

Michael R. M. and Michael R. H.

Honors Advanced Topics

Mr. Detrick

Initial Proposal

Our main goal is to be able to set up the raspberry pi and be able to use it and possibly be able to emulate a game onto it. We are not sure if we would be able to do this in this time frame, but we could continue this project further at another point if necessary. We will be using the raspberry pi and the desktop computer as well as videos in order to complete this task. Most of the methods used for this project will be found from online guides and our classmates' experience with Raspberry Pis.

For the first phase of this project, both Michael and Michael will be devoted to setting up the Pi. The specifics of this are currently unknown because this is being written before either of us have beheld a Raspberry Pi. Michael confirms that Raspberry Pie is good, but no comment on Pi. Michael also agrees on this revelation. The next phase of this project involves Michael setting up the emulator while Michael provides witty banter and uses his excellent taste to pick out a game. Realistically both Michael and Michael will be working in tandem throughout this project.

Timeline

Days 1-2: Set up the Raspberry Pi. This may run into day 3 because we cumulatively have 0 hours of Raspberry experience.

Days 3+: Work on getting games and emulator running on the Raspberry Pi.

Whatever Extra Days Are Left: Potentially work on a peripheral control system, i.e. arcade machine or handheld device.

Daily Log:

Day 1- 10/23/19: We spent the period setting up the Raspberry Pi, and after some trial and error with different Pis and SD cards in an attempt to find a working combination, we stumbled across whatever one had RetroPie previously installed. So now our objective is to figure out how that works.

Day 2- 10/24/19: We attempted to research how RetroPie works, but we did not have enough time. We also tried to run Pac-Man for the Atari, and that went well. We do not recommend Pac-Man on the Atari for anyone with epilepsy.

Day 3- 10/28/19: We spent the period trying to reset the keyboard controls, we struggled a little bit because most of the sources were outdated. We eventually found the correct line of code, reconfigured, and wrote down the controls.

Day 4- 10/29/19: Mr. Morgan brought a USB and Mr. Hoffmann had found a game online. We managed to upload the game to the retroPie. We also configured a Nintendo 64 Controller and tested that out.

Day 5- 11/1/19: We wanted to test out possible multiplayer functionality. After some preliminary research we configured an X Box controller and attempted to play multiplayer games. The rest of the period was spent testing out these games and controls.

Day 6- 11/4/19: We tried to set up the arcade cabinet buttons, but they had trouble connecting.

Day 7- 11/5/19: We spent a good portion of class discussing the reading and eating ice cream.

We then uploaded some more roms from our home time and tested them out during the period.

Day 8- 11/11/19: We wanted to test out some new emulators on the emulation station so we had to wait for a good portion of the period so the files to download.

Individual Hours

Hoffmann: 10/27: 6:00-7:00 Researching and taking notes on certain aspects of RetroPie.

Mostly on how to configure/reconfigure controllers and the keyboard and implementing new games.

11/3: 5:20-6:20 Downloading a few games to add to the library to test other emulators and researching how to further this project in the future, Most ideas are arcade cabinets, but MintyPi stood out. <https://sudomod.com/mintypi-v3-build-guide/>

Morgan: 10/25: 8-9 Researched how to get around password for Raspberry Pi and what possible passwords there were in order to access the pi. When using this on the raspberry pi, this did not work so i tried to falter with no avail.

11/2: 5-6 grabbed a empty flash drive and tried to see if there was any way to install anything to bypass the password, or anything to add new software.

Write Up

Michael Morgan and Michael Hoffmann set out to learn Raspberry Pi by setting up and experimenting with RetroPie. Their first step was finding a working Raspberry Pi and SD card combination, and in the process they discovered the SD card that had previously had installed RetroPie for another project. With the hardest part solved through serendipity they then wanted to play around with RetroPie in order to better understand how to use it in the future. They did this mainly through the RetroPie wiki (<https://github.com/RetroPie/RetroPie-Setup/wiki>), which had a plethora of tutorials and discussions to help them learn how to configure controllers and install new games. Game roms can be found online, but the sources tend to be dubious and they do not feel comfortable linking any here, a quick Google search will be all the work you need.

In the end they accomplished their goal of learning how RetroPie works, but they were unable to set up their own RetroPie. This was because an early problem they encountered involved the Raspberry Pis they tested either not working or the default SD card login for Raspberry Pi did not work. This was solved through a process of trial and error, leading them to the SD card with RetroPie. Another problem they encountered was that they did not know how the previous user had configured the keyboard to control the games. Some quick google searches lead them to a message board with this exact problem and instructions on how to navigate to a menu to reset it (<https://retropie.org.uk/forum/topic/12195/keyboard-controls-unusable-anyway-to-reset>). After undergoing that process, they made sure to write down the controls for future use (https://docs.google.com/document/d/1fVsvXFdBX_XuQgUTAArQySTz-nkKFV8XZMaEb5m2EoE/edit?usp=sharing).

Overall, the trials and tribulations of trying to set up RetroPie taught them a few lessons on the inner workings of RetroPie. These lessons include how to upload games to the RetroPie, get to the RetroPie's command line, and be able to set up controllers for the RetroPie. These lessons are integral to any future work with the RetroPie, particularly going to create a standalone arcade cabinet or other such projects. If they had the opportunity to redo this project they would start off with a blank Raspberry Pi in order to understand how to install the program. For people in the future wanting to utilize RetroPie they would recommend trying to install RetroPie for themselves before resorting to using the preexisting RetroPie SD card. The people behind this project could make an arcade cabinet or handheld gaming device using this knowledge and that of past learning modules.

Overall, they are both satisfied with this project. While they could have tried to set up their own RetroPie SD card, they still enjoyed this project and the opportunity that it holds for future projects. The challenges that the group encountered were all easily fixable with minimal research and were dependant on relying on someone's past SD card. The project will prove to be a useful introduction into making further projects with RetroPie.