EL213 : Analog Circuits

Accident Sensing using Raspberry Pi Zero W
Group-15

Manual

Aniket Kaduskar (201701005)
Dhruv Charan (201701023)
Donika Juthani (201701037)
Dushyant Pathak (201701062)
Bhargey Mehta (201701074)
Daivik Sakaria (201701115)
Kartikeya Gokhale (201701175)
Axil Vaghela (201701220)
Rakshit Vasava (201701236)
Yash Kataria (201701404)

Dhirubhai Ambani Institute of Information and Communication Technology
Gandhinagar

Contents

1 Configuring the Pi with the local Wi-Fi

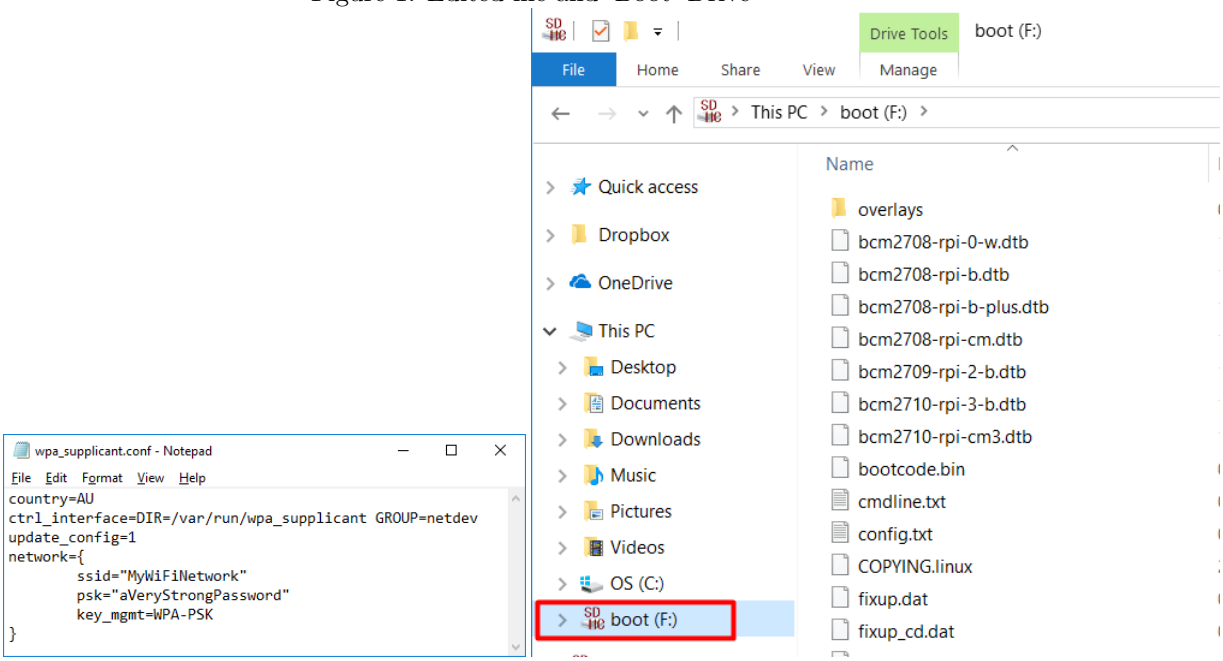
Note: This is a one time setup. **Items required: Laptop and microSD-Card Reader/Writer**

1. Connect the microSD card reader to a computer. You will see a drive labelled 'boot'.
2. Open the drive labelled 'boot'.
3. Copy the following code into an empty file.

```
country=IN
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1
network={
        ssid="WIFINAME"
        psk="WIFIPASS"
        key_mgmt=WPA-PSK
}
```

4. Replace WIFINAME with the local Wi-Fi ssid and WIFIPASS with the respective password. Save the file as "wpa_supplicant.conf".
5. Make and empty file named "ssh" (no extension).
6. Copy these 2 files into the drive labelled 'boot'.

Figure 1: Edited file and 'Boot' Drive



2 Setting up PuTTY

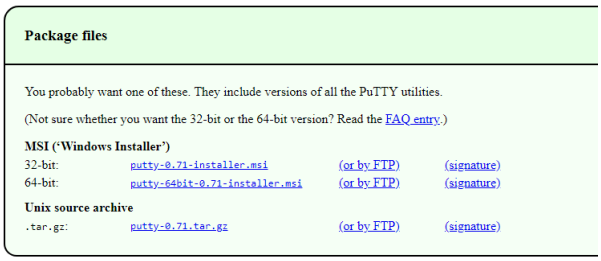
PuTTY is a SSH client which eases the process of operating the Pi wirelessly through the Wi-Fi router. Note: This is a one-time setup.

1. Go to:

   https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

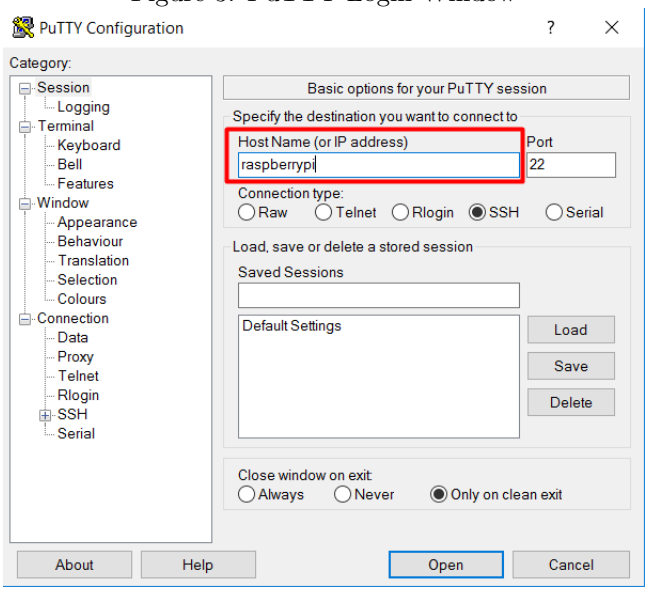
2. Download the required installer as per your system, 32-bit or 64-bit version and install it.

