

Team 13

Project Title: Automated Chess board

Date: 10/1/2021

Members:

-Luke Dirks

-Nathan Kelly

-Jeet Nair

-David Imhoff

-Nathan Bellows

- Dawson Munday

-Isaac Sachse-

What we've accomplished in the past week/what we've been researching

-Luke Dirks – I have been researching several existing versions of an automated chessboard. Specifically Square Off, Phantom, and an Arduino project that used computer vision and a robotic arm. I also wrote several of the slides for the lightning talk presentation.

-Nathan Kelly - I have been researching the related projects use of stepper motors, to help decide our decision. The size of the board tiles will be a deciding factor. I have also been looking into different solutions of magnetic field detection for chess pieces. In addition I have been researching alternate forms of piece movement without a stepper motor. I have also been certified in the Coover machine shop to help accelerate our prototype development.

-Jeet Nair - I did some research into various mechanical aspects of the board by looking into prior projects as well as existing commercial products to see how they move pieces, the speed to move them at, the sizing of the pieces and subsequently the squares they are in, and what potential specifics for the motors to select from.

-David Imhoff - Helped research existing boards and how they are specifically implemented. Looked into using a claw instead of hall sensors. Helped create our in class and lightning talk presentations.

-Nathan Bellows - Helped review existing implementations of similar products with a focus on design decisions they made for chess interfaces/behaviors and piece-detection

mechanisms. Helped propose original solution ideas to various chess-based problems in the implementation that are important to our requirements and constraints (to help verify that such solutions are possible). Helped brainstorm and write up requirements and constraints for the project based on these ideas.

- Dawson Munday- Looked into how people go about interfacing with stockfish, this included what protocol they use for interacting with it along with what kind of languages can be used.

-Isaac Sachse- I worked with researching other boards and searching for old projects in a similar vein. I worked with Luke and David on the 10 minute presentation we did during the week and recording for the lightning talk. I also compiled topics of research from our meeting with Zambreno to aid in making more concrete decisions going forward to dial in research.

What we're planning to do in the coming week

-Luke Dirks – We need to record our lightning talk video. Additionally, we need to research the materials for the board and pieces, and the sensors we want to use.

-Nathan Kelly - I plan on finalizing the motor selection based on the agreed upon dimensions. I will also plan the pricing for suggested materials to assess the viability of solutions. I plan on researching motor control and power solutions based on motor selection.

-Jeet Nair - More research into fully narrowing down the selection of motors as well as board and piece materials (need to do the math on how strong the motor will be based on the magnetic and frictional force from the motor to the magnet and the pieces to the board).

-David Imhoff - Figure out what type of UI we're going to use and what software/hardware will be required for that. Begin messing around with stock fish. Look into more of the software side of things since we've mostly been focused on hardware so far

-Nathan Bellows - Work with David to agree on software/hardware decisions such as microcontroller and programming languages. Research options for the UI in terms of touchscreen input/display.

- Dawson Munday - Currently do not have a task I am working on, will end up discussing with the team to see who needs help or if anyone has anything else that nobody is working on

-Isaac Sachse- We need to make concrete decisions on materials for the board (top/side panels) and decide which sensors we are going to use for our board. Once we

decide our ideal setup I will work with the ETG to order parts and components after we reconvene with Zambreno.

Issues we had in the previous week

-Luke Dirks – We had to reschedule our meeting with Zambreno due to scheduling conflicts. Our Engr standards slide was poorly done, and needs to be improved.

-Nathan Kelly - I could not make last weeks meeting due to job interviews and rescheduling from professor.

-Jeet Nair - We had some scheduling conflicts and some of us were unable to meet with Zambreno during our scheduled meeting.

-David Imhoff - Scheduling conflicts due to people's busy schedules.

-Nathan Bellows - Open-ended research can be a bit of a struggle to quantify any meaningful amount of work. Scheduling was a hassle but worked out for me in the end. Continued sickness prevented me from attending our team's presentation in class.

- Dawson Munday - Had scheduling conflict so I was not able to attend the meeting

-Isaac Sachse- We had scheduling conflicts so some of us were unable to make it to the meeting with Zambreno. I also agree with Nathan that open ended research has been helpful, but we need to make more concrete decisions and get some direction.