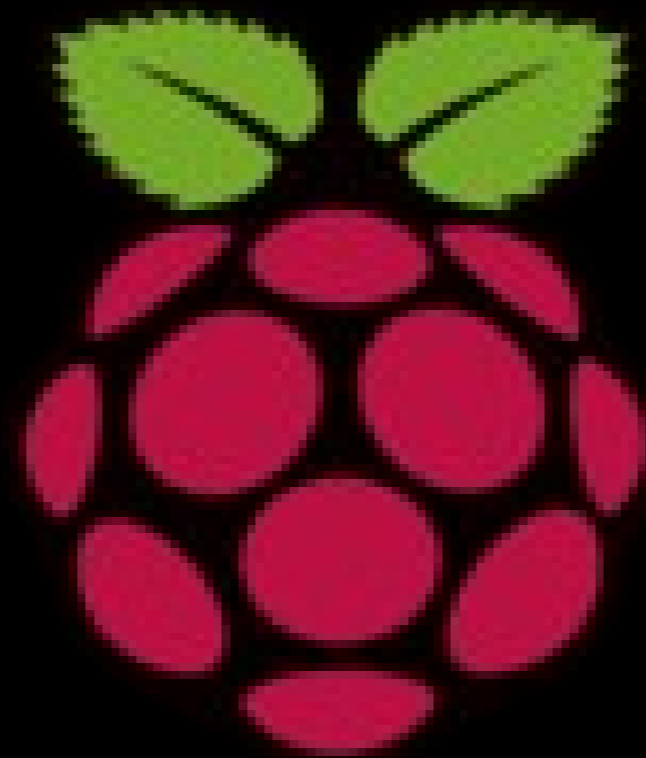
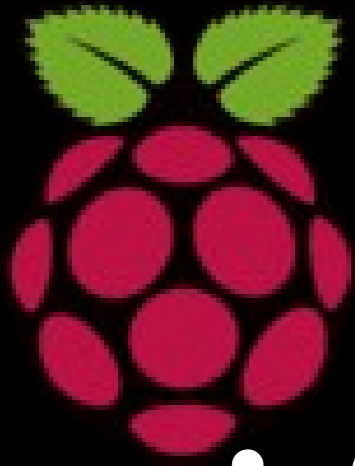


# An Introductory Session on Raspberry Pi



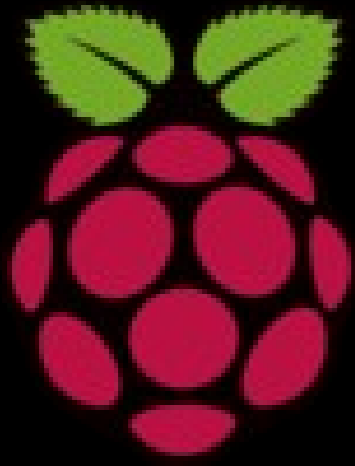
By Shailendra Patel  
IT Branch

Kashi Institute Of Technology



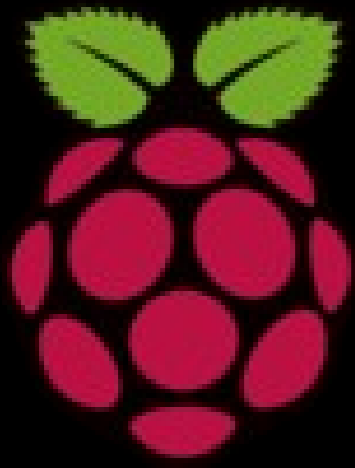
# What Is Raspberry Pi

- *Credit-Card* sized computer
- Developed in U.K by Raspberry Pi foundation in 2009.
- Project Initiated By Initiated by **Eben Upton**.
- Based on Broadcom chips.
- Supported by UCCL and Broadcom.
- Affordable
- Runs LINUX. Microsoft is developing Windows 10 for newer boards.
- Consumes less than 5W of Power
- Supports Full HD Video Output (1080p), Multiple USB Ports , etc



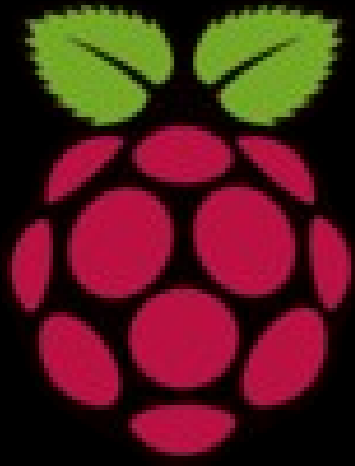
# History

- ❖ The Raspberry Pi is the work of the Raspberry Pi Foundation, a charitable organisation.
- ❖ UK registered charity (No. 1129409), May 2009
- ❖ It's supported by the University of Cambridge Computer Laboratory and tech firm Broadcom



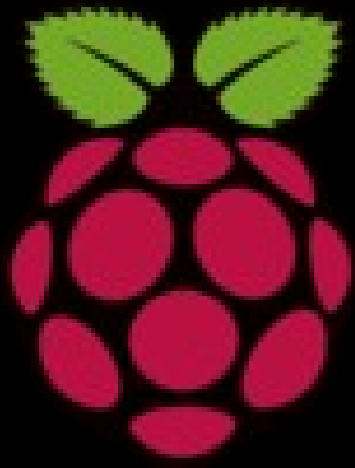
# Motivation

- ❖ For Developing CS skills especially in kids.
- ❖ Limited Access to computers
- ❖ Computers are **the tool of the 21st century**
- ❖ Computer Science is concerned with much more than simply being able to use a computer.
- ❖ Children should understand how they work and how to program them



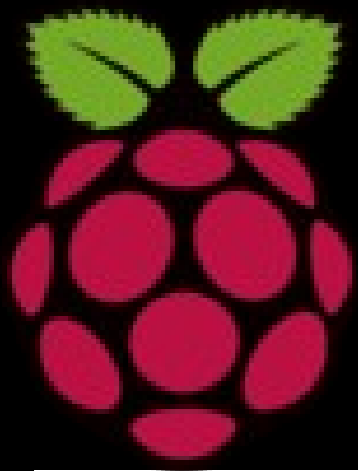
# Features

- Provide a fun environment for experimenting with programming and electronics
- Inexpensive, simple, open and easy to maintain computer for schools
- Fun computer for children to experiment with at home(programming, robotics, etc...)

