



EE/CprE/SE 491 WEEKLY REPORT 3

Sep 26, 2024 - Oct 3, 2024

Group number: 49

Project title: Slowpitch softball device

Client/Advisor: Nicholas Fila

Team Members/Role:

Cael: Bookkeeper and Code Review

Andrew: Lead System Designer

Kyle: Lead Testing Engineer

Sam: Coordination and Documentation Lead

Kolby: Lead Client Outreach

○ Weekly Summary

After getting some basic code set up last week, we moved forward with implementing some object tracking this week. We have been able to get a basic camera to identify a ball and follow it as it moves across the screen, which will be a good baseline for moving forward in our project. We also had some members go out to some Slow-Pitch Softball games to see a live game and chat with refs and pitchers to get their perspective on our project, as well as their suggestions for features they would like to see.

○ Past week's accomplishments

- Andrew Kinneer: Wrote an OpenCV program to use a color mask to track and draw a circle around a green tennis ball. Went to the softball fields on a game night and talked to pitchers, umpires, and players to talk about the pain points of pitching in slow-pitch softball
- Kyle Nachiangane: Experimented with open cv and looked into object tracking with camera on my device. Talked to umps, batters, and pitchers about their experiences and thoughts on our project.
- Cael Schreier: Implemented a basic object-tracking system to find a circle (ball) from a video feed. Took some initial videos and pictures with Sam at a softball diamond.
- Kolby Moorman: Set up a python environment on local computer for open cv and began attempting to track an object throughout a video

- Sam Skaar: Recorded some more pitches from real softball games (both mine and Fila's). During that time, we interviewed two pitchers and an umpire about their experience with how pitch calls impact the game. There seemed to be a lot more interest in the pitches that around 6' as opposed to the 10-12'. There is also a league in the spring, so if we get a prototype out by that time, we could do some testing. Regarding market scale, I didn't realize there was such a big scene for the game. The umpire expressed no issue with a potential device taking away part of their job.

○ **Pending issues**

- C++ or Python for image processing?
- What our frontend application will be
- How can we mitigate "noise" in a video feed
- Should we have a noise and a light? Or just one of them?
- What is the ideal camera angle to get accurate distances

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Andrew Kinneer	● Wrote an OpenCV program to track a softball with a color mask ● Went to the softball fields and interviewed players, pitchers, and umpires	5	8
Kyle Nachiengane	Experimented with open cv and looked into object tracking with camera on my device. Talked to umps, batters, and pitchers about their experiences and thoughts on our project.	5	9
Cael Schreier	Object Tracking in OpenCV, initial recording with an iPhone as a baseline for a device.	4.5	11
Kolby Moorman	Decided to forget Arkitt and begin diving into open cv setting up an environment and tracking an object	6	10
Sam Skaar	In game recordings and player/ump interviews. (So far)	4	12.5

○ **Plans for the upcoming week**

- Andrew Kinneer: Try and do some ball tracking in OpenCV with our test footage to see if we can get reliable x,y coordinates from the ball
- Kyle Nachiengane: Look into specifics for applications on phones.
- Cael Schreier: Improve my object tracking code to detect if a ball is above a certain threshold for a mock “illegal” test and more accurately detect an object.
- Kolby Moorman: experiment with other “objects ” that could bug out the object tracker like replicating a bird flying.
- Sam Skaar: Set up gitlab so we’re ready to go with issues and or get or first attempt that this project going in the group environment.

○ **Summary of weekly advisor meeting**

In our meeting this week, we talked about the pros and cons of python and C++. We also talked about ARKit as a potential tool we can use and getting gitlabs integrated with our environments. We have taken many videos that can be used for testing and talked with players and umps to get their feedback on illegal pitches.