

EE/CprE/SE 4910 WEEKLY REPORT 4

10/14/25 - 10/21/25

Group Number: sdmay26-40

Project Title: True Force Technologies Arcade Rack

Client: True Force Technologies

Advisor: Matt Post

Team Members/Role:

Jacob Garcia - Frontend Development

Dylan Longlett - Frontend Development

Andy Drafahl - Team Manager, Frontend Development

Fadi Masannat - Frontend Development

Sofi Gutierrez - Backend Development

Parnika Dasgupta - Advisor/Client Liaison, Backend Development

Colin Yuska - Electronics

Weekly Summary

This week, the team was hard at work finishing the app mockup, which encompassed the design of and flow between every screen of the app. They split into groups to divide and conquer the different views, but made sure that the user could traverse between each of these views in the Figma prototype with ease. That prototype was then presented to the client, who gave feedback and asked questions. The team asked clarifying questions of their own and made specific adjustments to the overall design. In addition to all this, each team member completed React tutorials from the React website to gain a greater understanding of the tool that will be the main focus of the entire development cycle. As a side note, the team also elected Andy as team manager.

Past Week Accomplishments

Jacob Garcia

- Set up the mode selection screen, which involved creating the visual layout based on the designs and then programming the buttons to respond to a user's tap and take them to the correct part of the app.
- Studied the Figma design to get a solid plan for the rest of the project, which included mapping out how all the screens connect and noting down the specific colors, fonts, and repeating elements to use later.

Parnika Dasgupta

- Completed the assigned React tutorials. The first tutorial introduced us to React documentation. The second tutorial helped us make a tic-tac-toe game using React. The third tutorial helped us with the thought process to build a searchable product data table with React.
- Created Frontend Figma design for the Arcade Mode results and the Custom Mode results.

Dylan Longlett

- Completed React tutorials to become familiar with component-based development and the overall React workflow.
- Created detailed Figma design slides to visualize the user interface and shared them with the client for feedback and review.

Fadi Masannat

- Created in depth detailed Gantt chart, broke down objectives for the semester into digestible sprints, vision and outcomes
- Completed given React tutorials , ran the codebase locally, setup my own repository.
- Created in depth Figma screen mockups using our frontend libraries and gotten feedback and redrafted them. Added Graphs and visual mockups from the library.
- Orchestrated Plan for frontend development
- Doing some research on best React architectures and previous team's architecture to plan ahead.

Sofi Gutierrez

- Completed React tutorials to become familiar with it to eventually aid frontend development. They consisted of 3 tutorials, a quick start, tic-tac-toe game development, and working with data in React.
- Created the title, screen, gender selection, and custom/arcade leaderboard on Figma for our app flow
- Investigating/researching different ways to set up the backend and what would be the best approach.

Colin Yuska

- Worked on introducing myself to the hardware that the TrueForce rack is built on.
- Found the user manual for the " P-NUCLEO-WB55 " microcontroller.
- Began mapping the necessary GPIO pins that the team will need to use to interface with the controller in order to input and output signals.
- Conducted research on hardware elements that the group intends to add, finding that individually addressable LED lights are the best bet for what the team wants to accomplish.
- Spent time coming up with ideas for specific design elements that would be appealing to the arcade audience.

Andy Drafahl

- Created a complete outline of different views in Figma, with clear indications to the team for how each view ought to connect to the others.
- Created groups of team members for each Figma view based on team member expertise or previous design work.
- Created a set of instructions for the team to follow when designing their Figma views.
- Created a video tutorial for the team as a guideline for how to interact with the Figma design.
- Completed React tutorials: Quick Start and Tic-Tac-Toe.

Pending Issues

There weren't any complications this week. The team ran like a well-oiled machine.

Individual Contributions

| Name | Individual Contributions | Hours This Week | Hours Cumulative |
|------------------|--|-----------------|------------------|
| Jacob Garcia | Worked on the application. Studied the Figma design. | 5 | 22 |
| Parnika Dasgupta | Created screens for Figma Design and did React tutorials | 5.5 | 13.5 |
| Dylan Longlett | Did React tutorials and Figma design work | 5 | 16 |

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|----------------|--|-----|------|
| Sofi Gutierrez | Assigned work on our board for each team member, finished React tutorials, finished 4 screens on Figma, and researched different backend options | 6.5 | 18.5 |
| Colin Yuska | Began mapping hardware microcontroller, as well as doing research to find new features that we are intending to add, most specifically, lights. | 5 | 15 |
| Fadi Masannat | Gantt chart creation, sprint planning, Figma Detailed Print Results Arcade screen, Print results custom marketing screen, in depth react tutorials and codebase analysis | 7 | 18 |
| Andy Drafahl | Figma outline, Figma Instructions, Figma video tutorial, Figma team assignments, React tutorials: Quick Start and Tic-Tac-Toe. | 7.5 | 22 |

Plans for the Upcoming Week

Overview

Since the team has already finished the Figma mockup, it's time to get everyone on the same page for how they'll interact with the repository and to standardize the React components and views. These tasks will be split into 3 teams: A, B, and C. **Group A** will be going over Git tutorials to learn the different commands and get used to pushing to the repository while minimizing code conflicts. **Group B** will be preparing a foolproof, fully-fledged guide for the team to use when interacting with the repo to smooth out the process. **Group C** will be in charge of preparing React view templates that the team can use as a basis for the views they develop throughout the semester.

