

sdmay19-08: IC Chip: Automated Clay Target Scoring System

Week 5 Report

10/13/2018 - 10/19/2018

Client: Dr. Henry Duwe

Faculty Advisor: Dr. Henry Duwe

Team Members:

Eva Kuntz – Software Architect Lead; Report and Communication Manager

Cole Huinker – Software Architect, Data Analysis, Computer Vision

Steven Sleder – OpenCV and Machine Learning Lead; Data Analytics Lead

Michael Ruden – Hardware Architect Lead; Prototype Manager

Philip Hand – Device Connectivity Lead

Keith Snider – Software Architect; Webmaster

Weekly Summary:

This past week was heavily focused on writing and revising a technical document for gathering data. After discussion with our client, it was determined that we need to collect more data in order to have an adequate training data set for our model. Our team contacted the ISU Trap Club in hopes of videoing one or more of their shooting sessions to collect data. In doing so, it was requested that our team work on a technical document that specified exactly how to collect data.

Past Week Accomplishments:

- Mobile Application
 - Continued work on screen mockups.
 - Started work on application screen flow for use cases.
 - Reviewed plans for application architecture.
 - Built Xamarin project for start of mobile application.
- Hardware
 - Discussed creation of a 3D model for skeet shooting field based on camera field of vision.
- Data Labeling and Collection
 - Worked on plan to collect data
 - Discuss protection for the camera
- Created Documentation for Project Plan and Training Labellers

Pending Issues:

- Possibility of overtraining data; interested in getting another data set
 - Continue to label data and draw bounding boxes.
 - Set date for data collection with ISU Trap Club.
-

Individual Contributions:

| Team Member | Contribution | Weekly Hours | Total Hours |
|---------------|---|--------------|-------------|
| Eva Kuntz | Continued designing mobile application architecture; revised Project Plan; worked on mobile application screen mockups for approval from client. | 8 | 40 |
| Cole Huinker | Worked on data collection plan; revised the project plan; Started using YOLO to label data; Used 3d modeling software to simulate the camera for data collection. | 8 | 38 |
| Steven Sleder | Wrote up documentation on data labelling, continued labelling data, worked on Project Plan revisions, and built an image to run DarkNet | 8 | 38 |
| Michael Ruden | Continued working on the shooting field simulation. Started working on 3D environment for the program. | 7 | 34 |
| Philip Hand | labeled data | 3 | 24 |
| Keith Snider | Added placeholders for future data in the android application. | 6 | 30 |

Plans for the Upcoming Week:

- Eva Kuntz – Continue focusing on mobile application.
 - Revise mobile application architecture based on client feedback/team discussion.
 - Experiment with socket programming on Xamarin.
 - Continue working on screen mockups for mobile application.
 - Document application process flow.
- Cole Huinker – Focus on data collection.
 - Continue data collection plan
 - Work some more with the Xamarin framework for the mobile app (Socket programming)
 - Work some more with Darkflow in linux.
- Steven Sleder – Re-image Ubuntu distribution to fix OpenCV compilation failures, label data, run the model.
- Michael Ruden – Continue working on shooting field simulation.
- Philip Hand – Continue to label data.
- Keith Snider – Continue work on mobile application.
 - Draw screen flow diagrams for the mobile application.
 - Check with Dr. Duwe on how he would like the application to function and flow.
 - Draw up screen flow diagram for different use cases of the application.