
EE/CprE/SE 492 BI-WEEKLY REPORT 06

3/29 - 4/12

Group number: sdmay21-05

Project title: AR Chess Advisor

Client &/Advisor: Dr. Joseph Zambreno is both our client and advisor

Team Members/Role:

Dillon Peters: Team Lead

Parker Bibus: Computer Vision Lead

Jake Aunan: Augmented Reality Lead and Tuesday MOM Scribe

Jamie Peterson: Mobile Lead and Thursday MOM Scribe

Aidan Sherburne: Report Manager and Computer Vision Developer

Brett Santema: Testing Manager and Mobile/Glasses Developer

Bi-Weekly Summary: During this period we cleaned up the final gameplay loop and sorted out a few pesky bugs associated with the stockfish binary. The core gameplay loop is now completely functional for our use cases, and we are continuing to work on the computer vision detection that would allow for fully functional gameplay beyond a simple demo. Parker also found a clean way to screen record the glasses for our project that we will use for our final demo. Additionally, we started on the projects final deliverables: The Final Report and the Poster. We made substantial progress on these components during the period and are roughly 70% complete with each of these deliverables with 2 weeks remaining.

Past two week accomplishments

- Dillon Peters:
 - PIRM #2
 - Created the PIRM #2 Presentation
 - Presented it to the team at on Monday and made changes based on the feedback from them
 - Final Report
 - Created Final Report
 - Wrote many of the new sections not in 491 Design Document
 - Wrote the Appendix Sections
 - Updated the sections transferred over from the 491 Design Document to reflect our progress this semester
 - Outlined the remaining sections that need to be written by the rest of the team to finalize the report
 - Signaled by TODO Comments
 - Development work with Parker and Jamie

- Finished working on the Stockfish Communication on Android. Full loop is now complete.
- Parker Bibus:
 - Development work with Dillon and Jamie.
 - We got a complete setup test run of the stockfish communication working on android. We had to pivot where stockfish would run because of a lack of python emulation capabilities relating to the OS.
 - Added color finding to the green corner detection method to allow for better corner detection regardless of lighting.
 - Combined changes between the computer vision branch and the android to cv testing branch
- Jake Aunan:
 - Assisted Jamie in development work for Stockfish communication
 - Wrote the front-end implementation section of the final report.
- Jamie Peterson:
 - Developed alongside Dillon and Parker
 - The stockfish communication and board storage is complete. This means a full loop and game should be possible at least on the android side.
 - Small additions to Final Report
- Aidan Sherburne:
 - Continued working on poster organization and gathering info from the different team members about aspects of the project
 - Worked on some designated TODOs in the code and reports
 - Conducted another market research survey into related work to determine if anything comparable to our project has been released since the start of our project. (It hasn't)
- Brett Santema:
 - Worked on the final report, updating the section for testing and adding testing plan for the CV module and output.
 - Improvements to unit tests for CV module.

Pending issues

We still need to determine how to solve some of the more difficult CV problems such as shadows, glares, and hidden pieces (ex: A Queen blocks a pawn from being seen by the camera)

Name	Individual Contributions	Hours this Period	Total Hours So Far
Dillon Peters	Created PIRM 2 Presentation, Started and Wrote Most of Final Report	12	62

Parker Bibus	Green Corner Detection Improvements, branch change merging	12	65
Jake Aunan	Android development to help complete Stockfish integration, Final Report work	6	47.5
Jamie Peterson	Finished android full loop, small additions to final report	7	52
Aidan Sherburne	Poster work Report work Info gathering Market research	7	58
Brett Santema	Report work Unit tests	10	42.5

Comments and extended discussion (Optional):

Plans for the upcoming week

- Dillon Peters
 - Finalize Final Report
 - Create Final Presentation
 - Draft Developer Instructions for Dr. Zambreno
 - Include setup, libraries, next steps, explanations of code segments
- Parker Bibus
 - Finalize Final Report
 - Add similar functionality for the green corners to the red open spot values
 - Improve code documentation
- Jake Aunan
 - Help finish Final report/poster/presentation
 - Assist with code cleanup and finalization
- Jamie Peterson
 - Help finalize Final Report
 - Start adding comments to uncommented parts of the android code.
- Aidan Sherburne
 - Continue poster work
 - Continue work on TODOs
 - Consider last-minute desirable feature additions
- Brett Santema
 - Continue writing the testing section of the final report.

- Update CV tests to work with image calibration.

Summary of weekly advisor meeting: We meet with Dr. Zambreno on 4/12 to present our progress on the project as well and discuss how he would like us to pass the project off. We presented him with the final gameplay loop using a screen capture tool that allowed us to mirror the glasses to our computer. He was pleased with the loop and encouraged us to continue fine tuning the calibration and dot detection, something we planned for the final period. Additionally, Dr. Zambreno requested a developer instruction document that detailed information that would be necessary for him to start developing on the project. We will meet with him a final time in 2 weeks to show him the final state of our project and present him with the instructions he requested.