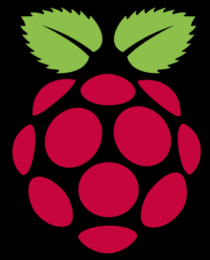


RaspberryPi

MQTT

Feb 18th 2019

Mentors

Assem Hasna

asem.hasna@gmail.com

Coding is my life

Since 2013

Former Cisco Intern

2016 - 2017

Cloud Solutions Developer

Since 2017

Specs

A 1.2GHz 64-bit quad-core ARMv8 CPU

802.11n Wireless LAN

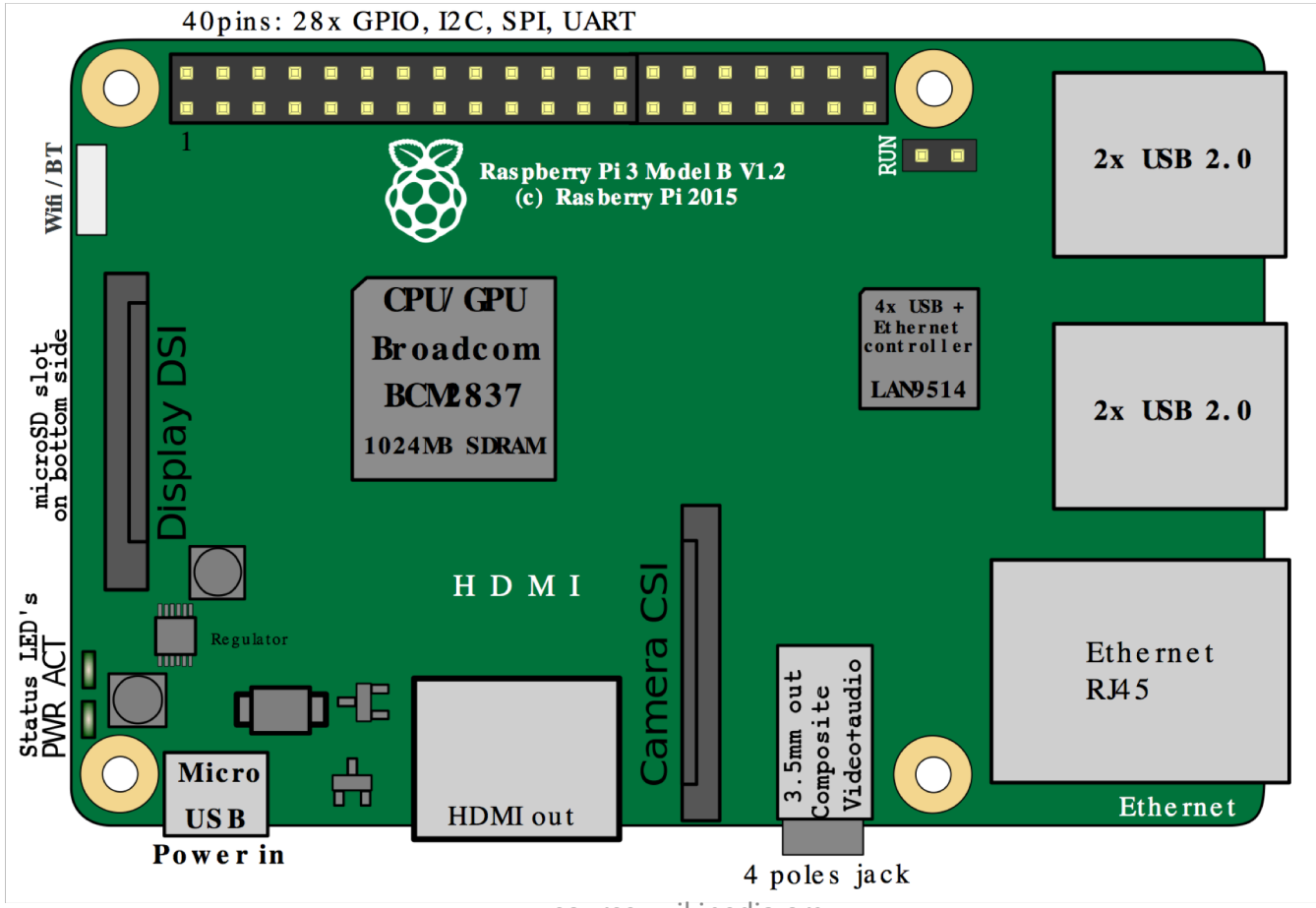
Bluetooth 4.1

1GB RAM

4 USB ports

40 GPIO pins

3.5mm audio jack & composite video



source: wikipedia.org

Full HDMI port

Ethernet port

Camera interface (CSI)

