EE/CprE/SE 491 Weekly Report

03/09/2019 – 03/15/2019

Group Number: sddec19-23

Project Title: Network Arcade Platform

Client: Joseph Zambreno

Team Members:

- *Evan Mandle: Team Lead*
- *Alex Carpenter: Chief Engineer – Hardware*
- *Bryan Johnston: Chief Engineer – Software*
- *Alexander Schneider – Chief Design*
- *Zach Serritella – Meeting Facilitator*
- *Brian Shanders – Report Manager*

Weekly Summary:

This week, the team met up on Tuesday the 12th to discuss more the design document. Also in this meeting, discussed ideas to make the project unique. One idea that came out of it was a motion sensor that will wake the arcade machine. Next, talk about the status of each computer: the first one is ready for menu testing while the second one has no operating system installed. With this, the team decided to focus on the first computer to create the first arcade cabinet to make sure it is functional until working on the second computer. Finally, the team decided to define what "network" means, which is a physical connection using a LAN adaptor that can sync the menus and be able to support netplay.

Past Week Accomplishments:

- **Evan Mandle:** Worked on CAD design by breaking down the cabinet into components and added additional features. These new features include a glass window to show off our cabinet's insides, 4" speakers and started working on a motion sensor to wake up the cabinet while in sleep mode. The motion sensor is a work in progress (see Appendix for CAD pictures).
- **Alex Carpenter:** Worked on the design document and did research on reed switches for position sensing. Performed more research regarding creating a custom USB encoder, so that a GameCube controller, pushbuttons and a joystick can all be used to control the emulators.
- **Bryan Johnston:** Assisted Evan in the making of latest CAD design. Created a button model and assembled them into the cabinet. Researched joysticks and buttons for the arcade.

- **Alexander Schneider:** Documented testing and design results in the design document. Did rudimentary network testing with the non-Retropie version of Dolphin installed onto the first machine. Attempted to test benchmarks of the second computer, but the lack of an operating system means that the second computer is more or less unusable at this time, though the quality of the drivers & graphics card was gauged.
- **Zach Serritella:** Worked on the design document and did some research in encoders, prices, and coding for the main menu
- **Brian Shanders:** Decided on the tier system of the menu, started preliminary work on menu programming, along with getting all the box covers and descriptions

Pending Issues:

- **Evan Mandle:** Need to determine what technology to use for the motion sensor. Options include sonar sensor, IR sensor, and others.
- **Alex Carpenter:** Need to determine the technical specifications for a USB encoder.
- **Bryan Johnston:** None
- **Alexander Schneider:** No pending issues.
- **Zach Serritella:** None
- **Brian Shanders:** None

- **Everyone:** Finish the design document.

Individual contributions:

Name	Individual Contributions	Hours this week	Cumulative Hours
Evan Mandle	Researched approximate component sizes, CAD work	10	42
Alex Carpenter	Design document, basic design of position sensing and research on USB encoders	7	32
Bryan Johnston	CAD designing and joystick research	4	29
Alexander Schneider	Design document, basic network testing, parts inspection.	5	27
Zach Serritella	Design document, training, and research	5	26

Brian Shanders	Menu design, writing game descriptions and getting game covers, Weekly report	5	26

Plans for the Upcoming Week:

- **Evan Mandle:** Light research and CAD work.
- **Alex Carpenter:** Continue working on design document and finish research on USB encoder. Start prototype of the position sensing design.
- **Bryan Johnston:** Plan on researching HDMI splitters.
- **Alexander Schneider:** Finish & read-over design document during the break.
- **Zach Serritella:** Finish writing design document, research: speakers, encoder, monitor and pricing
- **Brian Shanders:** Acquire the rest of the game covers along with game descriptions over break

Summary of Weekly Advisor Meeting:

