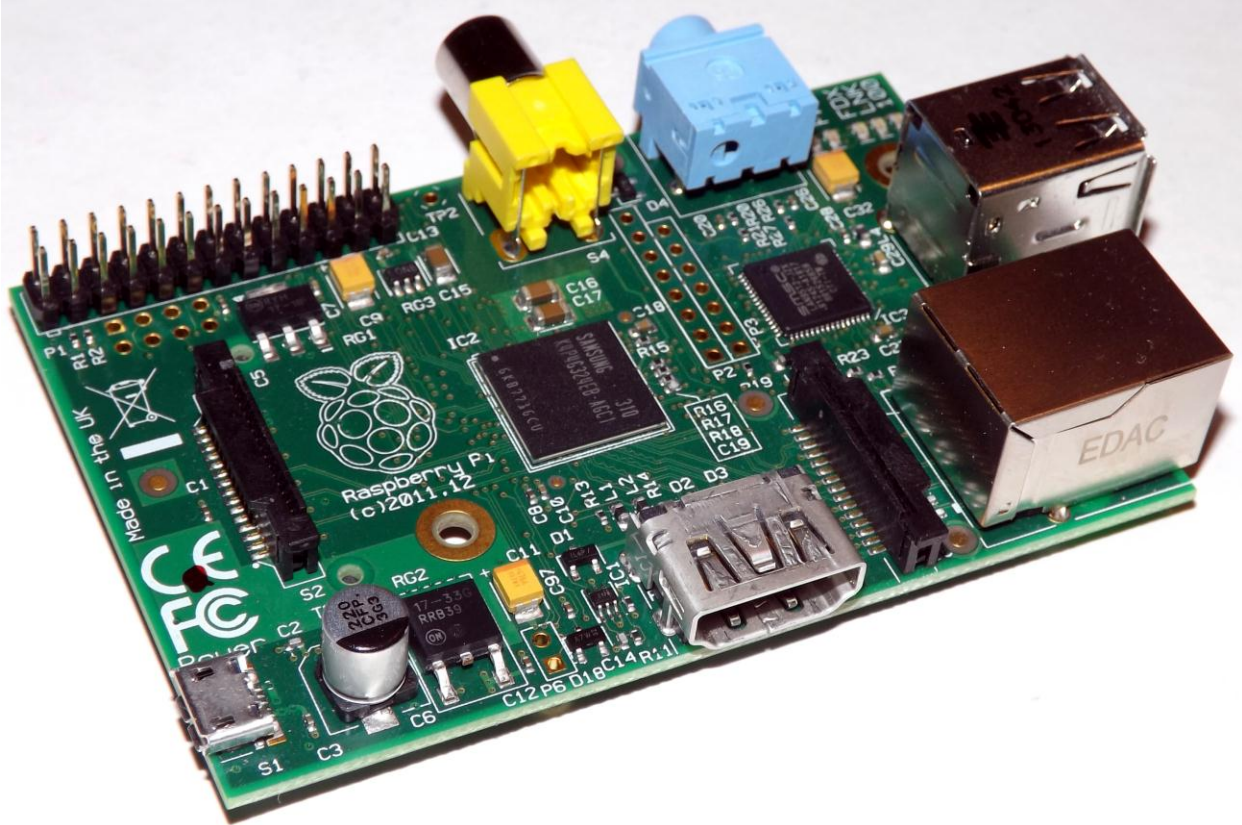
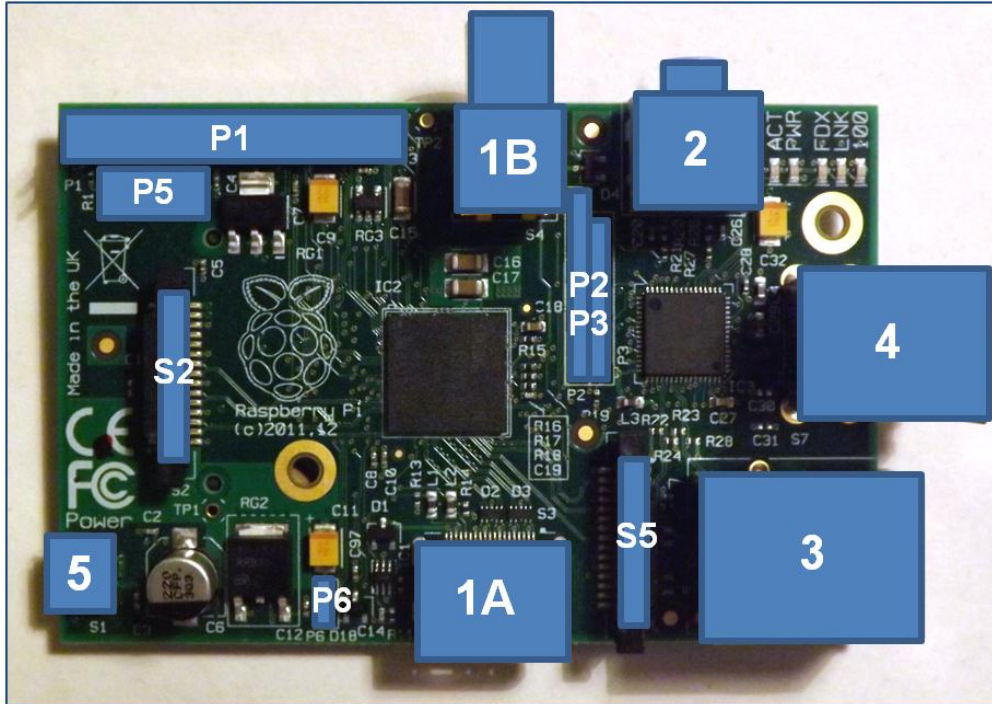


# Chapter 1



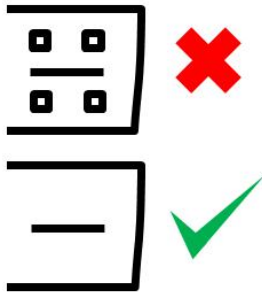


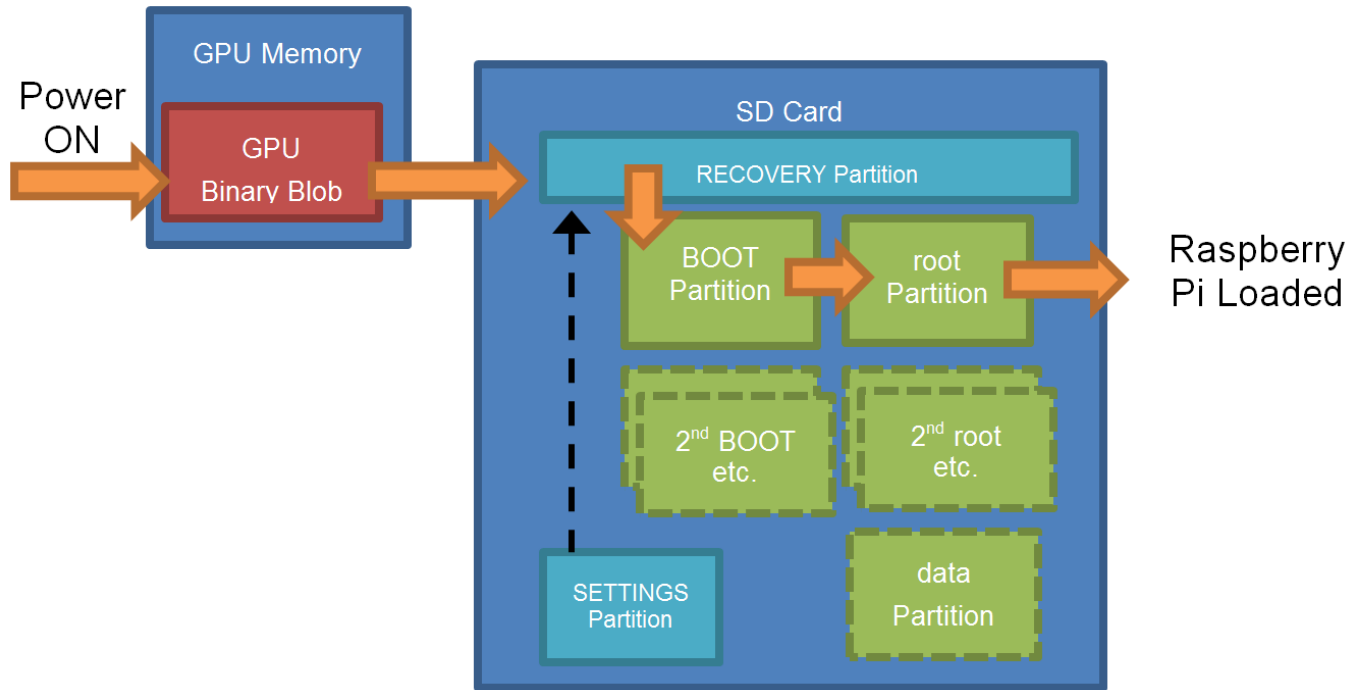
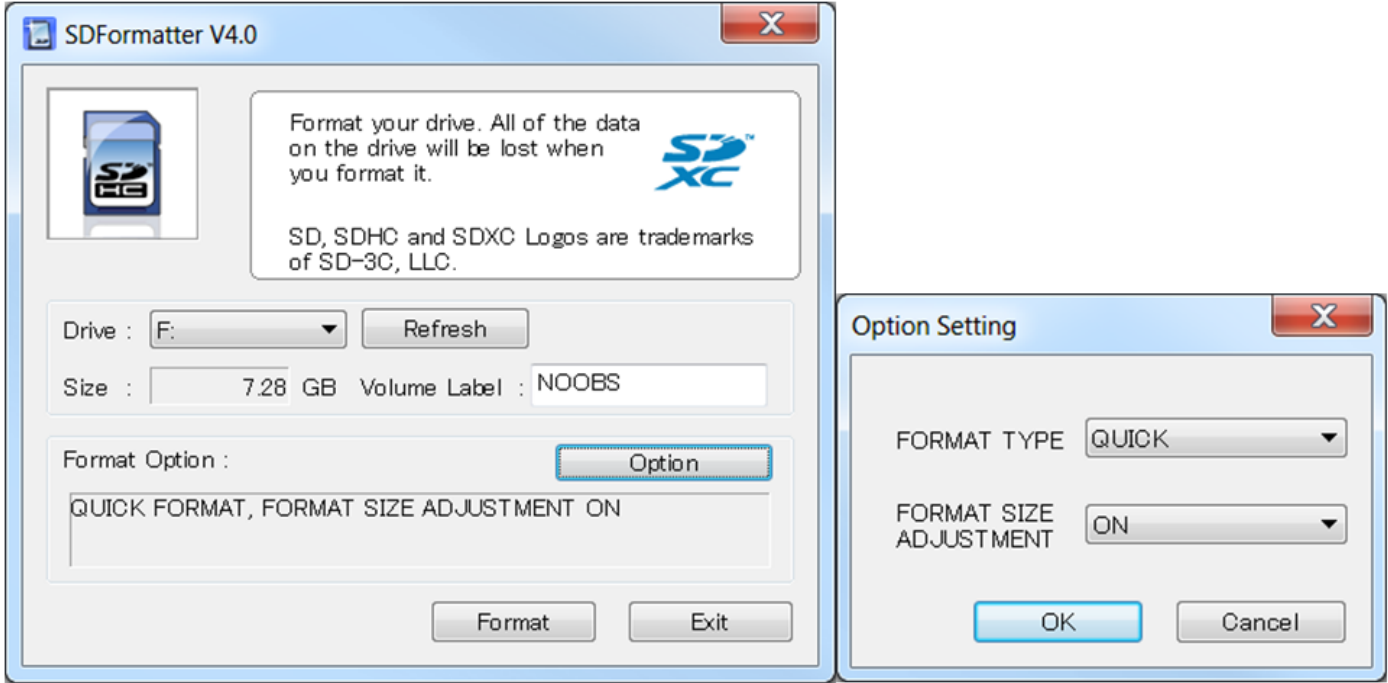
