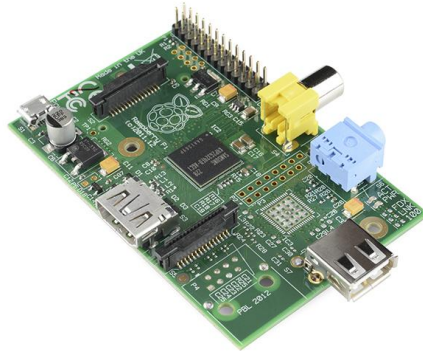


Raspberry Pi Workshop



Topics Covered

- What is a Raspberry Pi?
- Example Projects
- Hardware Overview
- Software Overview
- Writing Code

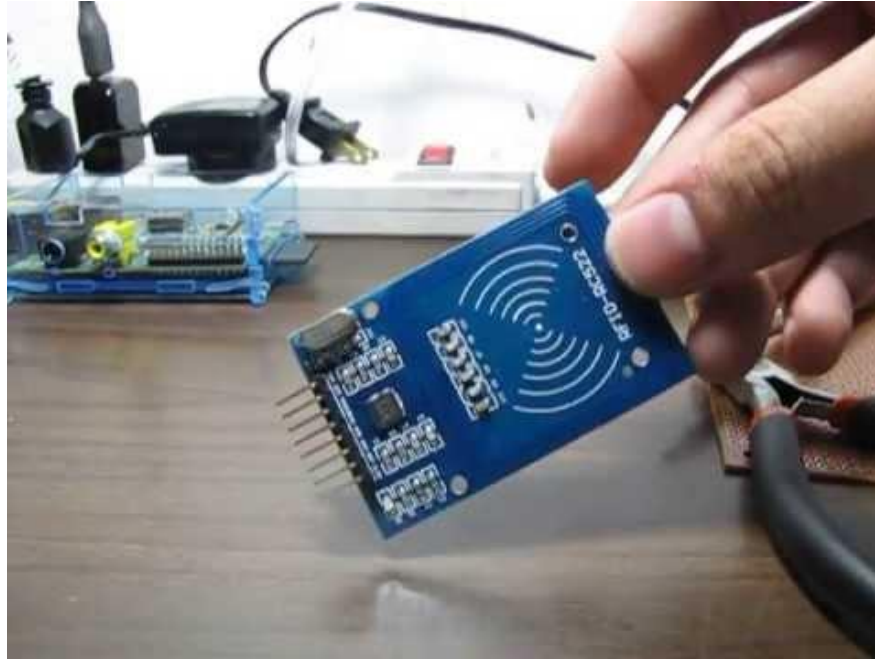
**What is a
Raspberry Pi?**

What is a Raspberry Pi?

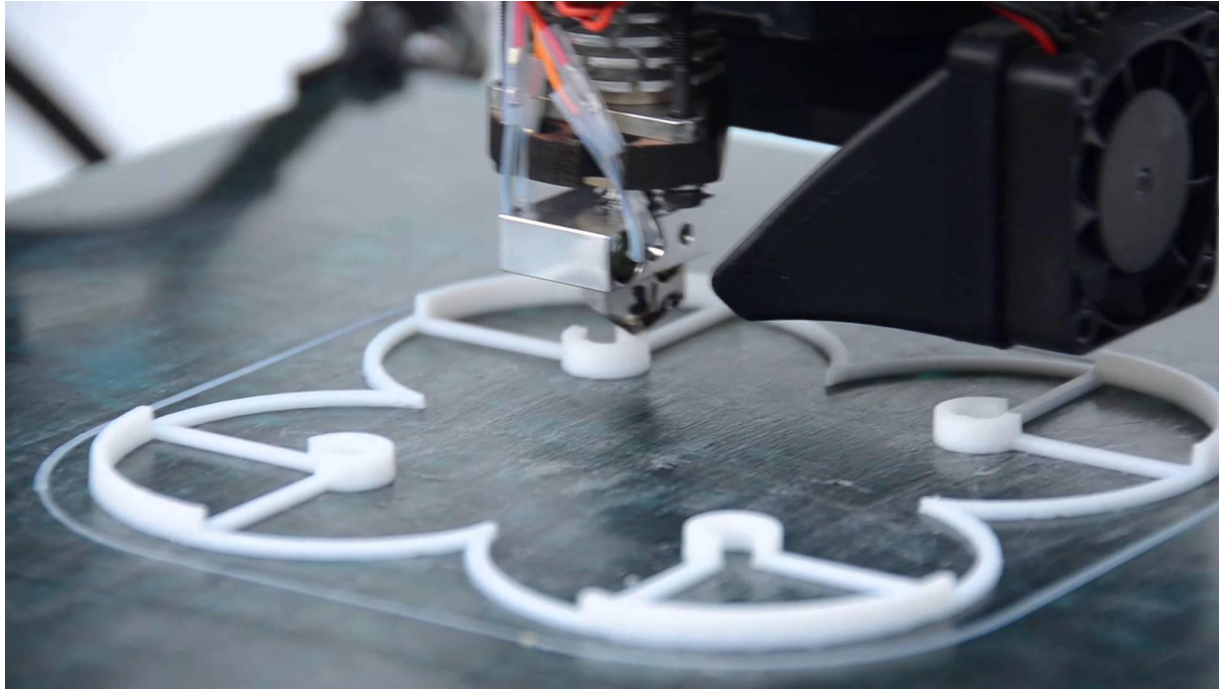
- Credit-card Sized Computer
- Does everything a desktop or laptop can do
 - Browse Internet
 - Play games
 - Word processing
- Can be used to
 - Explore computing
 - Learn programming
 - Interact with outside world
 - Internet-Of-Things (IOT)