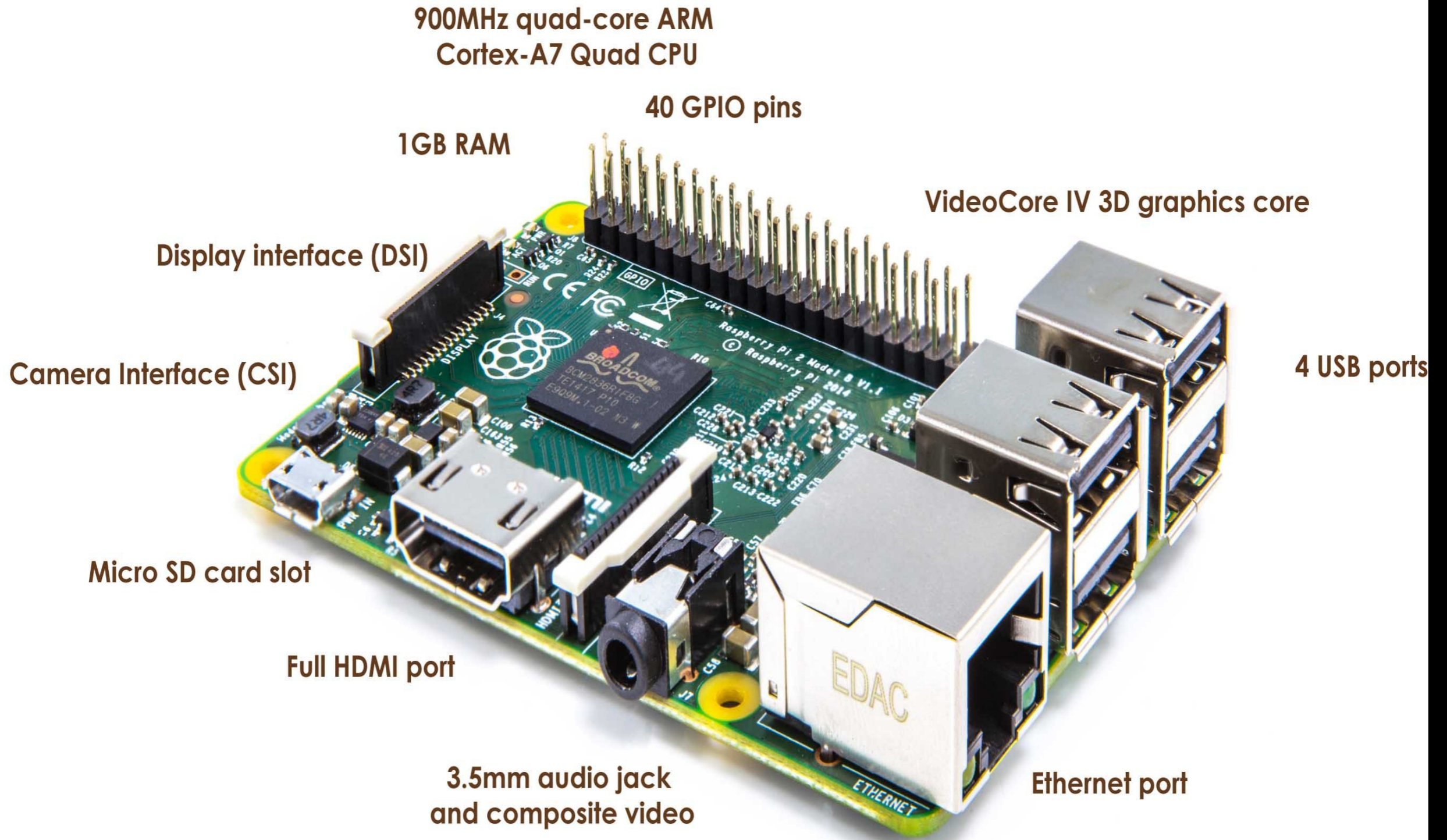


# Technology

- The Raspberry Pi has a Broadcom BCM2835 system on a chip (SoC), which includes an ARM1176JZF-S 700 MHz processor.
- Dual Video Core IV GPU.
- First model had 256MB RAM, newest has 1GB.
- SD card for storage.



# Raspberry Pi 2 Model B



900MHz quad-core ARM Cortex-A7 Quad CPU

40 GPIO pins

1GB RAM

VideoCore IV 3D graphics core

Display interface (DSI)

Camera Interface (CSI)