**Primary Connections**

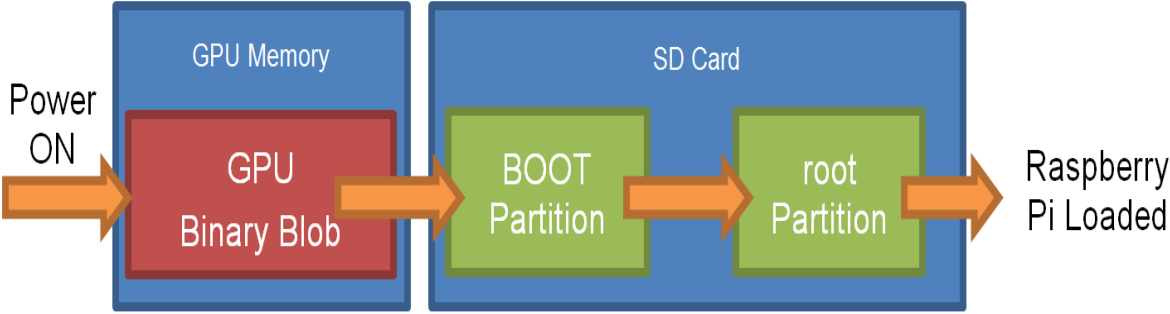
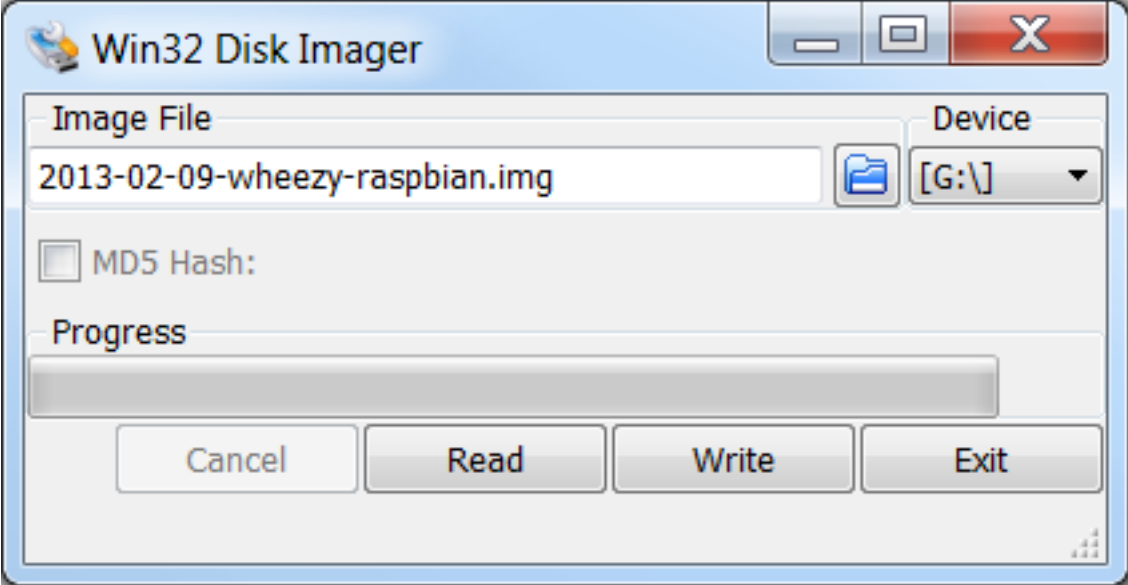
- 1 Display**
  - 1A Digital HDMI
  - 1B Analogue
- 2 Stereo Analogue Audio**
- 3 Network (B Only)**
