EE/CprE/SE 492 WEEKLY REPORT 3
9/28/2021-10/11/2021
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?)

The hardware team is currently working to complete the power generation circuit. We are developing and creating tests for each block of the circuit diagram. We almost have e-ink display working with our microcontroller. Once is it fully operating we can begin testing functionality/compatibility with our other project portions. Software team is still developing the many aspects of our game.

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: Moved code to code composer studio, set up proper skeleton for new room challenge and boss battle code.
Franklin Bates: FInished initialization and API for E-paper display software control over SPI.
Jake Larimore: Soldered boards, tested power functionality with buttons and power management IC
John Brose: Populated boards and tested battery storage module.

Daniel Lamar: Began 3D modeling for the gaming device casing. And made progress on the crank generator system.

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

Shivam: Most libraries available in standard C/C++ are not available in code composer studio, requiring a refactor of all existing code. In addition to minimal libraries, with a limited heap and stack, some basic functions such as using and displaying floating point numbers cannot be used. We also need to put research into how to use fRAM.

Franklin: The E-paper display appears to be unresponsive to the initial SPI control code. Datasheet for the display is poorly written and not comprehensive of the capabilities and controls for the device. Testing/debugging ongoing.

Jake Larimore:

Daniel Lamar: We have yet to test the crank generator system with the power management PCB. This could pose some issues if it doesn't perform correctly but we will have to wait and see.

John Brose: Need to get boost regulator working, test generator input into battery storage device, and confirm enough power is generated from kinetic energy harvesting devices.

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		6	24
Jake Larimore		5	13
Daniel Lamar		4	12
John Brose		6	15
Franklin Bates	E-paper display API for SPI software control code. Testing and Debugging connection problems	8	32

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: Research fRAM usage and begin coding a way to store data on it during low power states.
Franklin Bates: Continue with testing and debugging E paper display control over SPI Finialize the API for software integration.
Jake Larimore: Develop boards for buttons, gain a proper inductor to do testing with boost IC, possibly test button functionality with microcontroller.
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.
Danie Lamar: Finish 3D modeling, potentially print casing based on printer availability. Test crank generator system with power management PCB to ensure the system can receive the necessary power for uninterrupted gameplay.

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