Using Raspberry Pi's as a Personal Computer

Presented by:

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Memorial Foundation

Michael LoVerme Memorial Foundation

- What we do:
  - Other Workshops
  - Annual 5k race
  - Sponsor an Annual College Scholarship

- Computer Clinic
  - March 24th 9:00AM - 1:30PM
  - Merrimack Public Library
  - More information can be found at:
   - http://mlmf.org/events/2018-computer-clinic/

What is a Raspberry Pi?

In short, the Raspberry Pi is a:

- Series of small single-board computers
- Developed in the United Kingdom by the Raspberry Pi Foundation
- Was inspired by decline in the number of students applying for Computer Science at University of Cambridge's Computer Laboratory
- Since July 2017 ~15 million Raspberry Pis have been sold!

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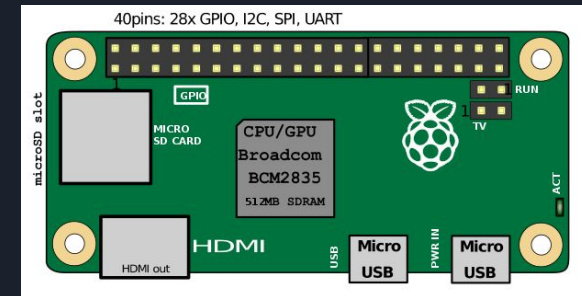Memorial Foundation

What are the models?

- Model A - Older and cheaper model

- Pi Zero - Very recent board developed for small applications and developing portables

- Model B - Recent version that provides the best bang for your buck
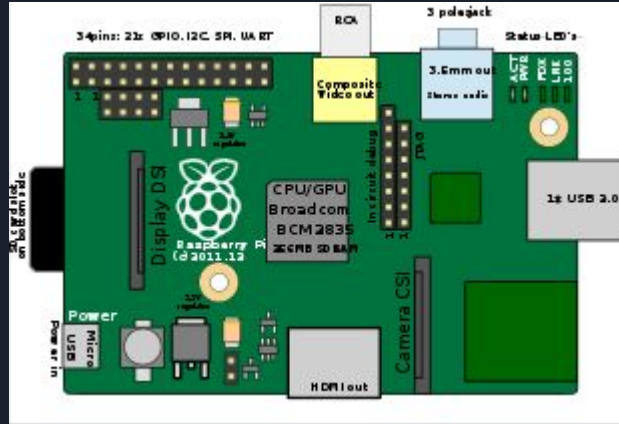
Model A
(Legacy)
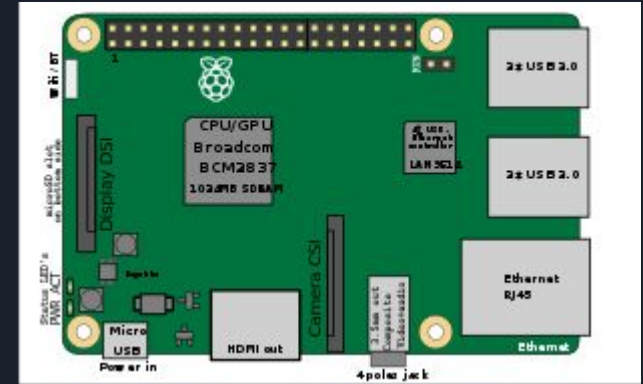
Model B

Pi Zero

What is Raspberry Pi 3

- Detailed specifications for all versions and models
  https://en.wikipedia.org/wiki/Raspberry_Pi#Specifications

- **It is the latest version of Model B**

- **Costs: $35**

- **Features:**
    - **Quad-Core 1.2 GHz Processor**
    - **1 GB of RAM**
    - **Built in Wifi (yay, Wireless internet)**
    - **Built in Bluetooth (Cool, I can hook up wireless stuff like a mouse)**
    - **Built in GPU (wicked fast graphics processing)**
    - **4 USB ports (I can hook up all my stuff)**
    - **HDMI port (Can hook up my monitor or TV)**
    - **Ethernet Port (Wired Internet)**
    - **MicroSDHC slot (Your Disk)**
    - **Only uses 6.7 Watts under complete load**
    - **Operating System - Linux???**

So why do I care?

- A very fast computer
- With all the features you'd expect out of a desktop
- Faster graphic with a built in GPU
- Extremely low power consumption
- Very small form factor
- All for the cost of $35
  - You spend this much or more going out to dinner with your significant other just one time
  - I spend about $30 to fill my gas tank. For 5 bucks more I get a computer board
  - According to data collected by the NPD group, the average Windows notebook goes for $700
    - Pi Board only costs 5% the cost of the average computer
    - 10% the cost of the average computer with all the necessary pieces

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So what do you need?

- Raspberry Pi 3 Kit ($69.90)
  - http://amzn.to/2CaSjCD
- USB Keyboard ($12.99)
  - https://www.amazon.com/AmazonBasics-KU-0833-Wired-Keyboard/dp/B005EOWBHC
- USB Mouse ($6.99)
  - **https://www.amazon.com/AmazonBasics-3-Button-Wired-Mouse-Black/dp/B005EJH6RW**
- A monitor or your TV ($60)
  - http://amzn.to/2CDHyoc

Worst case: $150

Best Case: $60

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What is in the kit?

CanaKit Raspberry Pi 3 Starter Kit
Model B | 1 GB RAM | 1.2 GHz | Quad-Core CPU

10X FASTER!

> Credit-Card Sized Computer
> Turn your TV into a Media Center
> Learn to Code & Explore Computing
> Built-In Wifi & Bluetooth

KIT INCLUDES RASPBERRY PI 3 AND ...

PREMIUM CASE

2.5A POWER ADAPTER

32 GB CLASS 10 MICROSD CARD
PRE-LOADED WITH OPERATING SYSTEM

MICROSD USB READER

HEAT SINKS

PREMIUM HDMI CABLE

WIFI & BLUETOOTH
WiFi™
Bluetooth®

QUICK-START GUIDE
CanaKit Raspberry Pi Quick-Start Guide

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How do I set it up?

- NOOBS is right on the SD card
  - Follow the steps found here:
    - https://www.raspberrypi.org/learning/software-guide/quickstart/

- What is NOOBS
  - New Out Of Box Software
  - Installs many different OS
    - RASPBIAN (Recommended for beginners)
    - Other OS include: Pidora, LibreELEC, OSMC, RISC OS, Arch Linux.
  - Makes it easy for a non-technical people to install an operating system

- Video showing how easy it is to install the OS
  - https://youtu.be/iJbjAJpJA84?t=218

RASPBIAN

- Debian optimized for the Raspberry Pi hardware
- comes with over 35,000 packages, pre-compiled software bundled
- We will go through some of the features during the demo

So what can I use this for?

- Sky is really the limit

- Ideas
  - Basic computer for surfing the web
  - Make your regular TV a smart TV
    - https://kodi.tv/
  - Build your own surveillance camera with motion detection
    - https://github.com/ccrisan/motioneyeos
  - A slew of other ideas can be found here:
    - http://www.trustedreviews.com/opinion/best-raspberry-pi-projects-pi-3-pi-zero-2949390
    - Dash cam
    - DIY Nintendo Gaming System
  - More projects
    - https://projects.raspberrypi.org/en/projects

Pi Demonstration