This week, the team gave an update to the advisor. The team talked about what the team defined as "network", an update on the main menu and CAD, the idea of a motion sensor, and more. The advisor talked about for the CAD drawing, if want to use aluminum, to research more to see if it can work. Also, talked about focusing more on the design of the menu than implementing it. The advisor gave advice and question about the sensor and how it works. Told the team to look into more research for each section, i.e controller design, power distribution, menu design, etc.
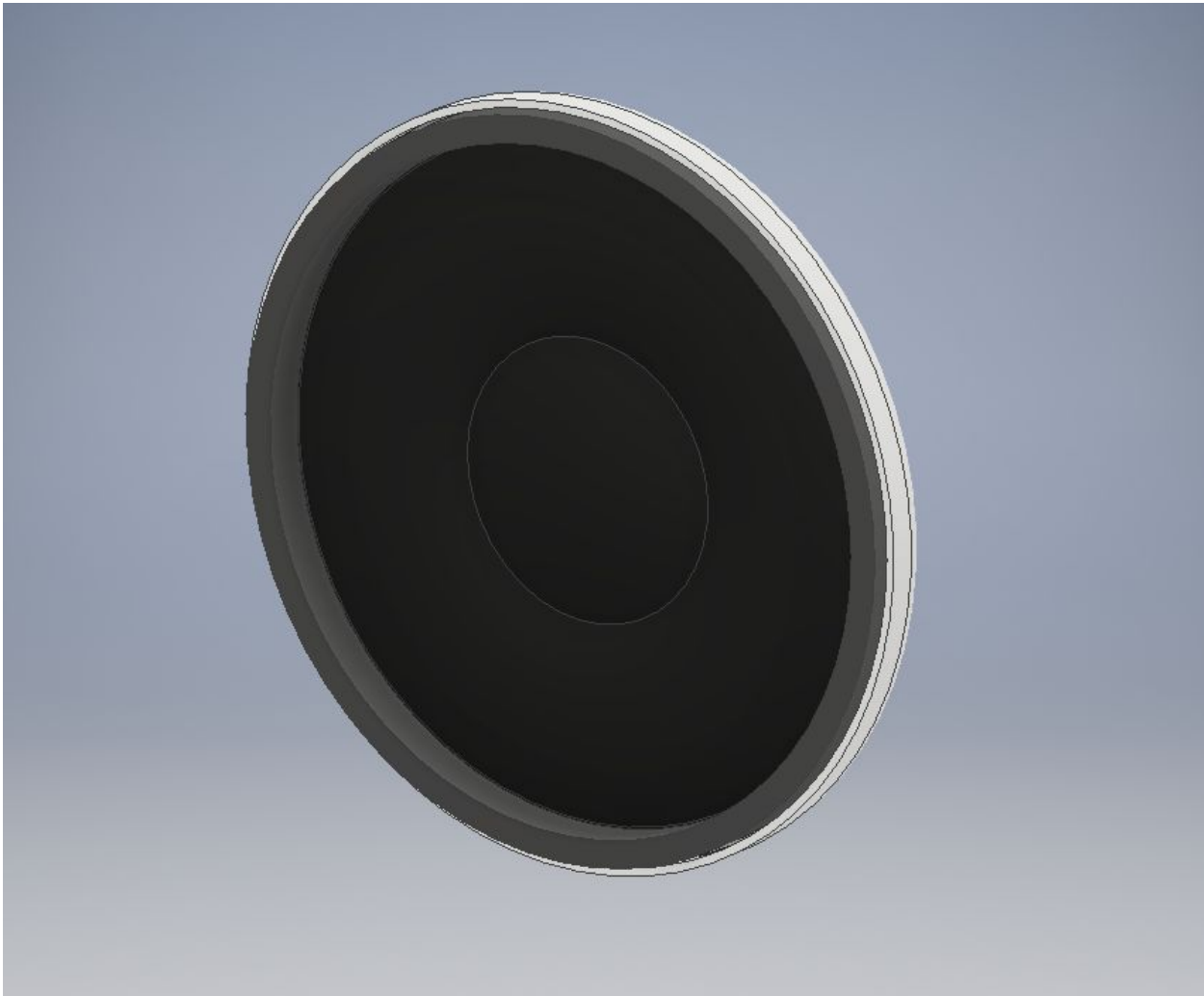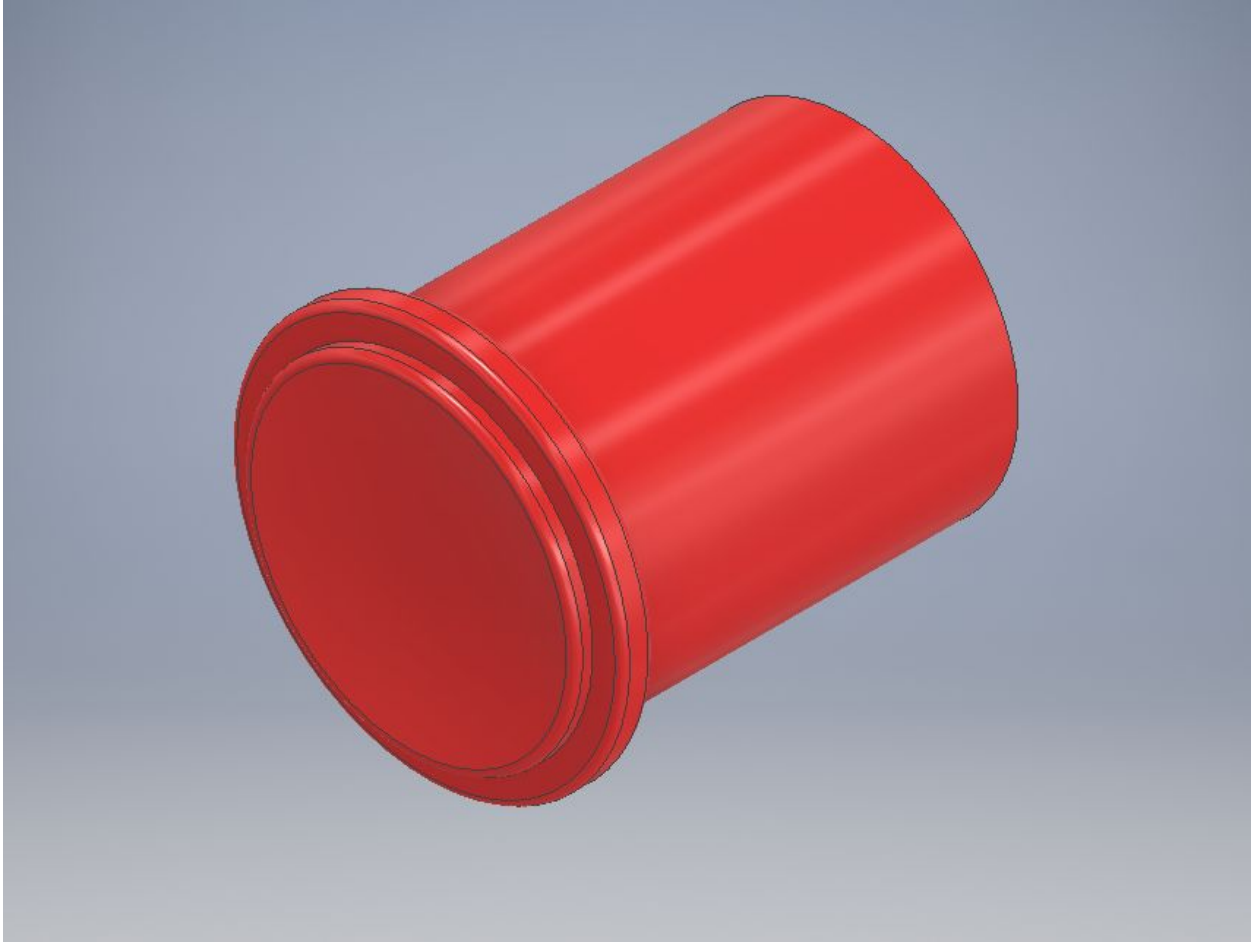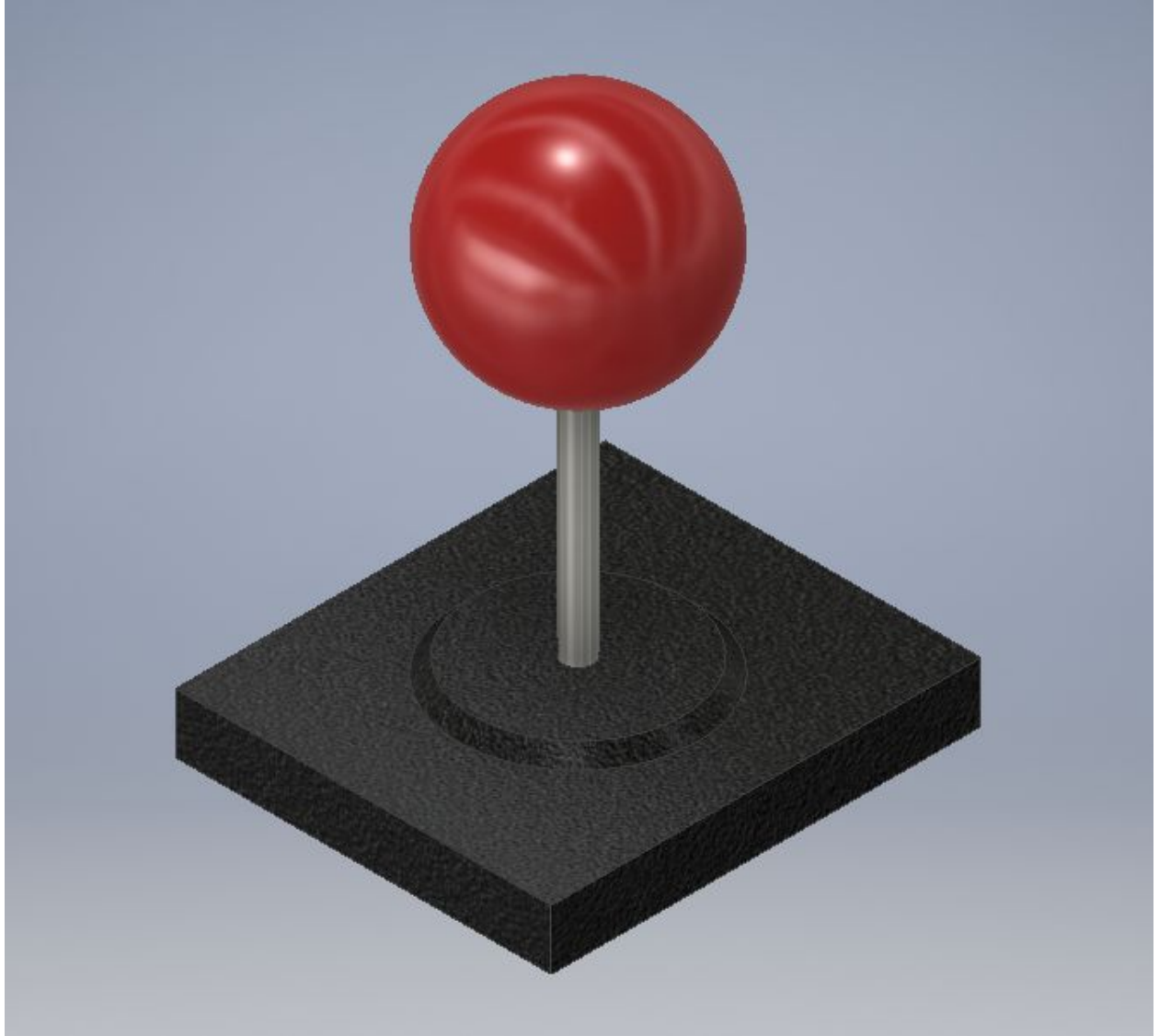
Appendix:

Figure 1: 4" Speaker
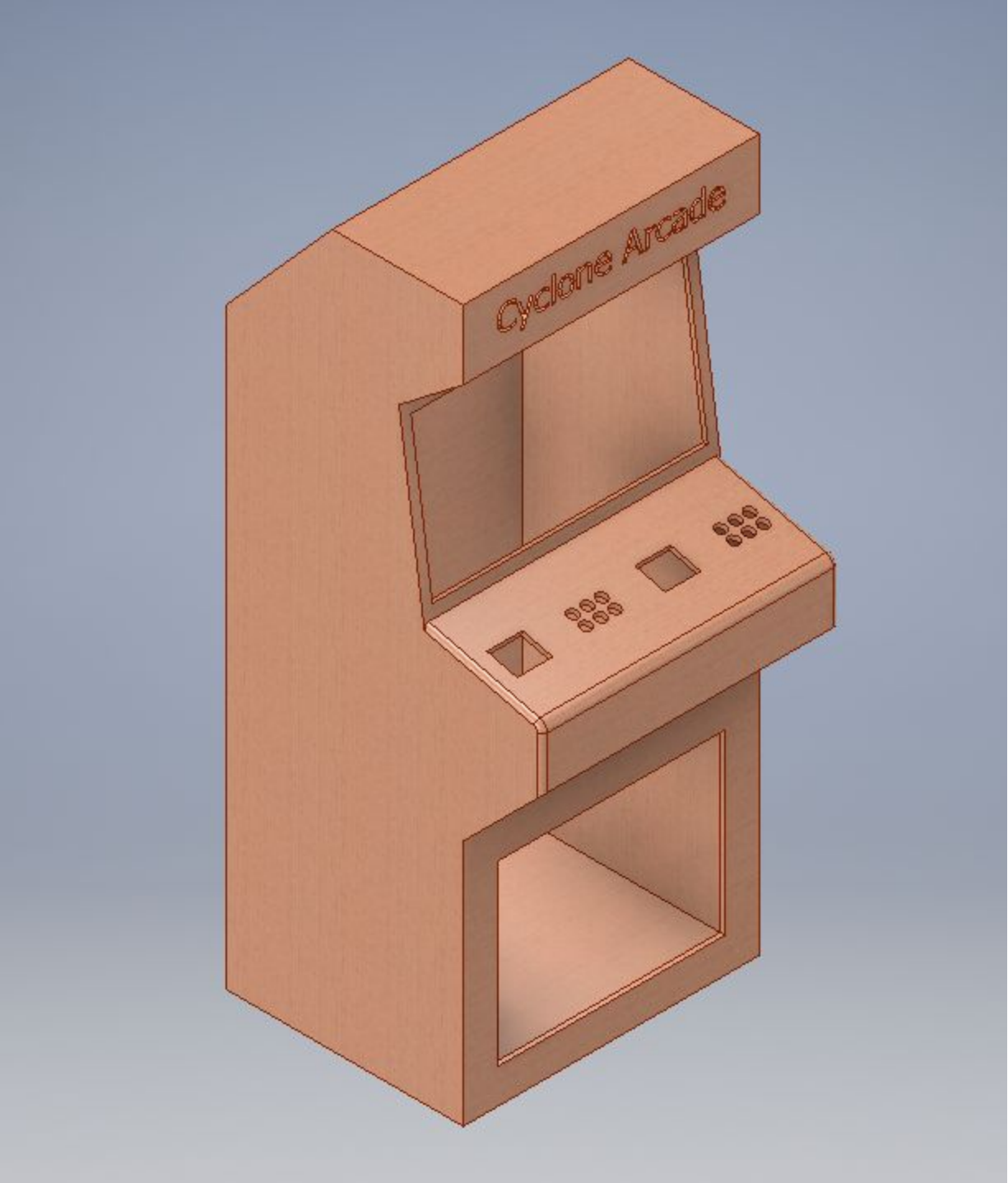
Figure 2: Red Arcade Button

Figure 3: Arcade Joystick

Figure 4: Cabinet Shell