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Computing Systems
Raspberry PI

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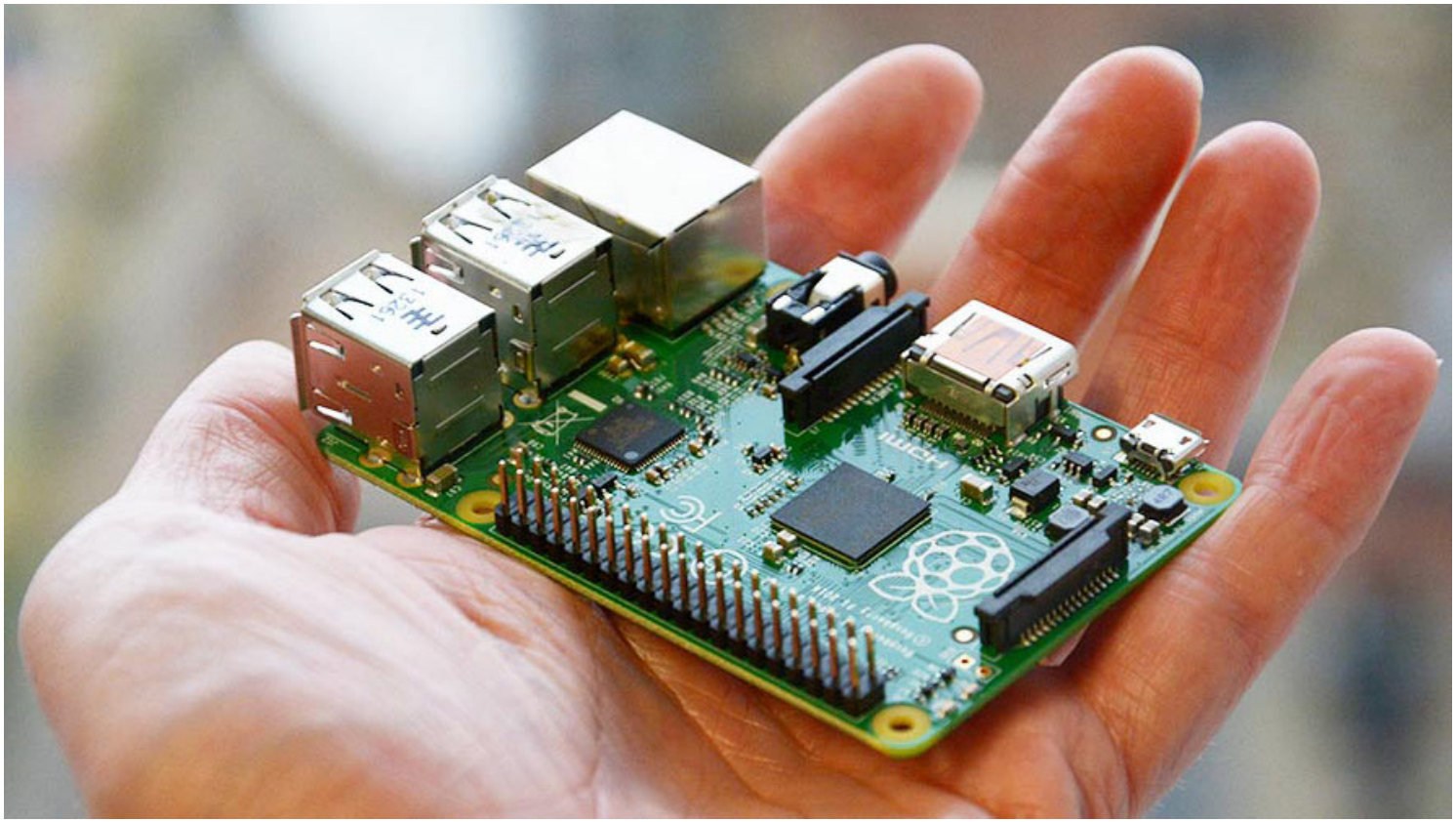
RASPBERRY PI

