Team Members/Role

Andrew Kicklighter - Mobile Developer

Alexander Weakland - Wildcard Developer

Nicholas Dykhuizen - Integration Developer

Justin Elsbernd - Integration Developer

Joshua Heiser - Embedded Developer

Paul Kiel - Embedded Developer

Bi-Weekly Summary

In the past two weeks, the Embedded team worked on updating previously existing Python scripts so that the accuracy values that they are obtaining are more directly relevant to the accuracy objectives described in the design document. The scripts are now more relevant because the script now compares the bounding boxes created by darknet to the actual result of the Clay Pigeon. This comparison is the 99% accuracy objective that is mentioned in the design document. This means that the team will be able directly see the current progress of darknet and what work still would need to be done in order to meet the accuracy objective set out in the design document. Additionally, the Embedded team worked on compiling/running darknet. Completing this objective is important because it means that the team can now feed darknet new footage, which will allow darknet to become more accurate, which increases the overall accuracy of the program. While the Embedded team was doing this, the integration team worked on testing the converted scripts and continued to prepare the pipeline for scoring/darknet implementation. The mobile team continued to polish the application and ensured that the client had the ability to download the application to test it out themselves.

Past week accomplishments
- Continued to test and implement converted scripts - Justin
- Started combining C files for scripts into one C program - Justin
- Research darknet and implement a poc application - Nick
- Met with Dr. Duwe to help him set up Test Flight - Andrew
- Started working on an option so that if a user does not have the board, that they can still use the app to track a round of skeet shooting, just without automatic scoring - Andrew
- Continued ironing out the scorecard/scoring - Andrew
- Completed updating data that was mislabeled to help train darknet and achieve improved accuracy in the train and test sets. -Alex
- Successfully trained new CV models - Paul and Josh
- Determined appropriate training time for accurate models- Paul and Josh
- Updated Accuracy Script so that it aligns closer to accuracy set in design document- Paul and Josh

Individual Contributions

Name	Individual Contributions	Hours this Report	Cumulative Hours
Andrew Kicklighter	- Met with Dr. Duwe to help him set up Test Flight - Andrew - Started working on an option so that if a user does not have the board, that they can still use the app to track a round of skeet shooting, just without automatic scoring - Andrew - Continued ironing out the scorecard/scoring - Andrew	14	33
Alexander Weakland	- Completed updating data that was mislabeled to help train darknet and achieve improved accuracy in the train and test sets. - Ensured existing data was not misslabed.	13	27

Nicholas Dykhuizen	- Include opencv libraries into application - Included darknet libraries into application - Continued work on integrating opencv and darknet into the application - Outlined structure for scoring mode - Implemented libconfig for darknet information and storage information	15	49
Justin Elsbernd	- Tested C programs for converted scripts - Combining C programs into one file - Preparation for darknet linkage	14	29
Joshua Heiser	- Modified Python script that compares the bounding boxes to actual result to determine accuracy - Researched possible implementations of scoring into the integration teams pipeline. - Trained darknet model - Did research on overtraining - Tested multiple models for accuracy to find appropriate train time for accurate model	14	32
Paul Kiel	- Modified Python script that compares the bounding boxes to actual result to determine accuracy - Researched possible implementations of scoring into the integration teams pipeline. - Trained darknet model - Did research on overtraining - Tested multiple models for accuracy to find appropriate train time for accurate model	15	33

Pending Issues
- Implement OpenCV into integration application
- Create scoring application mode
- Create training application mode

Plans for the upcoming weeks

  The integration team plans to work with the embedded team to create a link between the data pipeline and embedded computer vision algorithm. The integration team also plans to work with the mobile development team to make sure the board is setup properly for us to start data collection. The mobile team looks to finish the scoring/scorecard part of the application. The mobile team also look to have the following option fully set up: if a user does not have the board, that they can still use the app to track a round of skeet shooting, just without automatic scoring.

Summary of weekly advisor meeting

  In the past meeting, each team updated Professor Duwe with their current progress. First, the Embedded team described how they had updated the Python script that checked for accuracy so that it was more precise. After explaining their updates, they showed the results to Professor Duwe. The embedded team also demoed training of the darknet algorithm to Professor Duwe while explaining the results that were occuring. The Embedded team also determined that as darknet increases the number of iterations through the training set, the more accurate darknet becomes. Additionally, the Embedded team discussed their next steps, which was to begin to use their research about implementing darknet in C + + to work with the integration team on integrating scoring into the Integration teams data pipeline. After this was done, the Integration team then discussed their current progress. The Integration team was able to convert bash scripts that controlled the camera so that the camera could be turned on/off through the team's C + + application. The team also discussed their progress on implementing OpenCV. Lastly, the Mobile team worked with Dr.Duwe to set up testflight, so that he can run collect training/testing data if he would like. The Mobile team also updated their current status with debugging and explained their progress of implementing a feature that allows for the scorecard to operate, even when the board is not present and connected to the App. After this was complete, Dr. Duwe explained his expectations for the next week and addressed any concerns that team had before allowing them to continue their work on their respective parts of the project.