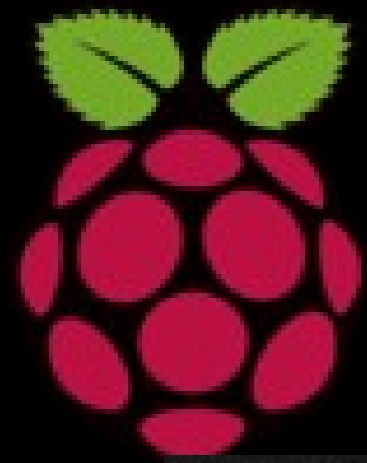
4 USB ports

Micro SD card slot

Full HDMI port

3.5mm audio jack and composite video

Ethernet port



# Raspberry Pi A+

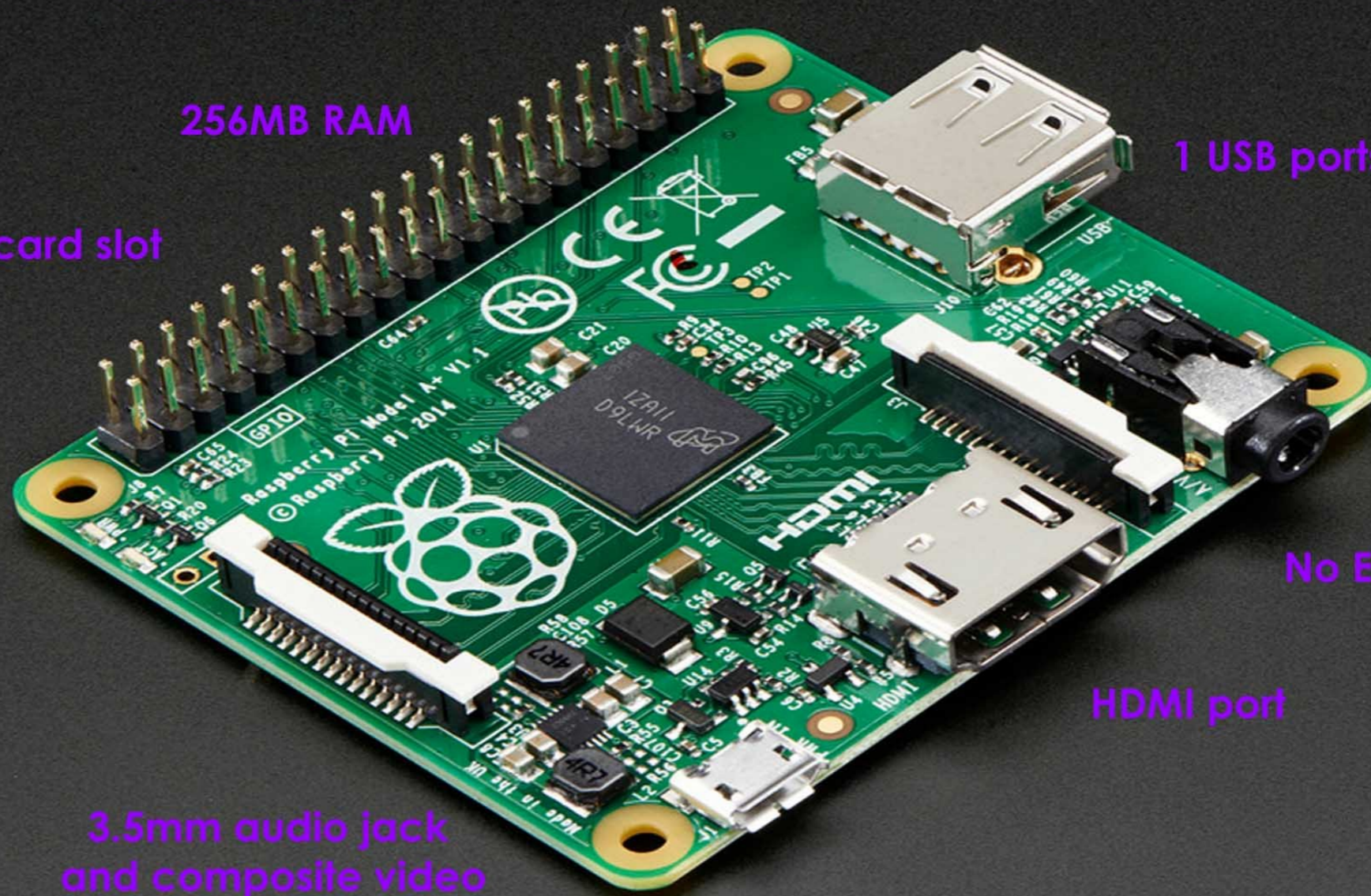
700MHz CPU

40 GPIO pins

256MB RAM

1 USB ports

Micro SD card slot



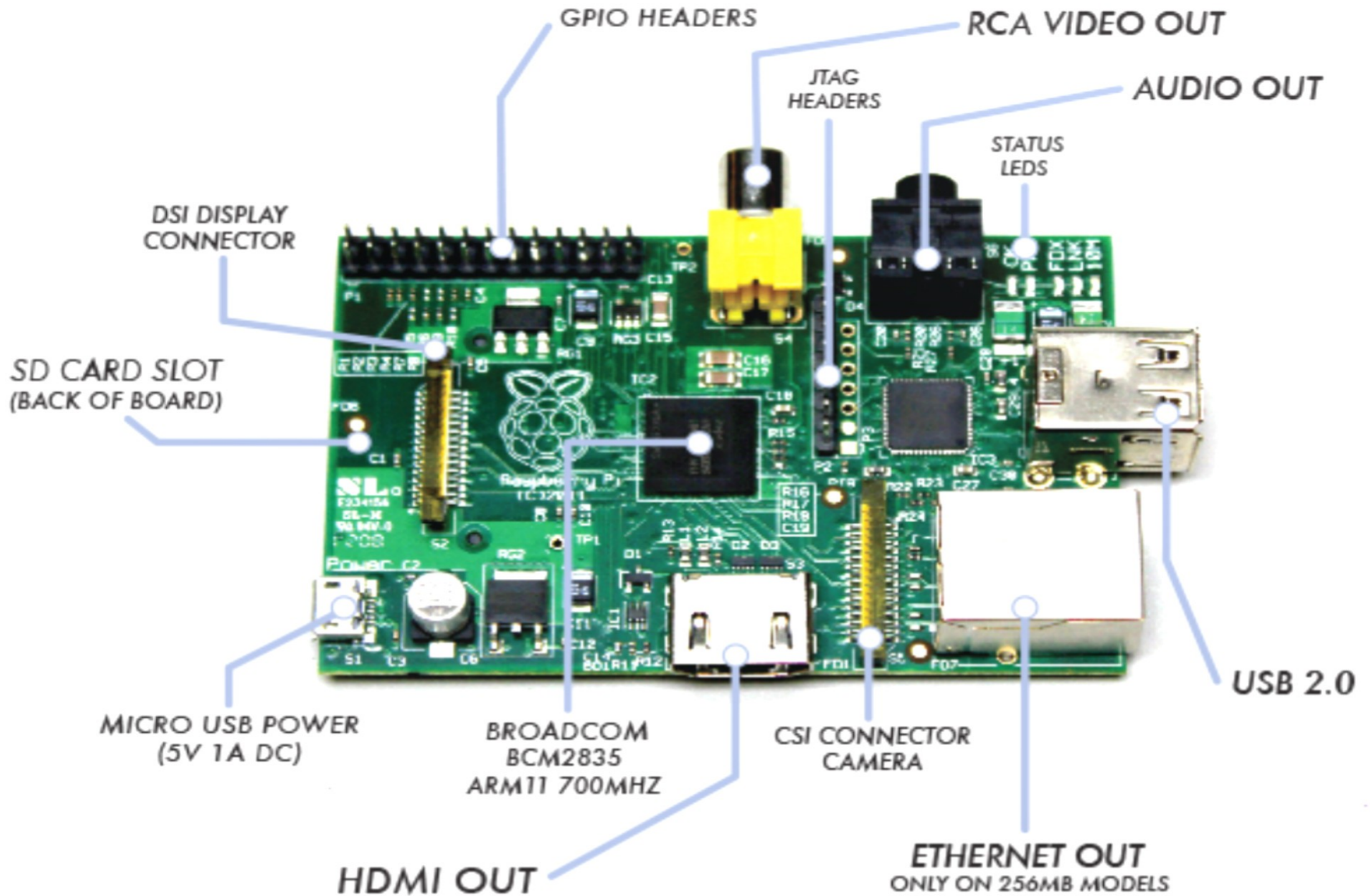
No Ethernet port

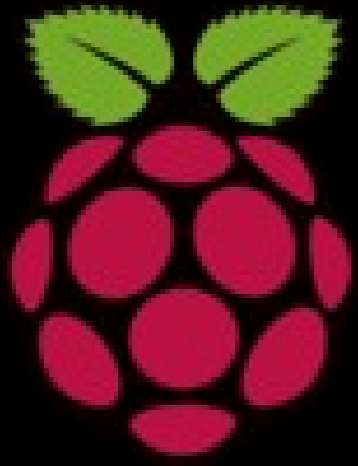
HDMI port