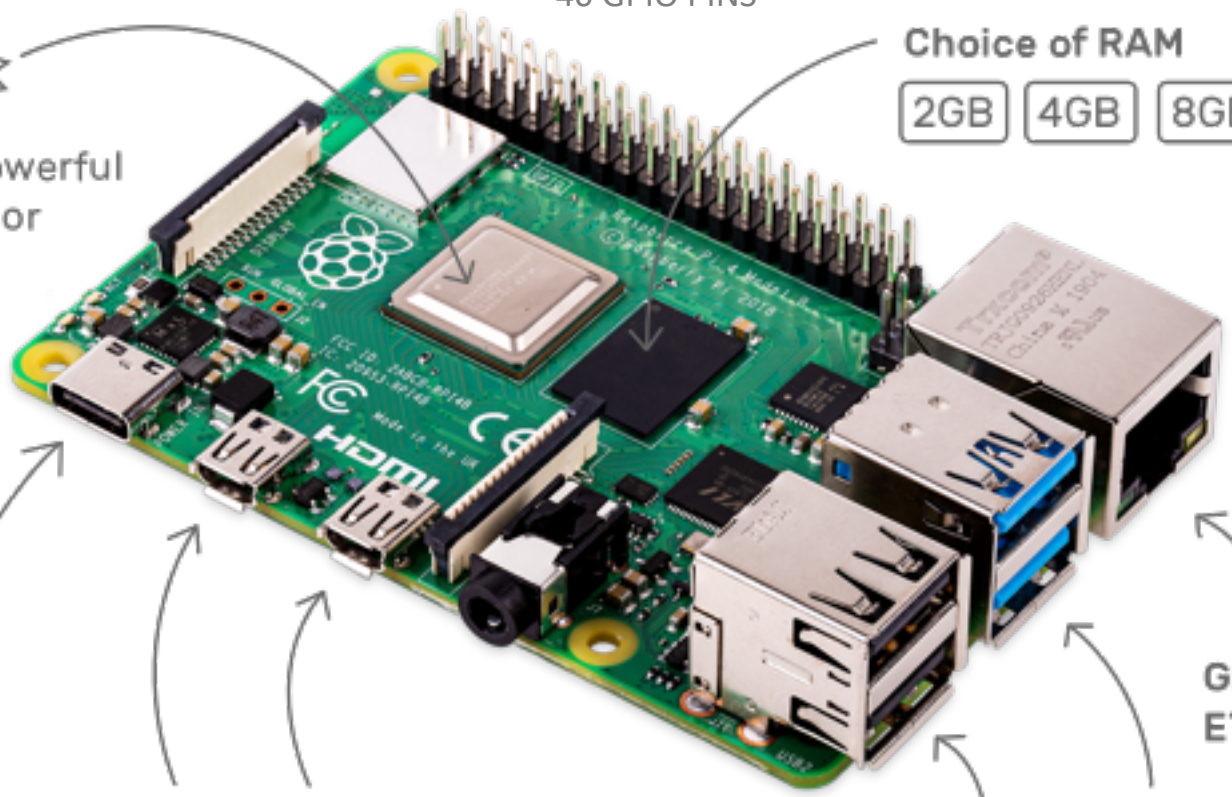
- Credit card-sized single board computer
- Raspberry PI Foundation (United Kingdom)
- Teaching the basic computer science in developing countries schools

- Launched 29 Feb. 2012
- Different models (A, B, A+, B+, 2, Zero, 3)
- Cost: 5$ - 35$

