EE/CprE/SE 492 WEEKLY REPORT 4
10/12/2021-11/8/2021
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?)

These past few weeks, we were able to get the E-ink display running using the MSP430, test the crank generator with the power management PCB, and make significant progress on the gaming software. All of which were significant accomplishments in our project's scope that will allow us to begin a testing plan as we finalize gameplay, and piece together our project. The E-ink display was especially challenging since most of the documentation had to be carefully sifted through to obtain useful information that was relative to our project's design. With the e-ink display and the e energy harvesting system working we can begin testing our UI using power generated by the energy harvesting system.

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: Continued experiments and research with compute through power loss libraries
Franklin Bates: Completed initial full screen display testing for E-Ink display. Successfully tested GPIO with power generating buttons.

Jake Larimore: Built circuitry for proper button GPIO usage. Looked into low forward voltage diodes for energy harvesting buttons. Purchased inductors to test booster boards. Looked into other designs for improving power generation.
John Brose: Confirmed functionality of battery storage module, incorporated energy harvesting devices into battery storage module.
Daniel Lamar: Finished the crank generator design and began testing the power system for the MSP430.

o Pending issues (If applicable: Were there any unexpected complications? Please elaborate.)
Shivam: The examples for the compute through power loss libraries are more based around the hardware rather than the software, so experiments are slow going to figure out how to use the library properly.
Franklin: N/A
Jake Larimore: The inductors I ordered were not delivered when FedEx states they were, so I have to find them :/
Daniel Lamar:
John Brose: Need to get boost regulator working and start to work on main PCB for final revision.

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	Research for compute through power loss, experiments with the library	6	30
Jake Larimore		8	21
Daniel Lamar	Crank generator design and building, energy harevsting testing	7	19
John Brose		5	20

Franklin Bates	E-paper display API for SPI software control code. Testing and Debugging connection problems	4	40

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: Continue implementing compute through power loss
Franklin Bates: Work towards partial refresh capability implementation for E-Ink Display and Software integration with Display API and GPIO interrupt service routines.
Jake Larimore: Hopefully I can get the booster board working and begin to test it for functionality. I also hope to buy diodes for full bridge rectification and smaller super caps to test with our power management IC.
John Brose: Issue of getting stuff on time that needs to be ordered, such as future boards or new ICs/components to make ICs work, create board that incorporates all modules.
Danie Lamar: Create a testing plan for the power management system to ensure we can store and use power as need while playing the game. Update 3D model of the game casing as we finalize system designs.

o Summary of weekly advisor meeting (If applicable/optional)
(Provide a concise summary on the contents and progress made during the advisor meeting.)