3.5mm audio jack  
and composite video



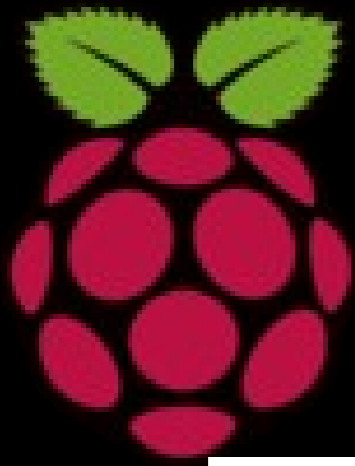
# Hardware Specs



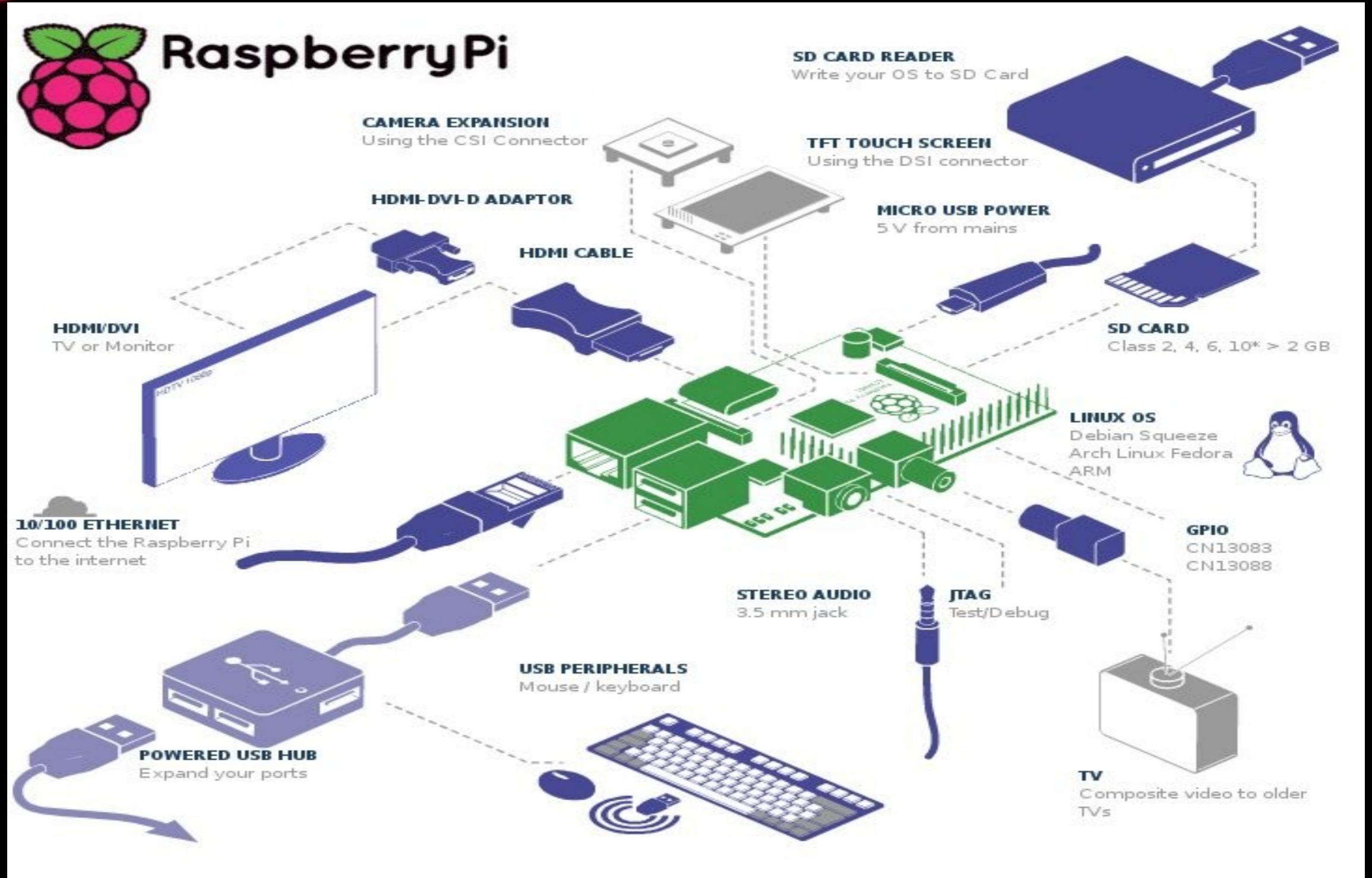


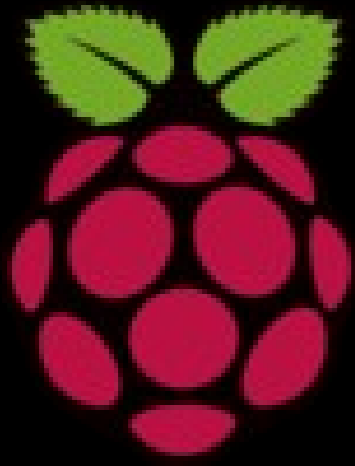
# Operating System

- **Raspbian**
- **Fedora**
- **Raspbian**
- **Debian**
- **ArchLinux ARM**
- **Windows 10 On Raspberry Pi2**



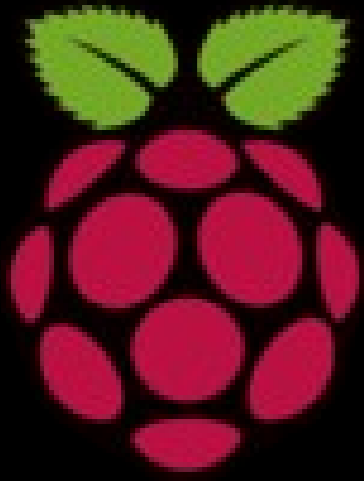
# How to make it work!