- 4 USB (x1 A, x2 B)**
- 5 Micro-USB Power**

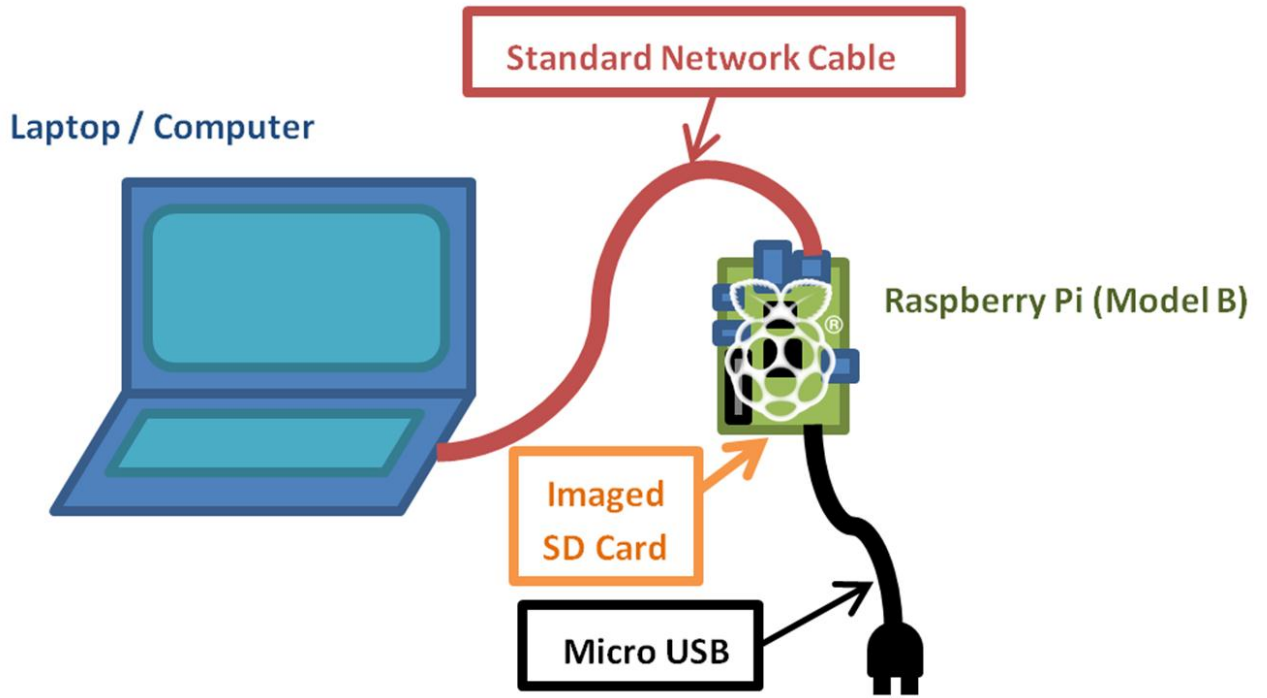
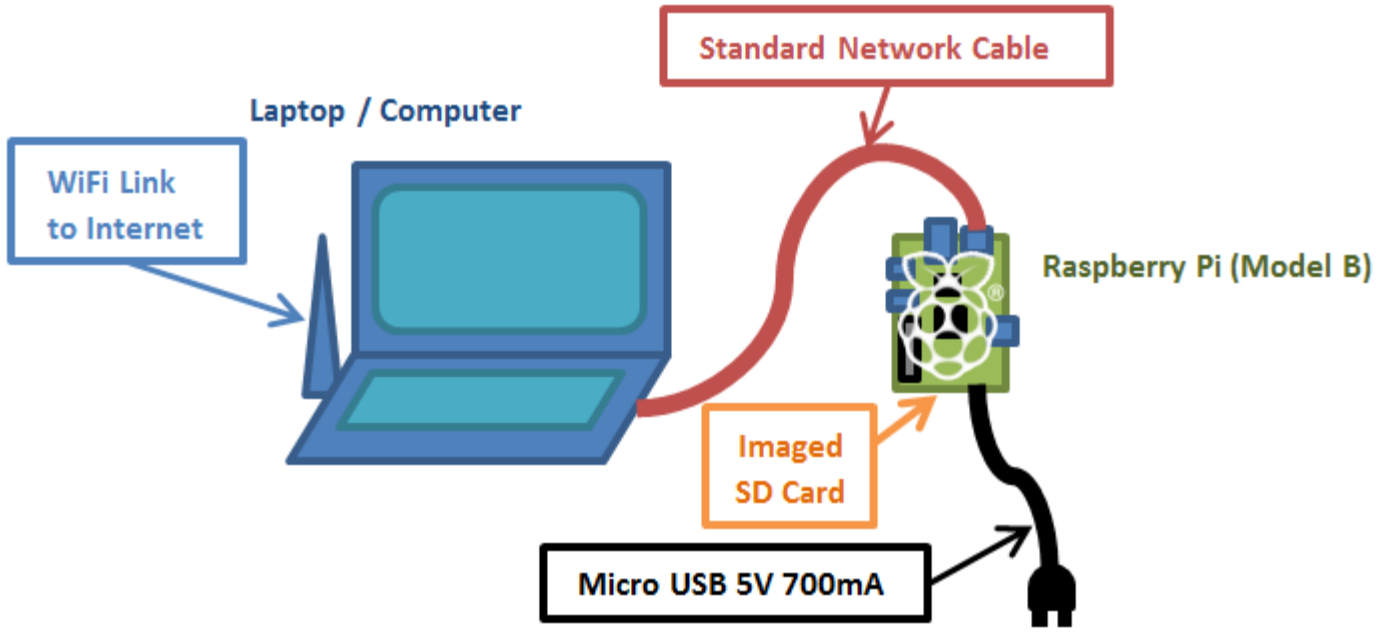
**Secondary Connections**

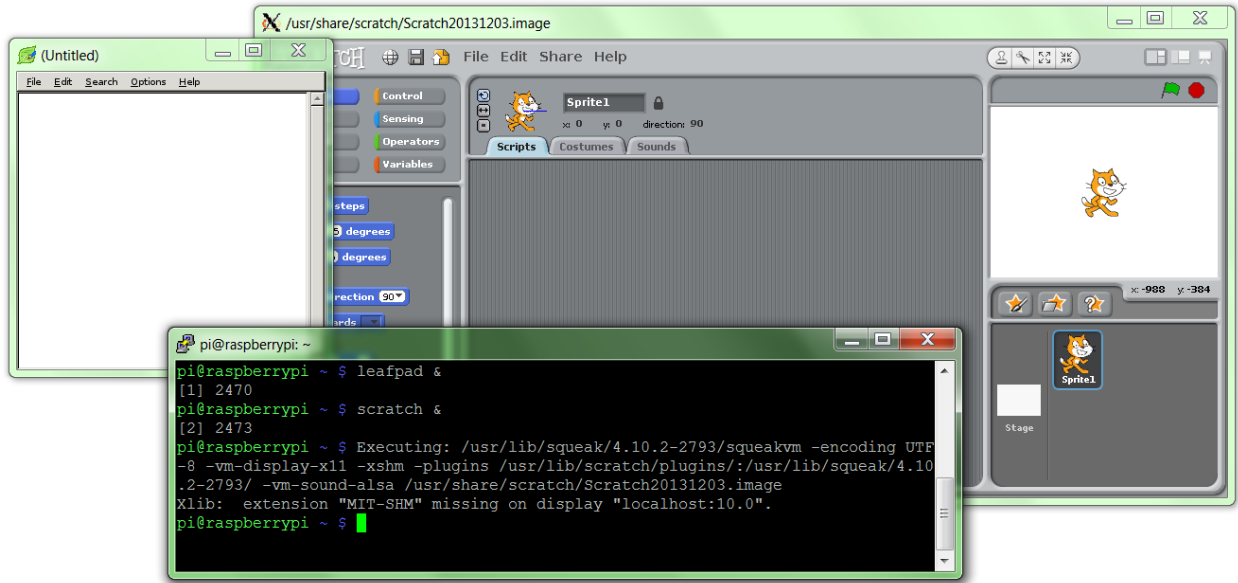
- P1** 13x2 GPIO Pins