Jacob Garcia

Jacob will be a part of Group B and will set up the Git Standards document. He will configure the team repo to get ready for the team to start development (making sure certain settings and safeguards are in place to prevent code overwriting, etc.).

Andy Drafahl

Andy plans to create new tasks for the team in the kanban board with full details for what they need to complete this week, delegating teams A, B, and C. Andy will also be a part of team B, and will create a video tutorial that the team will use as a guide when interacting with the repo.

Sofi Gutierrez

Sofi plans to continue investigating routes for setting up the backend, and will start on it when the client comes back with answers to our questions on what they need for the backend, and

see the work they already have. Sofi is part of Group C she will work with the team members on getting the React view templates that the team will use throughout the semester.

Fadi Masannat

Fadi plans on being part of group C to kickstart the foundations of our codebase, finalize the architecture structure, present it to the team, and finish the base and foundation of screen states and the first draft of a simple screen

Parnika Dasgupta

Parnika plans to be a part of Group A and learn more about Git. She is currently using Git for another class, but she is still trying to figure out all the secrets and tricks of Git. Parnika will also be working with Collin and will try to figure out the Electronics side.

Summary of Weekly Advisor Meeting

During the advisor/client joint meeting, we demoed our Figma prototype to the client. Ben wasn't able to join, but his business partner, Hailey, came and took notes. She seemed to be pleased with the design, gave us some quick notes, and asked us to send the prototype to Bendigitally so that he could give further feedback. The team also asked questions that Hailey noted down to pass along to Ben. Matt gave Colin more details about the electronics side of things and informed him how close the other team was to getting Bluetooth up and running.

Bonus: Plus-Delta Team Reflection

Note: The notes in the following table were taken live during the meeting with our advisor, which is why they're a tad disjointed. Even so, they encompass everything we discussed.

| | Plus | Delta (Progress) | Delta (Understanding) |
|-------------------------|---|---|---|
| Technical (Feasibility) | We have shown the ability to design work in Figma and React. We have made a lot of design documents for developers to follow when starting to code. All the design documents take into account what the client wants. | We can implement the software and hardware that the client is looking for, to the point that the product would be viable for everyday use. We'll continue adding features progressively and push for stretch goals if we achieve our original ones. | Seeking out tutorials and guides, info from experts, and continuing to challenge ourselves in learning new software (which we've already been doing with React and Gitlab). |
| Economic (Viability) | We're starting with something that is almost entirely unique, so from an economic standpoint, | Continue managing costs well, only spending when necessary. Making design decisions that | Market research about trends with similar products. Before buying things, we could research |

| | | | |
|----------------------|---|--|---|
| | we're technically on top. But we're also spending only where necessary and working with the equipment that already exists. We're setting up the product for different audiences, introducing the product on a wide scale. | increase the value of the product (LEDs, sounds, printout, etc.) | other options to make sure we're getting the best bang for our buck. |
| Human (Desirability) | Our UI design is intuitive enough that anyone could pick it up and know how to use it. We're supplying code to the client that they wouldn't be able to develop otherwise, so we're meeting those needs as well. | User testing, getting the software done, and having users come in and try it out to make final improvements. | Continue taking in feedback from users and improve our app to meet their needs, and do research on user testing within broader markets. |

Summary

We agreed that we've done a good job designing the technical side of things using tools like Figma and React. We want to get to the point by the end of the semester that our client can rent out the Force Rack with confidence that it will be fully functional. To learn more about the technical end, we'll continue seeking out tutorials and expertise as we've already been doing.

We discussed the fact that the Force Rack is pretty much one-of-a-kind, so it doesn't really have any competition in the market. However, we still acknowledged that we've been conscious of costs and only make purchases when we need to (which, so far, has been never). We plan to increase the value of the product in the market by making attractive design decisions, and we could do market research to better understand the viability of the product at any given point.

We looked at the human aspect of the project and concluded that we've made an intuitive UI so far. We plan to do user testing to see what further improvements could be made, and we'll do market research to gain further insights if need be.

Action Items/Insights

- Stick to the development plan to stay on track with technical development.
- Continue managing costs well, spending when needed.
- Make the product more attractive in the market with additions like LEDs and sound.
- Complete user testing to find more potential improvements.