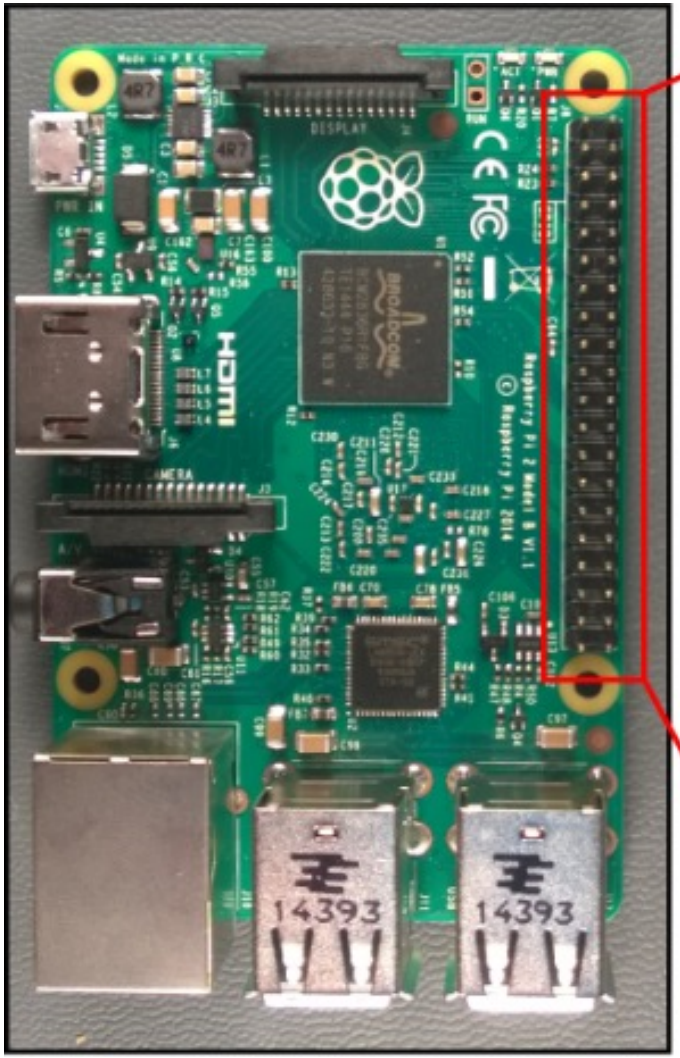
Size



Raspberry Pi 4 - Hardware



GPIO



3.3V PWR	1		2	5V PWR	
I2C1 SDA	3		4	5V PWR	
I2C1 SCL	5		6	GND	
GPIO 4	7		8	UART0 TX	
GND	9		10	UART0 RX	
GPIO 17	11		12	GPIO 18	
GPIO 27	13		14	GND	
GPIO 22	15		16	GPIO 23	
3.3V PWR	17		18	GPIO 24	
SPI0 MOSI	19		20	GND	
SPI0 MISO	21		22	GPIO 25	
SPI0 SCLK	23		24	SPI0 CS0	
GND	25		26	SPI0 CS1	
Reserved	27		28	Reserved	
GPIO 5	29		30	GND	
GPIO 6	31		32	GPIO 12	
GPIO 13	33		34	GND	
GPIO 19	35		36	GPIO 16	
GPIO 26	37		38	GPIO 20	
GND	39		40	GPIO 21	

Operating systems

- Raspbian (debian based)
- Ubuntu
- Windows 10 IOT Core
- Risc OS (Non linux)

- OSMC
- Kodi
- Weather station

Python on Raspberry - GPIO

```
import time

# Inizializzazione GPIO
import RPi.GPIO as gpio
gpio.setmode(gpio.BCM)       # BCM Enumeration
gpio.setwarnings(False)

gpio.setup(3, gpio.OUT, initial=1)    # GPIO3 output, default: 1
gpio.setup(4, gpio.IN, pull_up_down=gpio.PUD_DOWN)   # GPIO4 input,
pull-down

print("Ready!")

while 1:
       if gpio.input(4):
              gpio.output(3, 0)
       else:
              gpio.output(3, 1)
       time.sleep(0.05)
```

References

- Simone Mangano, Introduction to Raspberry PI

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Questions?

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