Display interface (DSI)

Micro SD card slot

VideoCore IV 3D graphics core

Price point

30-35 €

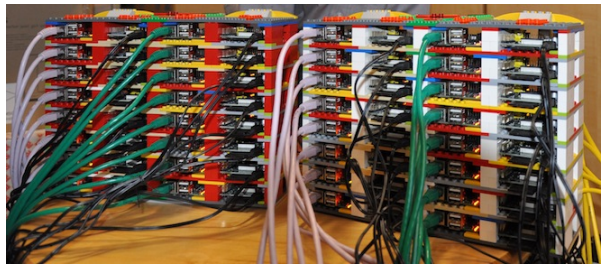
Applications

- Physical computing (home automation, sensor)

source: cisco.com

- Web server
- Mini-computer

source: blog.parts-people.com



source: wired.com

- Supercomputer
- Robotics

Set-up

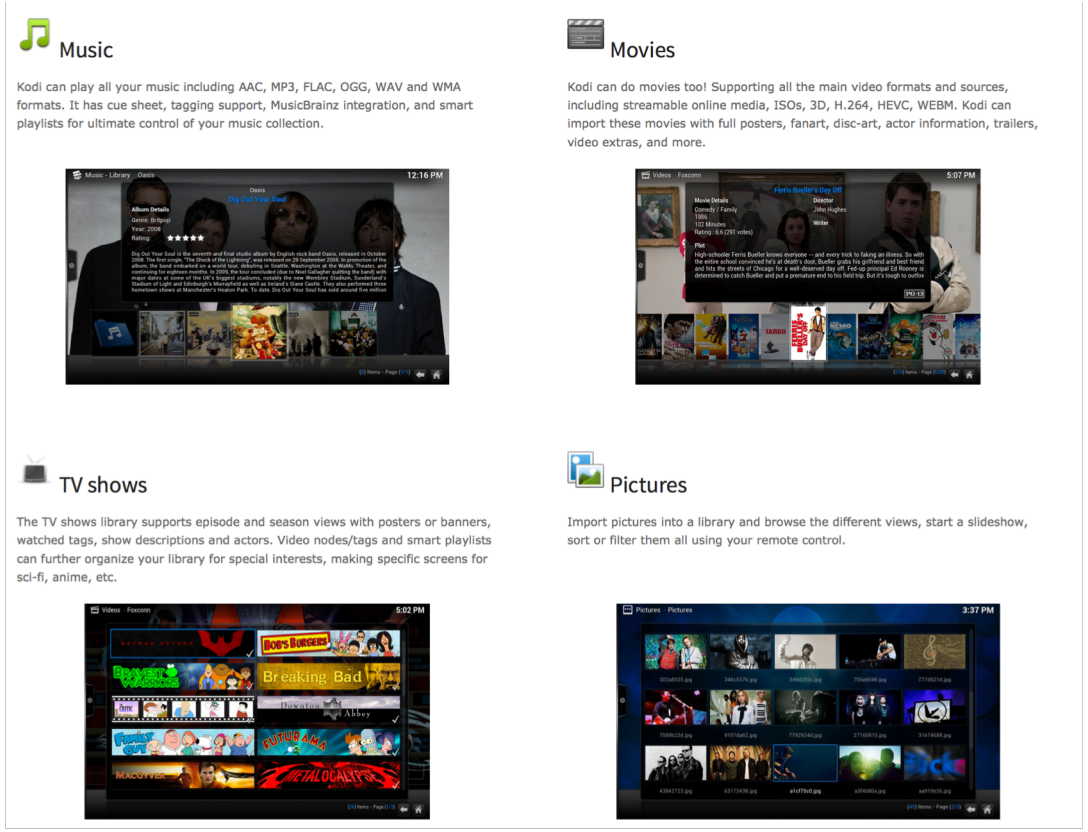
- A laptop running Linux/Windows/Mac
- SD card of min 8GB: NOOBS:Raspbian OS (or others)
- 2A power supply
- Ethernet cable

https://www.raspberrypi.org/downloads/

LibreElec: KODI media center

*Kodi® (formerly known as XBMC™) is an award-winning **free** and **open source** (GPL) software media center for playing videos, music, pictures, games, and more*