- P5** 8x2 GPIO Pins
- P2/P3** GPU/LAN JTAG
- P6** Reset
- S5** Direct Camera CSI
- S2** Direct Display DSI











## Chapter 2

```
pi@raspberrypi: ~/chapter2
File Edit Tabs Help
pi@raspberrypi ~/chapter2 $ nano -c hellopi.py
pi@raspberrypi ~/chapter2 $ python3 hellopi.py
Hello Raspberry Pi
pi@raspberrypi ~/chapter2 $
```

```
pi@raspberrypi: ~/chapter2
File Edit Tabs Help
GNU nano 2.2.6 File: hellopi.py
#!/usr/bin/python
#hellopi.py
print ("Hello Raspberry Pi")
[ line 1/4 (25%), col 1/18 (5%), char 0/60 (0%) ]
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

```
#!/usr/bin/python
#hellopi .py
print ("Hello Raspberry Pi")
```

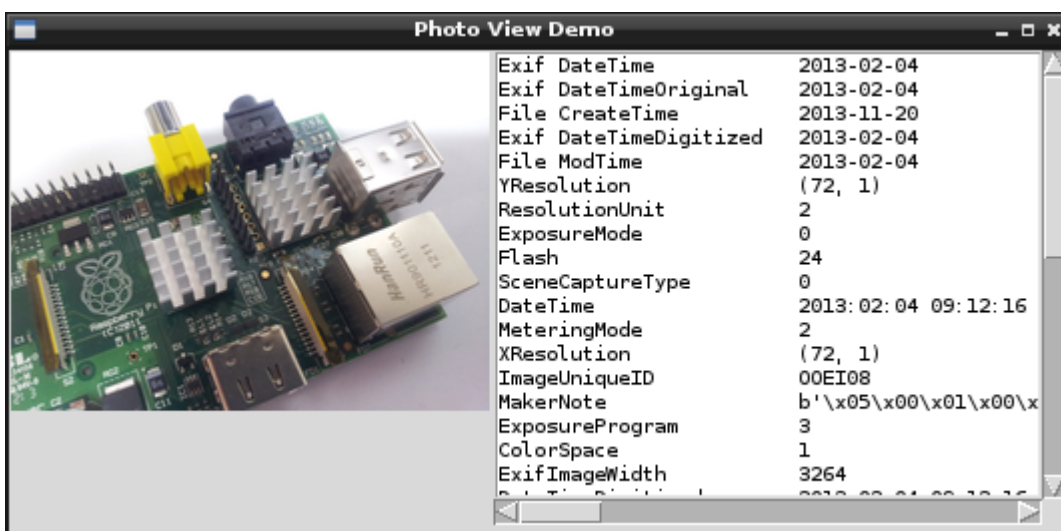
