LAB 5: INSTALLING RETROPIE

This lab is the seventh in a series. In this lab the student will learn about the operating system RetroPie, a OS that allows for easy-to-use retro gaming. The ultimate of objective of this lab is to reformat the users current SD card to show that the Raspberry Pi can be used for many different things.

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Introduction to RetroPie

RetroPie is a free operating system that can turn your Raspberry Pi into a retro gaming machine. It's based off of a few different softwares, including the base operating system Raspbian, Emulation Station, the software that handles all of the game launching and user interface, and RetroArch, which handles most of the emulation on the pi.

Required Materials

Materials you will need for this lab are:

1. Raspberry Pi
2. MicroSD card
3. MicroSD card reader
4. SD Card Formatter for Windows
5. HDMI cable
6. Computer Monitor
7. Wifi or ethernet
8. 5v 2A power supply
9. USB keyboard and mouse
10. USB game controller

Emulators Included in RetroPie

Because the raspberry pi is not the most powerful computer in the world, it is limited in what it can do. However, the list of what emulators it CAN run is quite large. If you wish to see what it can run, please visit the RetroPie website, https://retropie.org.uk/

Formatting Your SD Card

Get to a Windows computer, before we can start, we have to download a few things first. We need the RetroPie OS, Etcher, a SD card formatter, and 7-Zip. When you visit the pages, make sure you download the right version.

SD card formatter: https://www.sdcard.org/downloads/formatter/eula_windows/index.html

RetroPie download link: https://retropie.org.uk/download/

> Get the Pi 2 - 3 Version (The 3 version supports all version of the pi 3, including the 3B and B+)

Etcher: https://www.techspot.com/downloads/6931-etcher.html

7-Zip: https://www.7-zip.org/download.html

First, open the SD card formatter. Now, insert your SD card into the reader, and the reader into your computer. Make sure you take note of what drive the SD card is, you will need it when we go to install RetroPie on the SD card. Select the card from the drop down menu. Select “Overwrite Format”. Click “Format”. After the RetroPie OS is downloaded, right-click it and find 7-zip. Mouse over to the 7-zip options, and click, “Extract Here”. Open Etcher, and click “Select Image”. Click on the RetroPie image. It should take no more than 10 minutes to complete.

Once you’re done, insert your SD card into the Raspberry Pi and turn it on.

Initial Configurations

When you first turn on RetroPie, it will need to restart to. Once that’s done, plug in your game controller into one of the USB ports. Follow the on screen directions to map the buttons in the software. Once done, this will work as the button configuration for all emulators, you won’t need to reconfigure for each emulator individually. When you’re done with the button configurations, you should see a screen that looks like this.

This is the settings of RetroPie, the “games” are the different settings you can change. These settings include: Audio, Bluetooth, Configuration Editor, ES themes, File Manager, Raspi-Config, Retroarch, Retroarch Net Play, RetroPie Setup, Run Command Editor, Show IP, Splash Screens, and WiFi.

Since this is a new install of RetroPie, it will NOT include games. You have to install them yourself.

Themes

Inside Emulationstation, you can change the theme of RetroPie. You can even code your own theme! The themes use the language XML which you learned in a previous lab. For now, let's download one, we will code a simple theme in a later lab.

To download themes, we first need to connect to the Internet. Scroll down to the WiFi setting, and make sure a keyboard is connected to the Raspberry Pi to input the password to the WiFi.

You should see a screen with two options, "Connect to WiFi Network", and Disconnect/Remove Wifi config". Select the first option and select your WiFi network name from the list of networks that the pi detects. Enter in your password. It may take a second for the pi to save the configurations. When you've successfully connected, you should see the first screen again, but with the network name in the top left corner, along with an IP address. Once you're back to this screen, you can hit Cancel, and it will return you to the RetroPie settings list.

Now, go to the "ES Themes" setting, and select it. You don't need a keyboard for this part, you can use your controller. There are a lot of themes to choose from, and you can preview them at this link,

https://github.com/retropie/retropie-setup/wiki/themes

Pick five to ten themes that you like and download them. To install them, simply select the theme. It shouldn't take very long for it to install the theme. Once you're done, return to the RetroPie main menu, not the settings screen. You should only see the RetroPie logo. Hit select on your controller to access the EmulationStation menu. Navigate down to the **UI Settings** setting. Once inside that setting, scroll down to the bottom and there will be a **Theme Set** setting. Move left and right to choose a new theme. To see them all, repeat this process for each theme you downloaded, and pick one out of the ones you downloaded. If you don't like ANY of them, download some more!

Other Features

Other things you can do with RetroPie is create a Splash Screen that plays every time you turn on the pi! While we won't be covering this in this lab as it is too in-depth, there are plenty of examples on YouTube you can watch and download for yourself. You can also **Scrape** the ROMs on the pi to get things like game information, ratings, video previews, box art, and other information. To do this, get to the EmulationStation menu and pick the first option, **Scraper**. Select **Scrape Now**. Select the systems you want scrapped and when you are satisfied with the settings, select **Start**. It might be a bit slow at first, but that is because of the download of information for the ROM. There are plenty of other things you can do to make this as custom as you want. We will explore some in future labs.