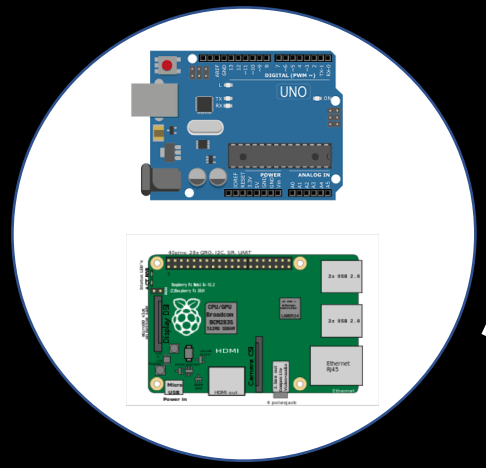
https://libreelec.tv/download-temp/



Questions?

MQTT?

- Open Source Communication Protocol invented in 1999
- M2M / ”Internet of Things”
- Simple and Lightweight
- Publish/Subscribe based
- Security?



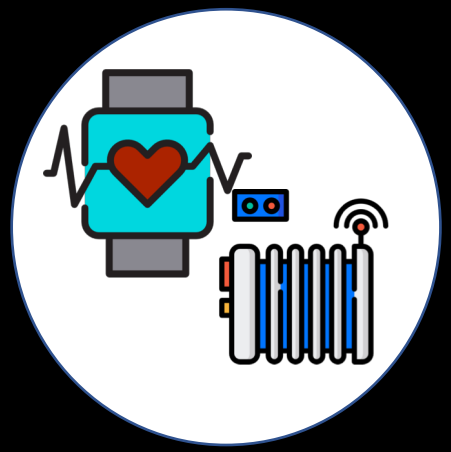
publisher

office/light

MQTT Broker

home/temp

subscriber



publisher

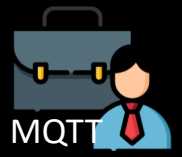
home/temp

office/light

subscriber

MQTT Simple Architecture

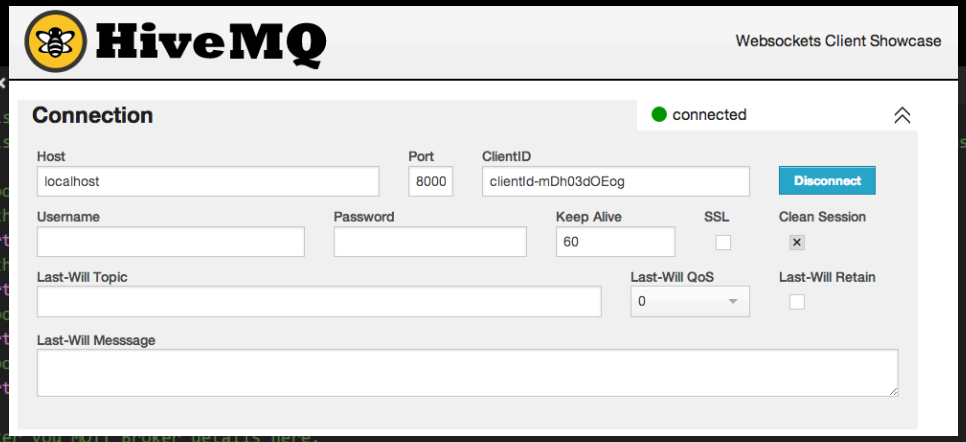
How to use MQTT



Interacting with an MQTT Broker

Using UIs & Public Brokers

Or Using Code & Private Brokers



Still Awake?

If yes, any questions?

Secure Shell (SSH)

Access Shell (Command Line) Remotely

On Mac/Linux:
ssh pi@<ip_address>

On Windows: Install an SSH Client
Termius or PUTTY

Basic CLI Commands on RaspberryPi

Change Directory: cd

List the contents of a directory: ls

Run a python script: python <filename>

Print work directory: pwd

Update Packages: sudo apt-get update

Update Packages: sudo apt-get upgrade

More about Linux Commands:

https://www.codecademy.com/learn/learn-the-command-line

LET’S DO IT …

Assignment

- Install an SSH client
- Login to your RaspberryPi (ssh pi@<IP_address>)
- Follow the instructions at
  https://ahasna.github.io/mqtt-iot-workshop/