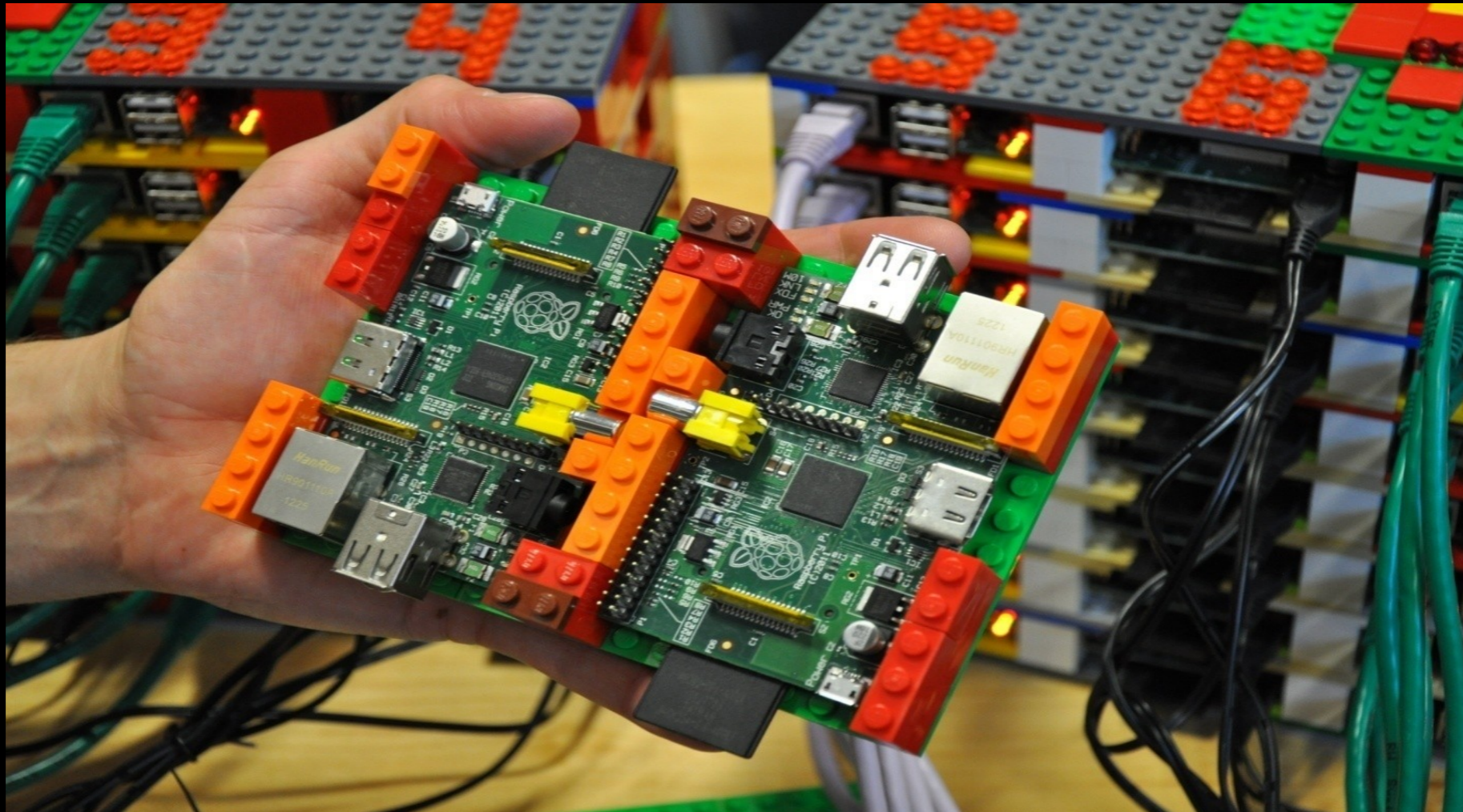
# Programming

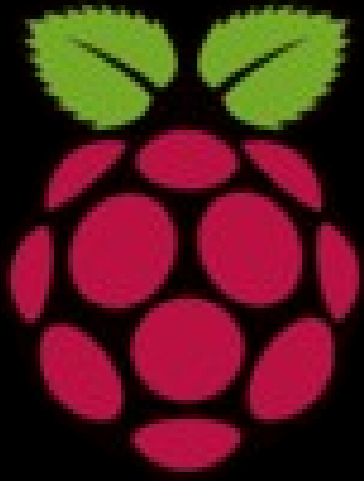
- By default, supporting Python as the educational language.
- Any language which will compile for ARMv6 can be used with the Raspberry Pi.



# Applications

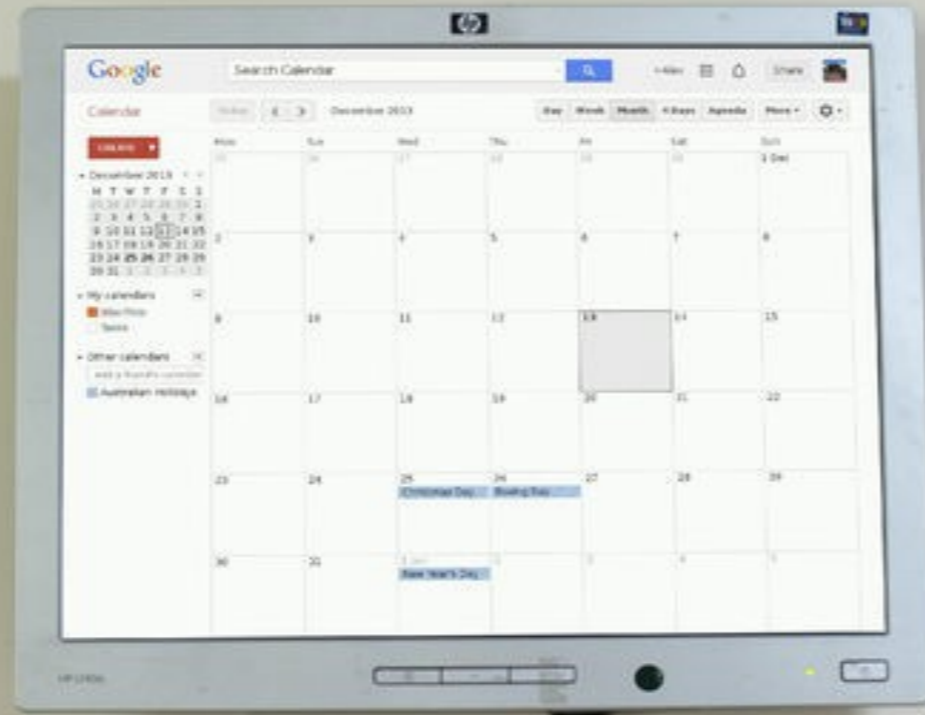
- **Iridis-Pi** : Supercomputer using Raspberry Pi (64 Processors, 1 TB of Memory).

