring
  - Added in config file. Can configure the ssl certs and app mode
  - Added in a systemd service script so the app can be started via systemctl
  - Added in color to the output text, errors are red, warning yellow, etc.
  - Refactored the application initialization to be faster and less prone to errors
  - Swapped to using home directory for footage storage, app automatically preps the folders if they don't exist
- Reviewed code changes and started to implement high-level of scoring pipeline - Justin
  - Pulled newly developed code for review process
  - Started laying out high-level implementation for scoring

## Individual Contributions

Name	Individual Contributions	Hours this Report	Cumulative Hours
Andrew Kicklighter	<ul style="list-style-type: none"><li>● Set up Test Flight with Apple</li><li>● Mobile UI Changes</li></ul>	6	6
Alexander Weakland	<ul style="list-style-type: none"><li>● Mobile UI Changes</li></ul>	2	2
Nicholas Dykhuizen	<ul style="list-style-type: none"><li>● Added in config file. Can configure the ssl certs and app mode</li></ul>	20	20

	<ul style="list-style-type: none"> <li>● Added in a systemd service script so the app can be started via systemctl</li> <li>● Added in color to the output text, errors are red, warning yellow, etc.</li> <li>● Added in the following modes: training, testing, and scoring</li> <li>● Refactored the application initialization to be faster and less prone to errors</li> <li>● Added in OpenSSL encryption so that communication the the air waves or wire is fully encrypted</li> <li>● Fixed the crashed app -&gt; infinite loop server bug</li> <li>● Swapped to using home directory for footage storage, app automatically preps the folders if they don't exist</li> </ul>		
Justin Elsbernd	<ul style="list-style-type: none"> <li>● Setup C-Lion for more development</li> <li>● Reviewed code changes made by Nick</li> <li>● Started to figure out pipeline for scoring method</li> </ul>	3	3
Joshua Heiser	<ul style="list-style-type: none"> <li>● Began working on Confusion Matrix</li> <li>● Researched possible algorithm implementations</li> </ul>	3	3
Paul Kiel	<ul style="list-style-type: none"> <li>● Began working on Confusion Matrix</li> <li>● Researched possible algorithm implementations</li> </ul>	3	3

### Pending Issues

- Integrate OpenCV into integration application
- Create scoring application mode
- Create training application mode

### **Plans for the upcoming week**

The integration team plans on integrating opencv into the code base. Additionally, the team plans on beginning the initial stages of documentation for future students who work on this project. The mobile team plans on opening up another branch on Git Lab to start implementing the changes that will coincide with what the integration team did over break.

### **Summary of weekly advisor meeting**

In the past meeting, each team inside the group discussed what had been done in the previous few weeks. The Embedded team discussed how it had begun to write a Confusion matrix to compare the actual results of the skeet shot versus what was predicted by darknet. The Embedded team also discussed how it had begun to research algorithms that they could use to write a scoring algorithm based on the results from darknet. The Integration developers then discussed the work that they had done on the application, which had made it more secure and less buggy. Next, the Mobile team discussed how they had continued to fix bugs in their versions of code, and how they had begun to research ways to modify their code to allow the security fixes implemented by the integration team on the board and made plans for Apple's Test Flight so that every team member can download the application as "Beta Testers". After this, the team then discussed with Professor Duwe some of the goals for the upcoming semester while also understanding Professor Duwe's expectations.