Example Projects

Example: RFID Door Lock



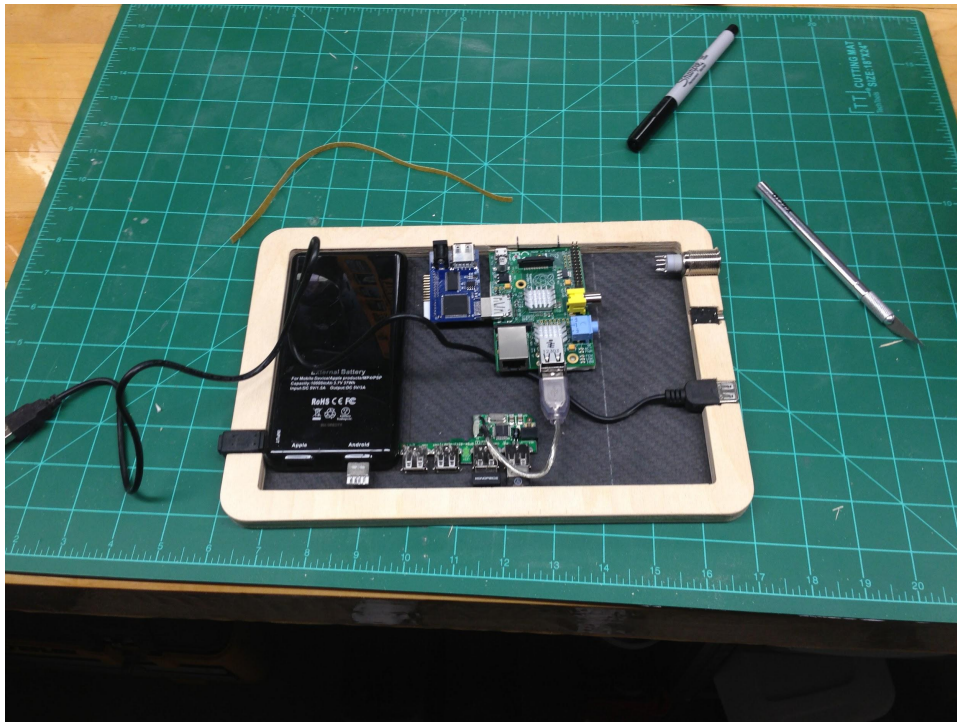
Example: 3D Printer Controller



Example: Photobooth



Example: Instagram Picture Frame



Example: Cat Feeder

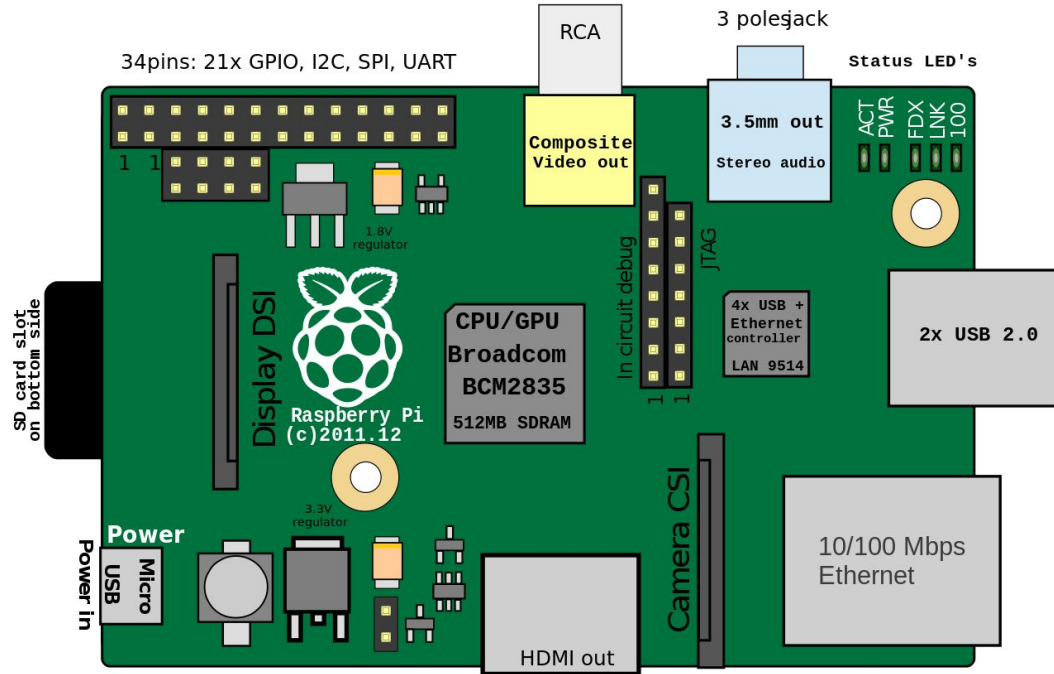


Example Projects

- RFID Door Lock
- 3D-Printer Controller
- Photobooth
- Instagram Digital Picture Frame
- Cat Feeder
- Retro Arcade Cabinet
- Voice-activated Coffee Maker
- ...
- Your next AWESOME idea!

Hardware Overview

Hardware: Overview



Hardware: GPIO Connector

GPIO#	2nd func.	Pin#	Pin#	2nd func.	GPIO#
	+3.3 V	1	2	+5 V	
2	SDA1 (I2C)	3	4	+5 V	
3	SCL1 (I2C)	5	6	GND	
4	GCLK	7	8	TXD0 (UART)	14
	GND	9	10	RXD0 (UART)	15
17	GEN0	11	12	GEN1	18
27	GEN2	13	14	GND	
22	GEN3	15	16	GEN4	23
	+3.3 V	17	18	GEN5	24
10	MOSI (SPI)	19	20	GND	
9	MISO (SPI)	21	22	GEN6	25
11	SCLK (SPI)	23	24	CE0_N (SPI)	8
	GND	25	26	CE1_N (SPI)	7
(RPI 1 Models A and B stop here)					
EEPROM	ID_SD	27	28	ID_SC	EEPROM
5	N/A	29	30	GND	
6	N/A	31	32		12
13	N/A	33	34	GND	
19	N/A	35	36	N/A	16
26	N/A	37	38	Digital IN	20
	GND	39	40	Digital OUT	21

Software Overview

Software Overview

- Raspbian Linux Operating System
- Fully Functional Desktop Environment
- LibreOffice (spreadsheets, documents, etc.)
- Web Browser
- Programming
 - Scratch
 - Python
- Games
 - Minecraft
 - Python Games

Questions?

Writing Code

Project: Hello, Scratch!

Write sketch in Scratch where Scratch the Cat asks the user for their name and gives them a personal greeting.

Project: Scratch Blink!

Use Scratch to blink an LED on the computer screen and in real life.

Project: Reaction Time Game

Test your reaction time by measuring how long it takes for you to press a key on the keyboard and see how far the International Space Station has traveled in that amount of time.

Project: Python Blink!

Use python to blink and LED.

Project: Python Push button

Connect a push button and detect when it has been pressed or released.

Project: Python Web Server

Create a web server that shows you the current temperature.