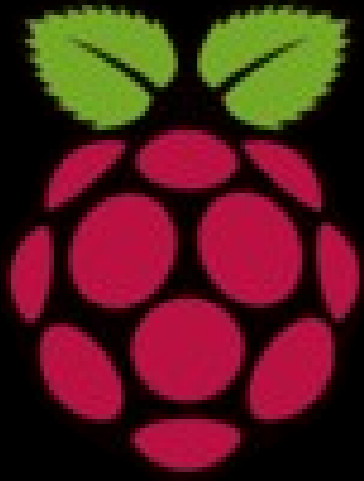




# Applications

- **Raspberry Pi Wall Mounted Google Calendar – On Instructables**

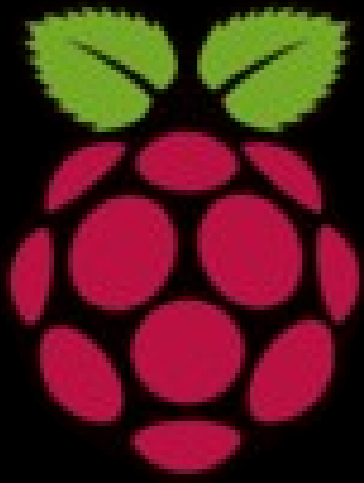




# Applications

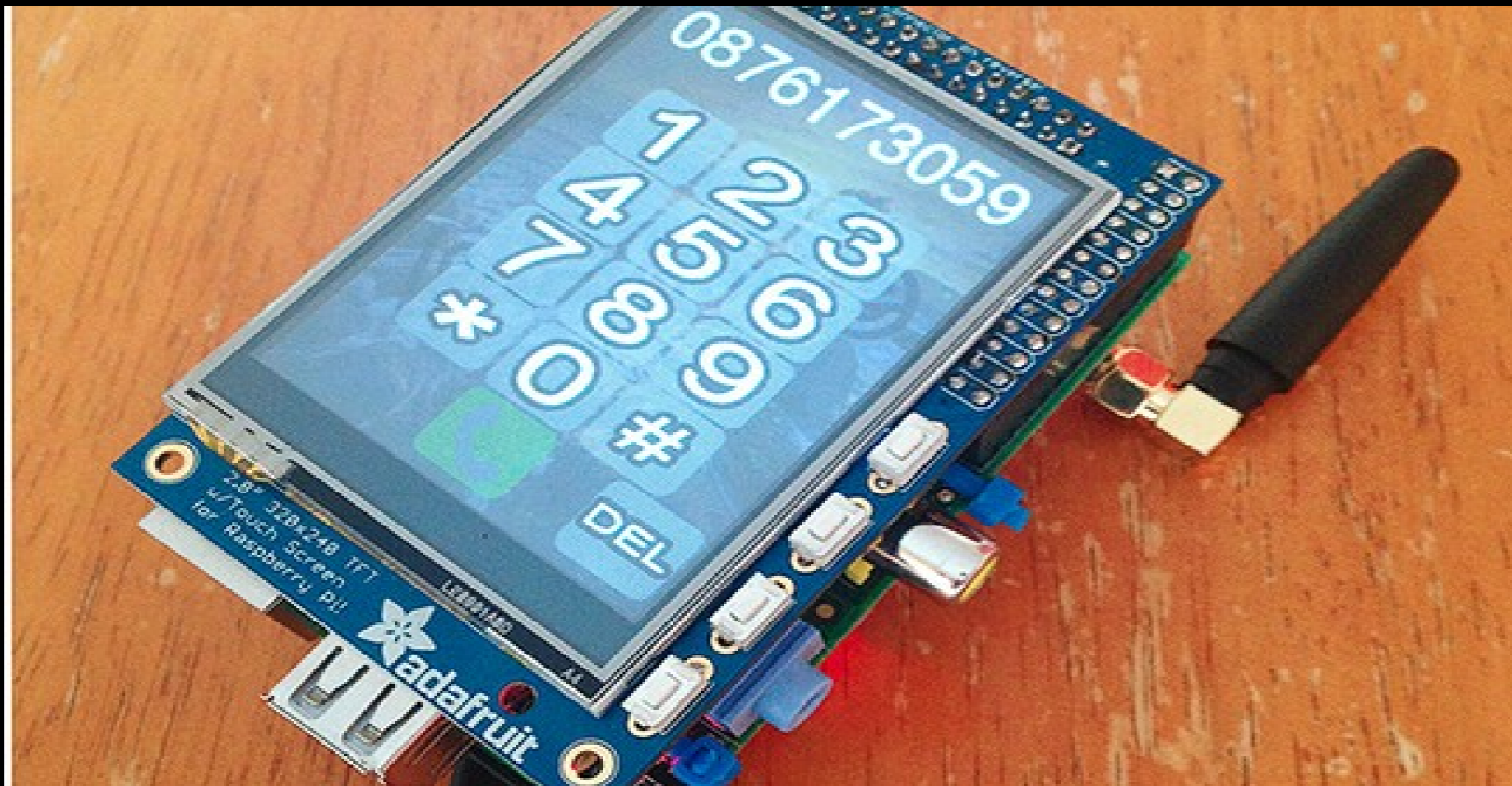
- **PiPad: Tablet Using Raspberry Pi.**



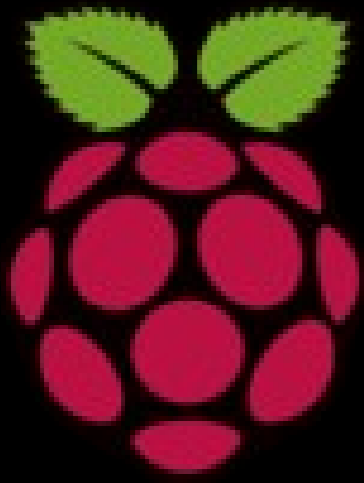


# Applications

- **PiPhone** : Using Raspberry Pi.