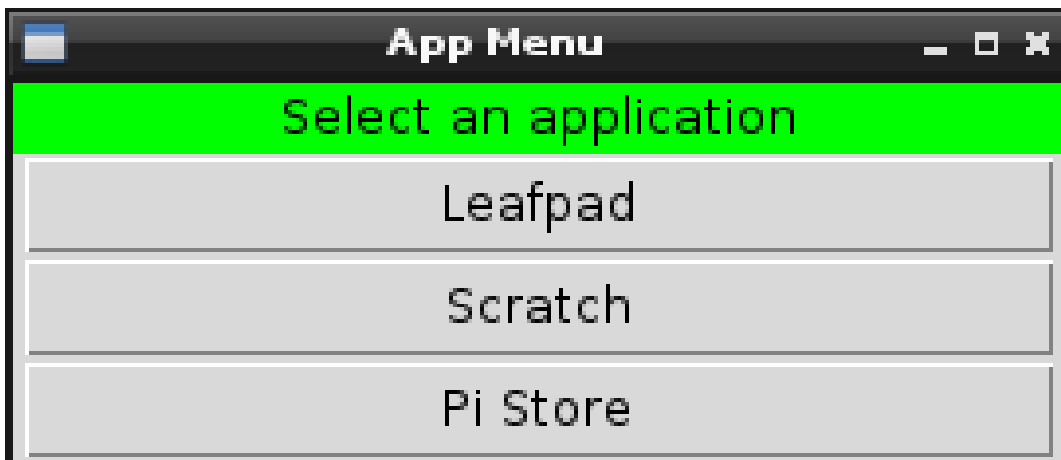
Ln: 4 Col: 0

```
1  #!/usr/bin/python
2  #hellopi .py
3  print ("Hello Raspberry Pi")
4
```

line: 3 / 4 col: 28 sel: 0 INS TAB mode: Unix (LF) encoding: UTF-8 