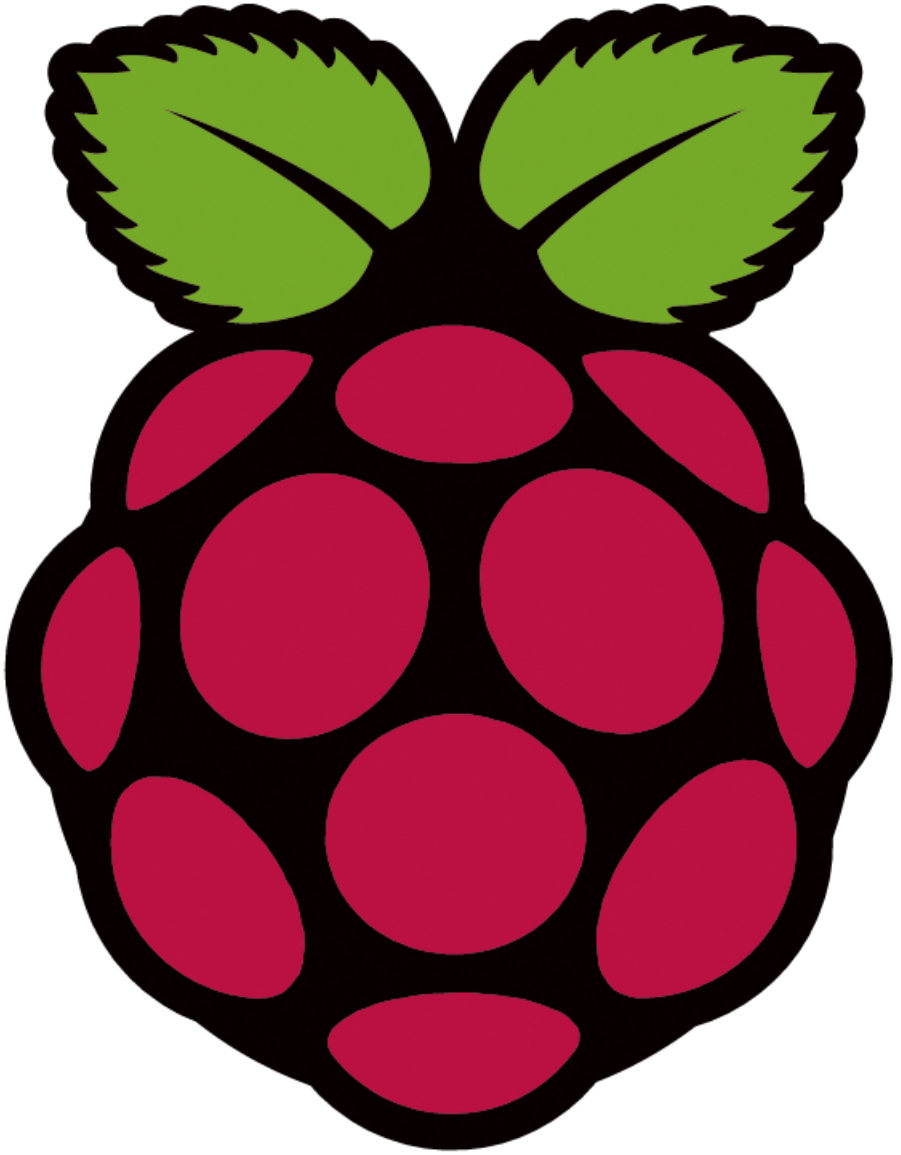
Getting Started



RaspberryPi

Raspberry Pi

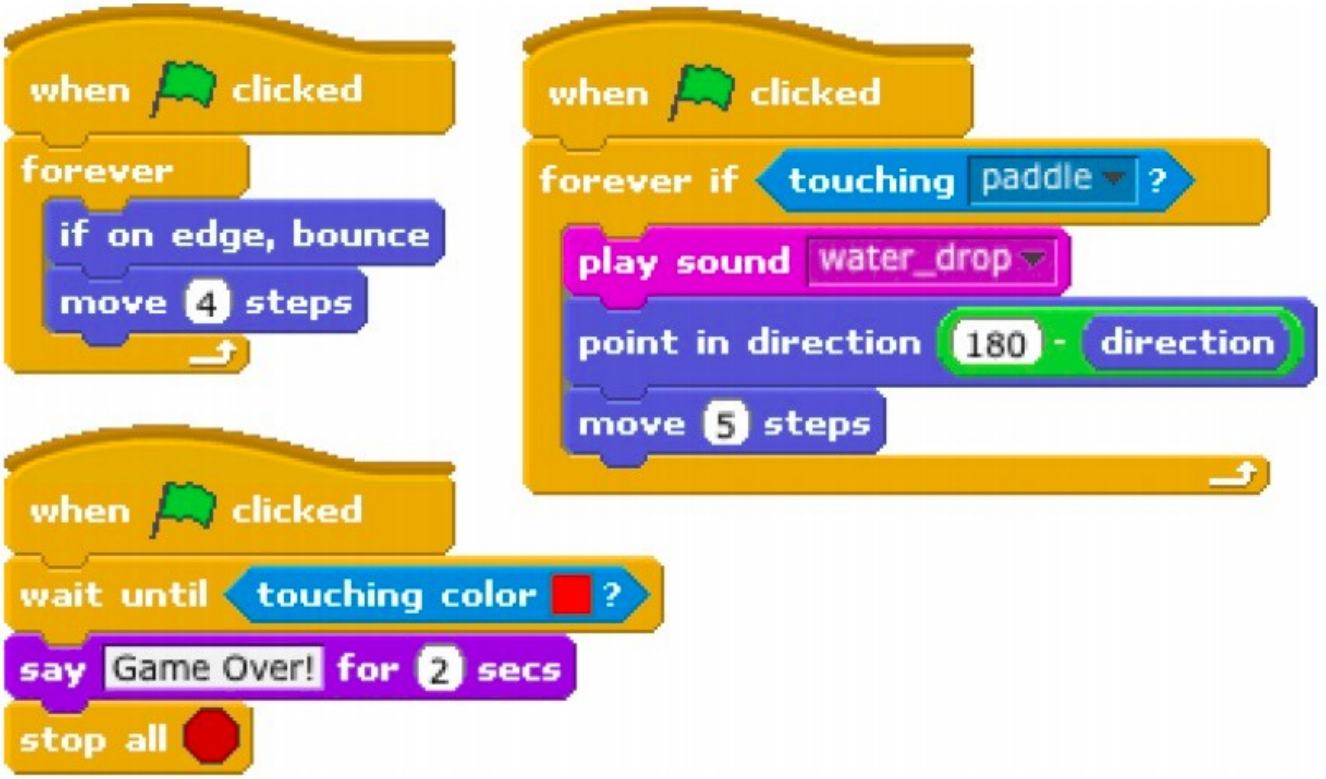
- Single board computer, credit card size
- Linux, Windows(IoT) and RTAndroid (Pi 3)
- Raspberry Pi 1, Model B – Hit the stores in June 2012 priced at $35
- RPi A+, B+, 2, 3, Zero and Zero W
- Specifications
  - **RPi 3** – 1.2 GHz 64-bit quad-core, 1 GB RAM, WiFi , BT + BLE
  - **RPi Zero W** – 1 Ghz processor, 512 GB RAM, WiFi, BT + BLE

Raspberry Pi Foundation

- Non Profit Organization
- To promote teaching of basic computer science in schools and in developing countries.
- Encourage technology in STEM and creative arts

Programming Pi ?

- Python
- Scratch – Visual programming, used by students, teachers and parents to easily create interactive stories, animations, games, etc
- Supports most other languages.



What you'll need

- Raspberry Pi – 3
- Micro SD Card (≥ 4GB)
- USB to TTL Serial Cable/Chip
- USB Micro-B cable (Smartphone charger cable)
- Ethernet cable (maybe)
- Laptop/Desktop – Linux OS Preferred