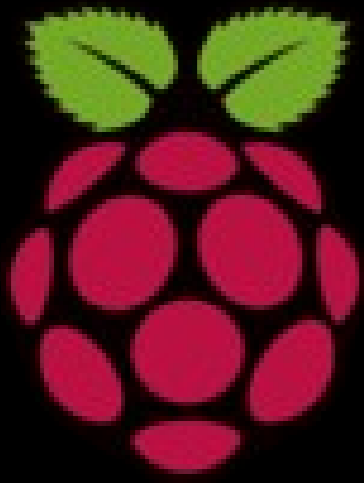




# Applications

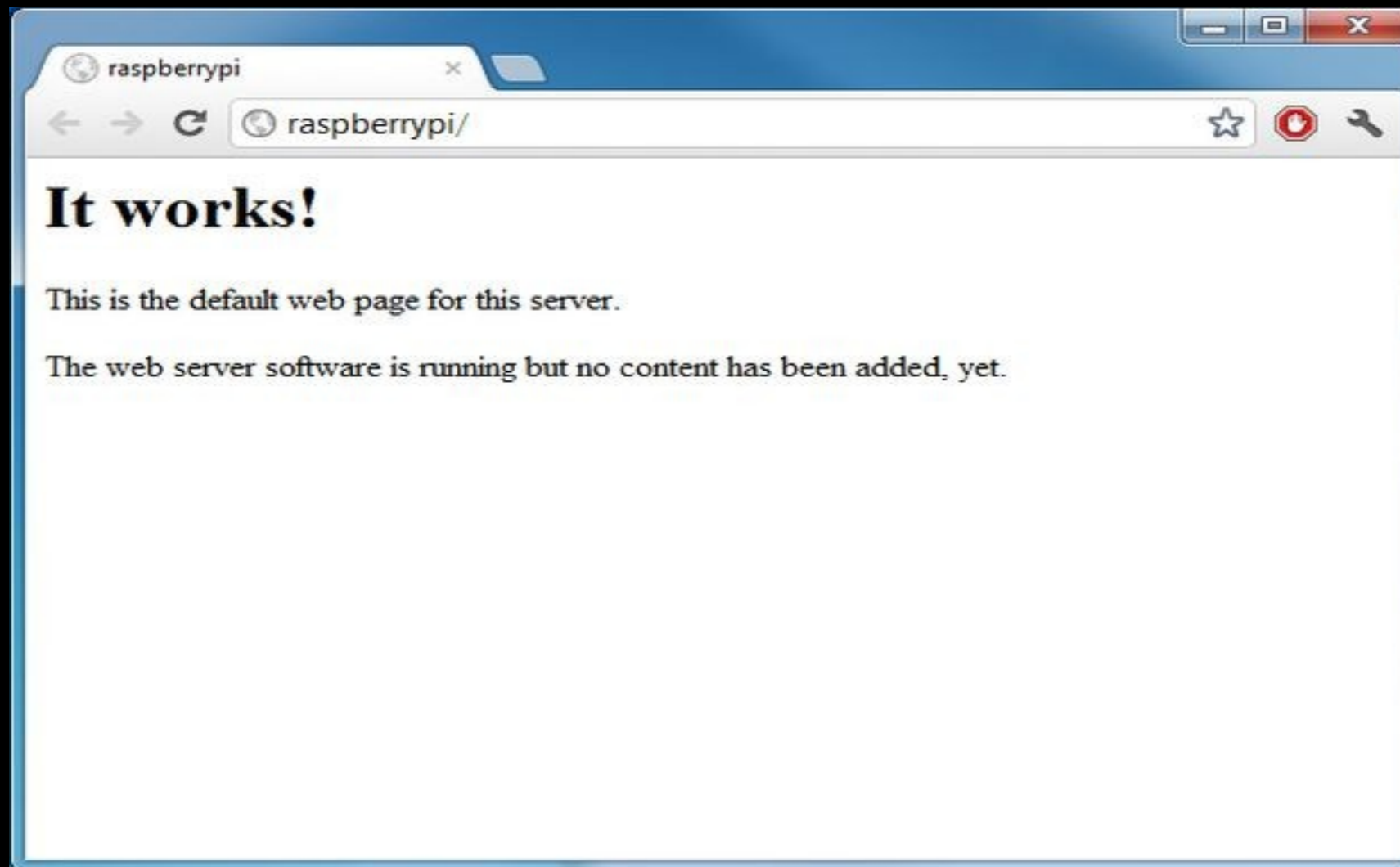
- **Pi as a Media Centre** : Convert Your TV Into Smart TV.

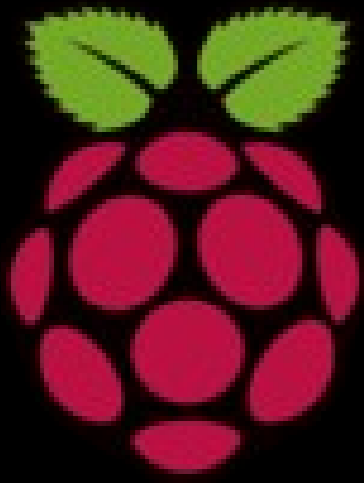




# Applications

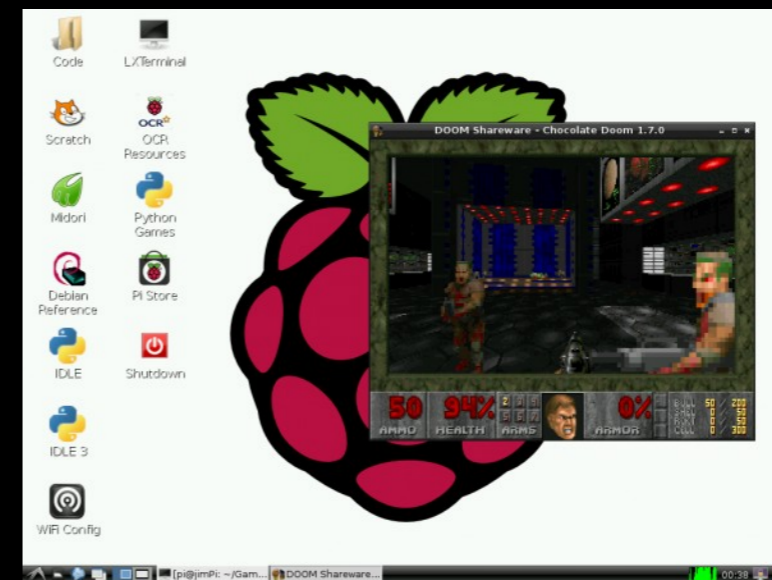
- Running a **Web server** on Raspberry Pi

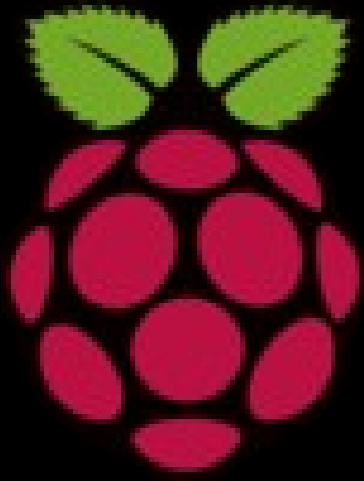




# Applications

- Games on Raspberry Pi.