Figure 2: PuTTY versions



3. Open Putty. You will see a window similar to the one given here.

Figure 3: PuTTY Login Window

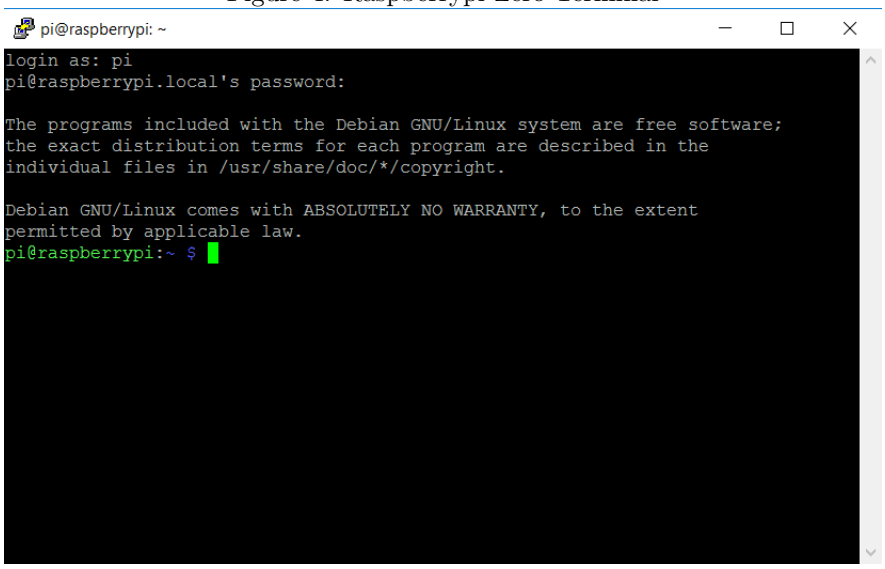


4. Enter IP as 'raspberrypi'. If it fails enter 'pi@192.168.137.171' which is the IP address of the given raspberry pi instance.

3 Login using SSH

1. After logging in using the given credentials login as: pi, password: 'raspberry' you will see a terminal as shown below.

Figure 4: Raspberrypi Zero Terminal



2. You now have control of the RaspberryPi Zero. You can operate the Pi with Linux commands.

3. The required code has been stored in the home folder itself for easy access. Type the command,

```
python main.py
```

4. Once the screen shows, 'Sensing started!', it indicates that the Pi is now monitoring the acceleration values and once the certain threshold is crossed, it proceeds to capture 8 photos. By making 2 revolutions, it manages to capture all the 8 directions separated by 45 degrees each.

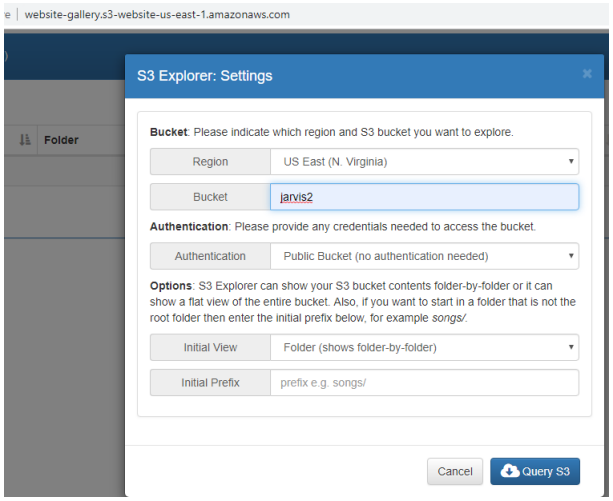
4 Accessing the Remote Server

1. Go to

   http://website-gallery.s3-website-us-east-1.amazonaws.com/

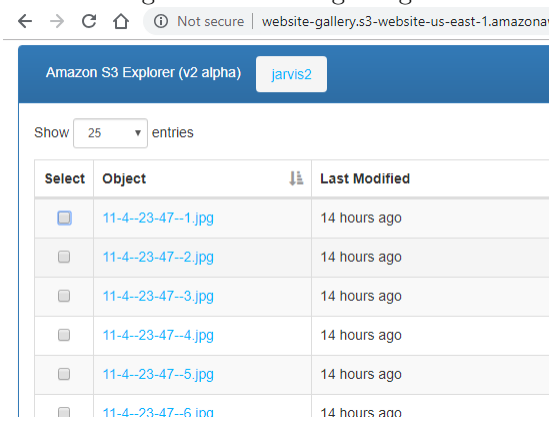
2. Enter the bucket-name which is 'jarvis2'. Click on query S3.

Figure 5: AWS server Access Window



3. You can now access any image captured and uploaded by the Pi from any computer with an internet access. Select any image name to download it.

Figure 6: Accessing Images



4. The images are labelled as,

   {day}-{month}--{hour}-{min}--{index}.jpg