

EE/CprE/SE 492 WEEKLY REPORT 2

9/14/2021-9/27/2021

Group number: 18

Project title: Batteryless Game Device

Client &/Advisor: Henry Duwe

Team Members/Role:

Shivam Vashi- Software Lead

John Brose - Power Systems Engineer

Daniel Lamar - Test Engineer

Franklin Bates - Microcontroller Engineer

Jake Larimore - Integration Engineer

**o Weekly Summary (Short summary about what the group did for the week. This should be about a paragraph in length. These are just a few questions to help you get started. What was the overall objective for the week? In general, what tasks were completed? Were there any changes made to the project?)**

This week we made progress on developing the gameplay software, integrating our e-ink display, and validating power generation calculations for device. Further advancements on our project's energy management system have come to a halt as we wait for the PCBs to arrive. In the meantime Shivam has made great progress on developing the gameplay software, and has been working through one of the most involved steps in our device's gameplay, the final "boss fight". The rest of the group has made consistent progress on smaller, yet necessary tasks that will ensure the rest of our project is ready for testing once our software is ready.

**o Past week accomplishments (Please describe/summarize as to what was done, by whom, when and, collectively as a group. This should be about a paragraph or two in length. Bulleted points are acceptable as well. Please keep only your technical details related to your project. Figures, schematics, flow diagrams, pseudocode, and project related results are acceptable, but please ensure that they are legible (clear enough to read) and to provide an explanation. If researching a topic, please add a few details about what was learned and how it is relevant to the project. If two or more people worked on a single task, be sure to distinguish how each member contributed to the task. Specific details relating to the assistance provided to other members may be included here. Do not include classwork, such as individual reflection assignments, and group meetings as part of your duties.)**

Shivam Vashi: Worked on a few more refactors to the code, began work on implementing the boss fights.

Franklin Bates: Created Connection Diagram of E-Ink Display to MCU. Continued work on E-Ink software control libraries and MCU initialization.

Jake Larimore:

Worked on button integration with power generation and logic implementation.

John Brose:

Continued work with validation of energy harvesting, energy storage, and energy usage.

Daniel Lamar: Worked on physical element of the handheld device.

**o Pending issues (If applicable: Were there any unexpected complications? Please elaborate.)**

Shivam: The global variables I currently use for major values is editable at any point in the program. I have made a note to refactor this code into a private class if possible, with designated get and set methods so as to not violate the principle of information hiding.

Franklin: Planned communication ports are not all accessible on our launchpad device so adjustments had to be made that facilitate our specific MCU launchpad's physical characteristics.

Jake Larimore: The boards for two of our components have not arrived yet, which means we cannot properly test and integrate them into our overall power system.

Daniel Lamar:

John Brose:

Boards have not come in yet, which is slowing down progress in testing. May need to reach out to ETG and see if there is a possibility of ordering through different board house that would be faster.

**o Individual contributions (Creating this section is optional, but it is Required to include the "Hours Worked for the Week" and their "Total Cumulative Hours" for the project for each member somewhere relevant in your report. Your individual weekly hours should be at a minimum of 6-8 hours for this course. So please manage your time well. Also, ensure that individual contributions support your claim to the weekly hours. Be honest with the reports.)**

Name	Contributions	Hours Worked this Week	Hours Cumulative
Shivam	Began Coding Framework, Room Challenge	4	18

Jake Larimore	Ordered Parts, Setup weekly meeting with Dr. Duwe, helped John with making PCB Breakout boards.	2	8
Daniel Lamar	Developed a testing plan for the remaining semester, Began mechanical design for the generation system	2	8
John Brose	Designed and ordered pcbs. Specked out parts to be ordered.	3	9
Franklin Bates	Worked on finishing libraries for the E-ink display interaction. Testing SPI signaling. Writing API for software control of e-ink	4	16

**o Comments and extended discussion (Optional)**

**Feel free to discuss non-technical issues related to your project.**

**o Plans for the upcoming week (Please describe duties for the upcoming week for each member. What is(are) the task(s)?, Who will contribute to it? Be as concise as possible.)**

Shivam Vashi: Refactor the global variables into a private class and continue working on the boss fight.

Franklin Bates: Finish writing API for controlling the E-Ink display and test for validity.

Jake Larimore: Begin testing and integrating power management IC and boosters into the power system. Tweak circuitry for proper functionality.

John Brose: If boards come in, test them. If boards do not contact ETG and start work on overall PCB and integration assuming all modules are working.

Danie Lamar: Get the generator and begin testing crank mechanism. Try to simplify the design to fit into the final device casing. Help teammates as needed since my workload is minimal at the moment.

**o Summary of weekly advisor meeting (If applicable/optional)**

**(Provide a concise summary on the contents and progress made during the advisor meeting.)**

N/A