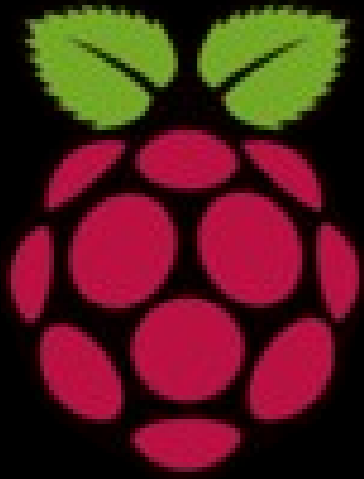




# Applications

- **Low Cost HD Surveillance Camera**





# Applications

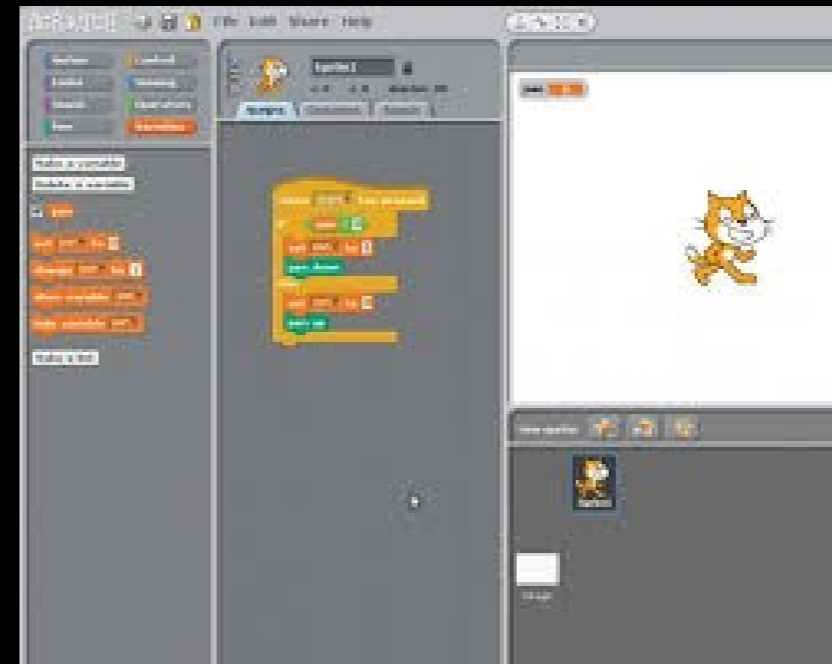
- **Learning Programming** : Learn Python, C/C++, Java, Ruby, Basic, etc.

A screenshot of the Qt Creator IDE. The main editor window shows a C++ file named `main.cpp` with the following code:

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main(int argc, char *argv[])
6 {
7     cout << "Hello world" << endl;
8 }
9
```

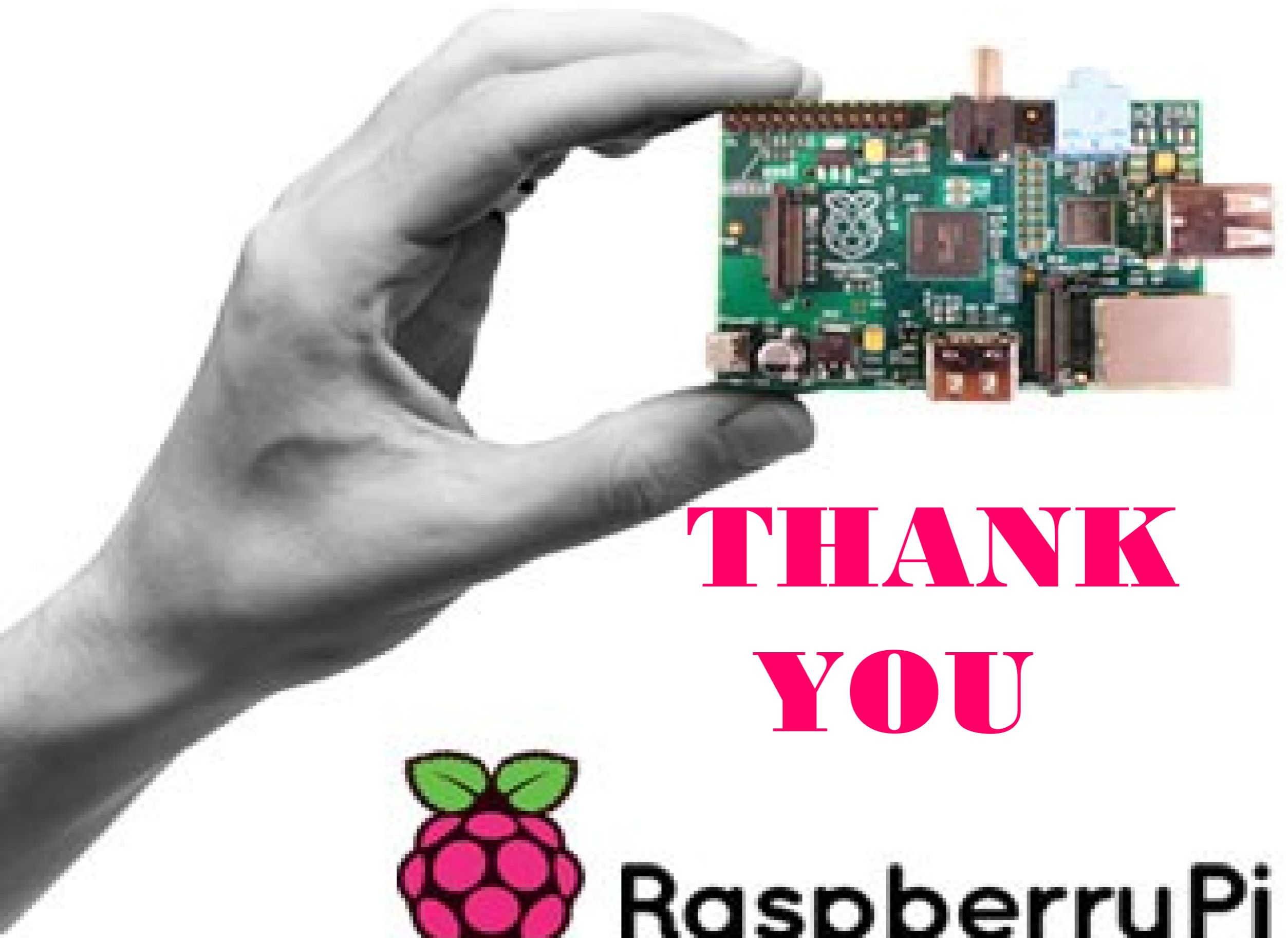
The Application Output window at the bottom shows the execution results:

```
helloworld x
Starting /home/pi/helloworld/helloworld...
Hello world
/home/pi/helloworld/helloworld exited with code 0
```

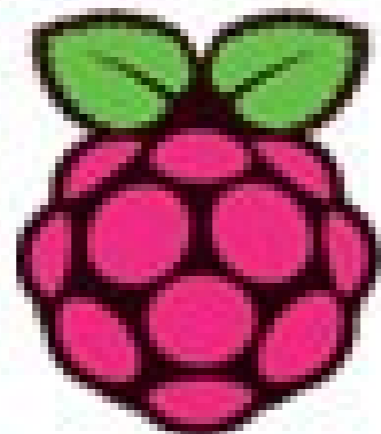


A screenshot of a gedit text editor window titled `*hello.py (-) - gedit`. The code is as follows:

```
#!/usr/bin/python
name = ''
while name != 'quit' :
    name = raw_input('what is your name? ')
    if name == 'Ben':
        print "Ben, you're awesome"
    else :
        print 'Hello', name
```



**THANK  
YOU**



**Raspberry Pi**