

sdmay19-25: Handheld Emulation Station

Week 5 Report

10/15 - 10/19

Team MembersJacob Nachman — *Meeting Facilitator*Nick Lang — *Meeting Scribe*Nic Losby — *Chief Engineer*Sean Hinchee — *Test Engineer*Matthew Kirpes — *Report Manager*

Summary of Progress this Report

We got a completed first draft of a case for our emulator designed through TinkerCAD. PCB learning phase comes to an end as we are transitioning into designing our first draft. Decided that we are going to try USB-C video right off the bat as we think it might be possible. Starting to decide if we should design more than one first draft PCB in case we can't make it work.

Pending Issues

USB-C vs HDMI/DisplayPort debate comes down to whether or not it works in testing phase (after prototype design). Battery specification chart has unknowns that will not be figured out until we can test an actual prototype (things like how software affects the battery life).

Plans for Upcoming Reporting Period

Jacob Nachman: Look into various ROM dumps in order to see if universal save states are possible/practical.

Sean Hinchee: Investigate USB specification details to better implement the real-time-like kernel module.

Nick Lang: Add additional buttons/joystick to faceplate of case. Look into emulation design.

Matthew Kirpes: Look into emulation design and learn what is involved in the process.

Nic Losby: Get an initial PCB designed and iterate on the design before ordering parts

Past Week Accomplishment

Jacob Nachman: Finalized Spec Sheet for theoretical battery life.

Sean Hinchee: Presented low level C debugging tools to Linux Club to show familiarity in the subject.

Nick Lang: Designed first complete rough draft of case for the device.

Matthew Kirpes: Read through a github tutorial on emulation design to understand the logic behind it.

Nic Losby: Got a GB emulator running on a Homebrewed Nintendo Switch. Definitely worth the time. I learned so much.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Jacob Nachman	<ul style="list-style-type: none"> Finalized Battery Spec chart, figured out we can't get completely accurate battery specs until we test a prototype due to things like software. Ready the Gameboy spec manual to learn how the registers are designed in order to mimic it with software when designing an emulator.. 	9	32.5
Nick Lang	<ul style="list-style-type: none"> Finalized rough draft of the case for hardware internals, first draft to present and get feedback from team. 	7	31
Nic Losby	<ul style="list-style-type: none"> Made a port of an existing emulator on a different architecture as well as very different ways of drawing to the screen to understand emulation design and to get hands on experience with it. 	12	35
Sean Hinchee	<ul style="list-style-type: none"> Presented to Linux Club about low level C debugging tools I was learning more about the previous week. Read through sample code on emulation design. Explored more complex topics in regards to Linux kernel modules. 	8.5	32
Matthew Kirpes	<ul style="list-style-type: none"> Read through emulation code in order to better understand the fundamentals of the concept. Finalized PCB research in prep for the design stage. 	8	31

Gitlab Activity Summary

Nothing to report.
