EE/CprE/SE 491 Status Report 3

Feb 13, 2025 12:00 AM-Feb 27, 2025

Group number: 49

Project title: Slowpitch softball device

Client/Advisor: Nicholas Fila

Team Members/Role:

Cael Schreier: Bookkeeper and Code Review

Andrew Kinneer: Lead System Designer

Kyle Nachiengane: Lead Testing Engineer

Sam Skaar: Coordination and Documentation Lead

Kolby Moorman: Lead Frontend Developer

- **Weekly Summary**

The past two weeks have been spent pushing hard to finally get our OpenCV logic working on our mobile application interfaces. We have managed to achieve a video stream, basic ball tracking, and basic human identification for our calibration. We are continuing to fine tune this functions and debug issues that come from working with OpenCV in Java that we did not encounter with Python. We have also greatly improved our application's frontend, including multiple screens for users to use, and places for previous game statistics.

- **Past week's accomplishments**
  - Andrew Kinneer: Created a native Android activity that runs OpenCV with the phone's camera successfully. Connected this activity to Flutter through a channel so it is accessible within our app. Merged these changes with Sam's frontend changes.

  - Kyle Nachiengane: Worked on integrating OpenCV with Swift the native code for iOS on personal device. Worked on implementing opencv with native Swift. Tested android implementation.

  - Cael Schreier: Working with Drew to get our OpenCV functions working through Java as a channel to our application, and debugging all that comes with importing all necessary libraries. Implemented YOLO human tracking, determined that it was not feasible for our project due to running at 2 frames per second, and implemented OpenCV's human tracking as a backup. This implementation was simpler and faster, but slightly less consistent so I will continue to improve it moving forward.

  - Kolby Moorman: This week I worked on getting the updated code from our front end app design to work with ios as well. This transition took some time signing things on top of switching a few things here and there just to solve a little tiny error. Decided that we may as well begin to develop on IOS at the same time because there isn't a great way to split up the android side of things.

  - Sam Skaar: This week I made the UI for the application. It includes a homescreen, a stats screen that logs games and lets you scroll past games stats, and a tracking screen that will open either the android camera feature or ios that the others worked on. I also connect crews android activity to the main application, although it barely gets 1 frame every 2 minutes.

- **Pending issues**
  - Is it worth trying to develop it for IOS in terms of learning swift
  - Universal ball tracking algorithm
  - Height tracking improvements for edge cases
  - OpenCV full mobile implementation

- Rotational Camera widget

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Andrew Kinneer	Native Android activity with full OpenCV running. Merged changes to current working app	10	78
Kyle Nachiengane	Worked on integrating OpenCV with Swift the native code for iOS on personal device. Worked on implementing opencv with native Swift. Tested android implementation.	13	69
Cael Schreier	Working on Java OpenCV and YOLO functions, switching YOLO functionality to native OpenCV, debugging camera issues.	15	73
Kolby Moorman	Got our front end design up and running on my iphone from the android version.	12	69
Sam Skaar	Made the whole front end and got the android activity connected.	15	77

- **Plans for the upcoming week**
  - Andrew Kinneer: Troubleshoot miscellaneous camera issues such as optimizing the frame rate and fixing the orientation of the camera in landscape mode. Start moving our ball tracking algorithm into the Android activity.
  - Kyle Nachiengane: Keep working on ios swift native code with opencv testing hopefully testing with iOS camera on app.
  - Cael Schreier: Finalize our calibration methods by making OpenCV more

consistent and finishing the on-click handlers for storing height coordinates.

- Kolby Moorman: Dive into swift integration with opencv

- Sam Skaar: Continue building out the front end. Make the stats persist through emulations. Maybe connect stats to a game if we get that running well.

- **Summary of weekly advisor meeting**

Tough love was the theme of our meeting this week. We had a heart-to-heart with our advisors where we realized that we were not putting in the work to be able to finish our project to the level we wanted. From that, we started a much larger work push throughout the second week of this stretch to try and implement as much as we could, and will continue to strive for that work ethic until our project is finished.