SOFTBALL TEAM 1

EE/CprE/SE 491 WEEKLY REPORT 4

Oct 3, 2024 12:00 PM - Oct 8, 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**

    We had a bit of an early breakthrough by combining Drew's color masking with Sam's motion detection and were able to accurately track a softball through many of our pre-recorded pitches. There is still lots of room for improvement, as best results are currently in a nighttime environment, so calibration is necessary moving forward. We also finally got our hands on some actual softballs to help our field testing in the future.

- **Past week's accomplishments**
    - Andrew Kinneer: Combined my previous color mask experiment with Sam's motion tracking script to track the differences in the color mask. Ran some test footage that we took at the fields last week through that script, and it did a great job of tracking the ball at multiple different angles. It struggles to do as well during daytime footage. Looked into ways to measure height of the throw in open cv with known points of distance in the frame.

    - Kyle Nachiengane: I looked at others' experiments and researched different ball-tracking methods. Worked on getting my ball tracking code more accurate.

    - Cael Schreier: Tested some initial "illegal" logic and how fast a sound can be played when an object is marked "illegal." Tested real-time cameras and how logic with tracking/sound affects framerate

    - Kolby Moorman: This past week, I looked into ways to get a better object tracking program because originally we all had object tracking for close but nothing far away. Also did some research on tracking the height of an object.

    - Sam Skaar: I spent my time on our lighting talk presentation as well as designing a logo for the team. I also attempted to merge my motion tracking with Drew's color system, but it didn't bear any fruit that was better than Drew's so far. I think we'll stick with his moving forward. I got familiar with the website settings and created an environment for me to continually work on that in the coming weeks.

- **Pending issues**
    - Machine Learning vs our current method
    - Daytime Tracking
    - Iphone Integration
    - Team brand
    - Baseline Code Base

o **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Andrew Kinneer	Combined my previous color mask experiment with Sam's motion tracking script to track the ball. Looked into tracking the height of the ball	5	13
Kyle Nachiengane	I looked at others' experiments and researched different ball-tracking methods. Worked on getting my ball tracking code more accurate.	4	13
Cael Schreier	Tested some initial "illegal" sounds to see how fast they can shout out, along with framerate testing	4	15
Kolby Moorman	Researched tracking heights of objects using open cv as well as object tracking using open cv's MOSSE implementation.	4	14
Sam Skaar	Lightning Talk Presentation, Logo Design, "improved code" (stick to Drew's), Initialized Team Website Environment.	3 + .25 + 3 + .25 = 6.5	19

o **Plans for the upcoming week**
- Andrew Kinneer: Try and create a rough script that calculates the height of the ball and see what happens.
- Kyle Nachiengane: Improve my ball-tracking experiment to be more accurate.
- Cael Schreier: Compare machine learning algorithms with our code to compare performance vs accuracy with each.
- Kolby Moorman: Experiment with Opencv MOSSE tracking as well as see if I can track the height of an object
- Sam Skaar: Flesh out the website with all the basics and update past week's info with our material. Look into integrating applications on the iphone.

o **Summary of weekly advisor meeting**

In our weekly meeting this week, we did a demo of each of our different ways of object ball tracking to show our progress being made. We also talked about the option between Machine learning versus non Machine learning. We were given some links that talked about the benefits and backdraws of what each process would look like for our project.