Prep the SD card

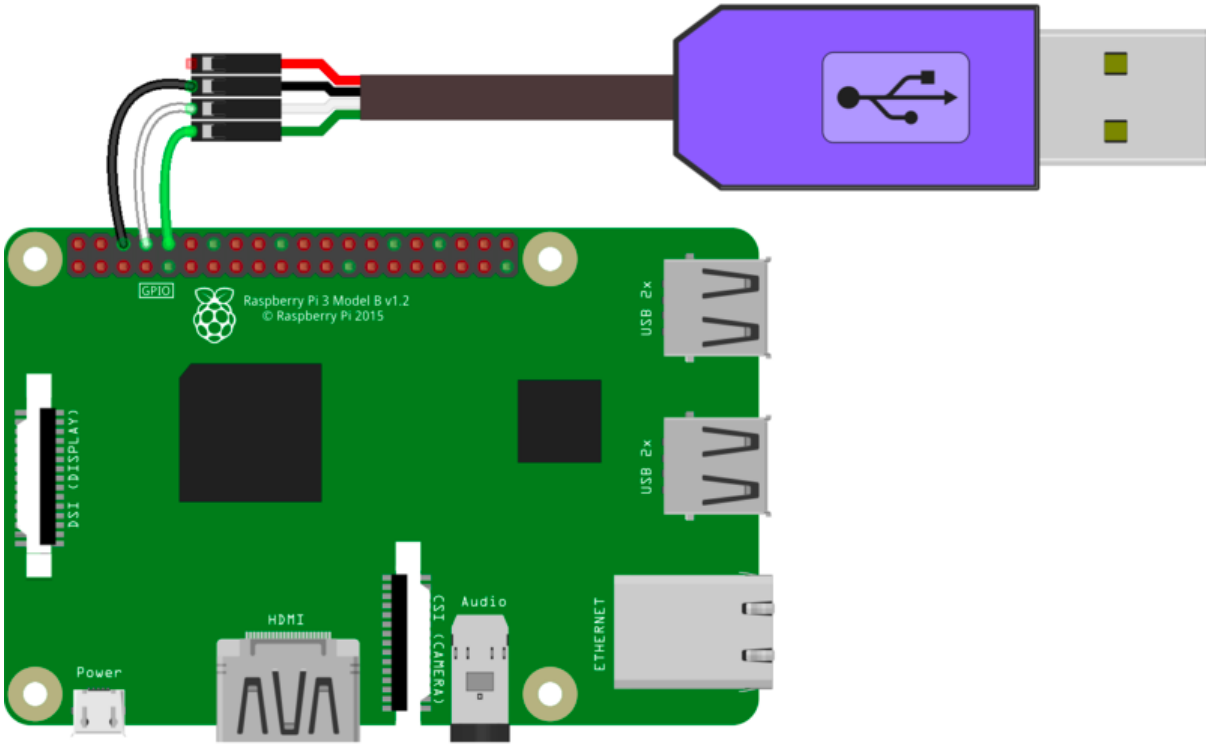
- Pi needs an OS. The OS runs from the MicroSD card.
- Raspbian Stretch with desktop
  - `scp . pi@192.168.x.x:/home/pi/Downloads/2017-09-07-raspbian-stretch.zip`
  - `unzip 2017-09-07-raspbian-stretch.zip`
- Writing the Raspbian image to your SD card
  - `sudo dd bs=1M if=2017-09-07-raspbian-stretch.img of=/dev/sdx`
  - `sudo sync`

Prep the SD card – Windows

- Pi needs an OS. The OS runs from the MicroSD card.
- Raspbian Stretch with desktop
  - Use WinSCP to pull `/home/pi/Downloads/2017-09-07-raspbian-stretch.zip` into ur local systems
  - `Unzip` using 7Zip
- Get Win32DiskImager to write the Raspbian image to your SD card

First Boot

- Enable UART in config.txt
  - `enable_uart=1`
- Serial cable connections
- MicroSD card
- Power cable
- Minicom/Putty



WiFi

- Setup a hotspot on your phones
- Modify `/etc/wpa_supplicant/wpa_supplicant.conf` file

```
network={
        ssid="slyfox"
        psk="grapesaresour"
        key_mgmt=WPA-PSK
        priority=2
        id_str="Nexus"
}
```

- Reboot Pi
- Test the connection
  - Use command `iwconfig` or `iwgetid` to see the SSID you are connected to
  - Ping google

VNC Server

- `sudo apt-get install tightvncserver`
- Run `tightvncserver` and setup passwords
- No need to create a view only password

VNC Client

- Install Real VNC Viewer
- Find RPi's IP address
  - `sudo arp-scan --localnet`
  - `sudo nmap -sP --disable-arp-ping 192.168.43.0/24`
- Connect to raspberry pi using RealVNC

VNC using Systemd

- Push the service file to
  - `cp tightvncserver.service /etc/systemd/system/`
  - `sudo chown root:root /etc/systemd/system/tightvncserver.service`
  - `sudo chmod 755 /etc/systemd/system/tightvncserver.service`
- Autostart the service
  - `sudo systemctl enable tightvncserver.service`
- Reboot & verify if VNC server is running
  - `systemctl list-units | grep vnc`

  Output : tightvncserver.service loaded active running TightVNC remote desktop server

RPiTX

- Radio Transmitter for RPi
- Transmits RF directly to GPIO. It can handle frequencies from 5 KHz up to 500 Mhz.
- Pull the project from here

Internet enabled Fridge Monitor ?

- Python + IFTTT

Raspberry Pi Jam ?

- Meet once a month and show off what you've made/learnt with the Raspberry Pi
- Think creative, Make and Share !!

Questions ?