filetype: Python scope: unknown

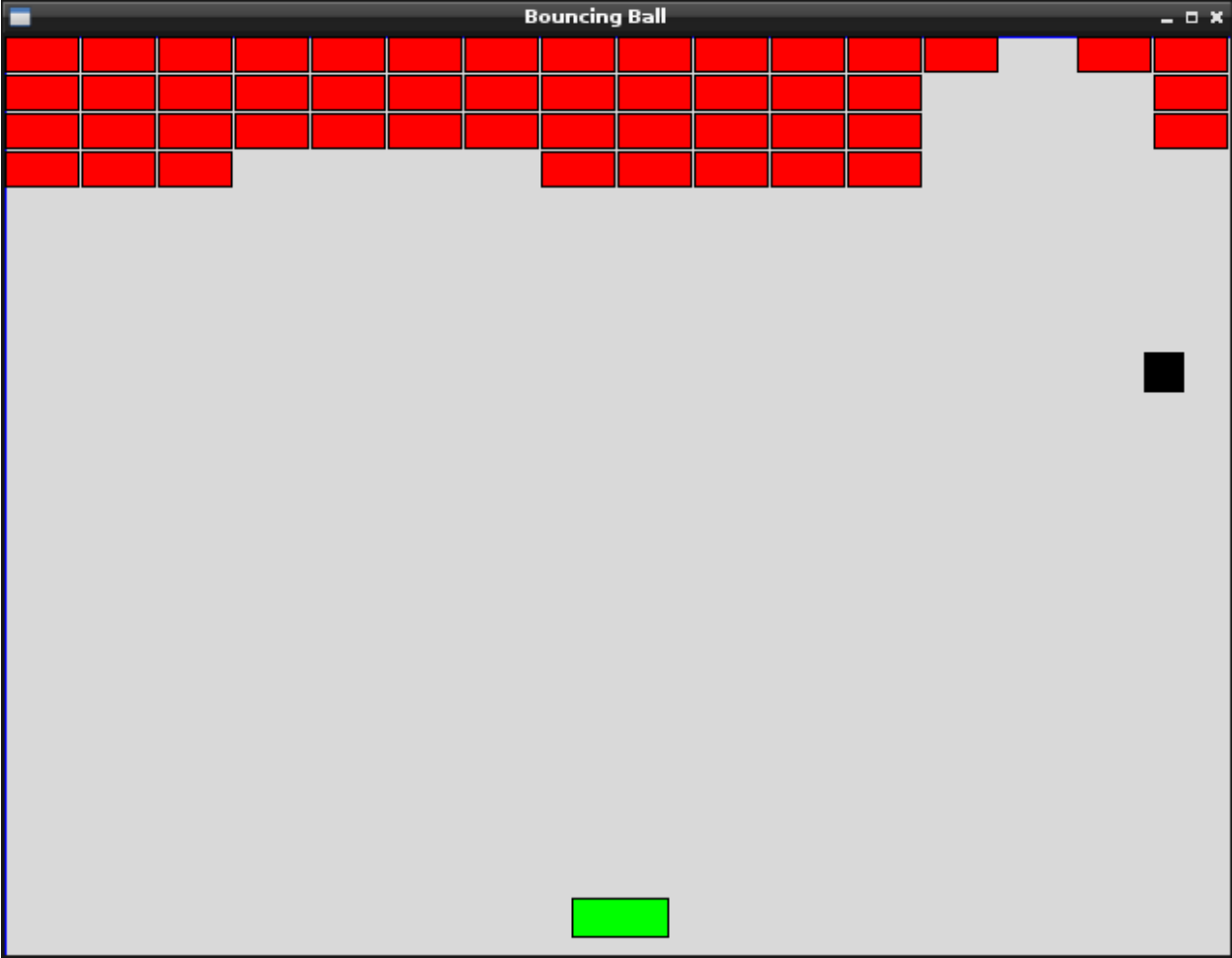


## Chapter 3

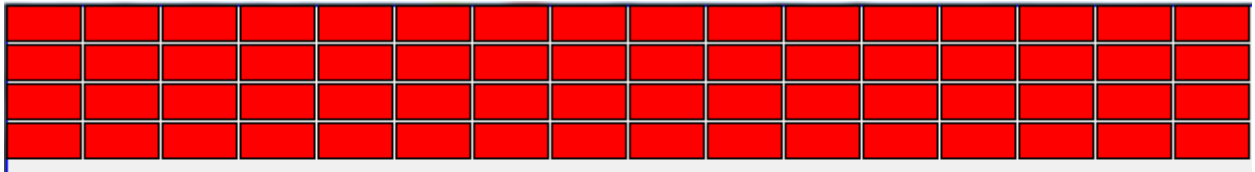
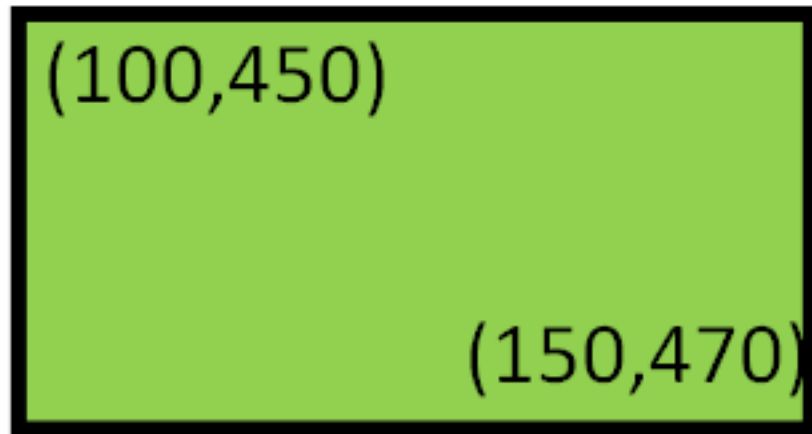


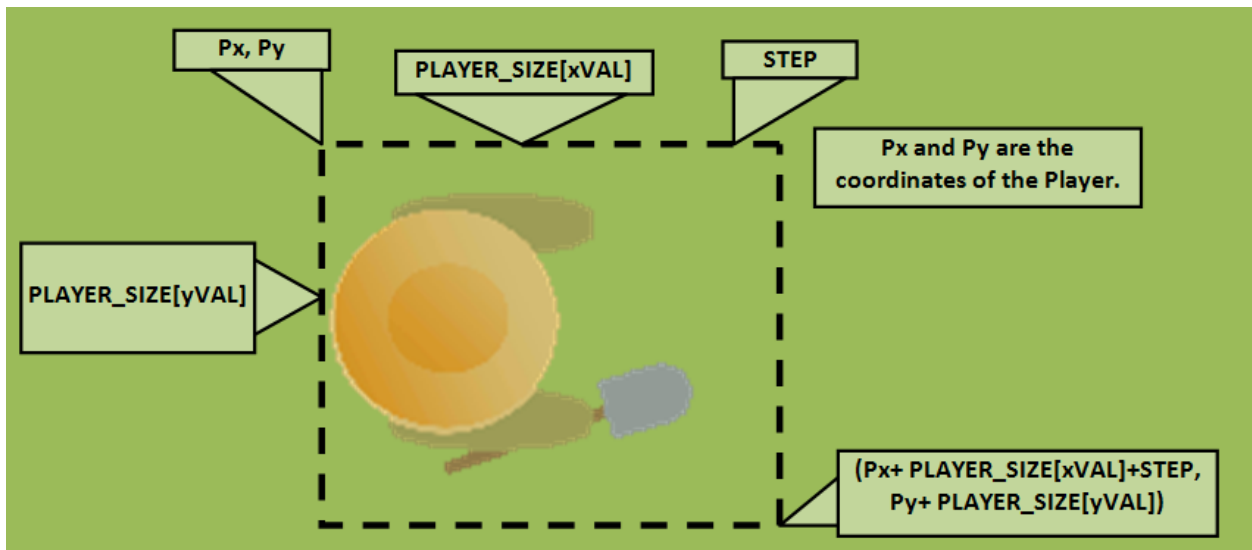


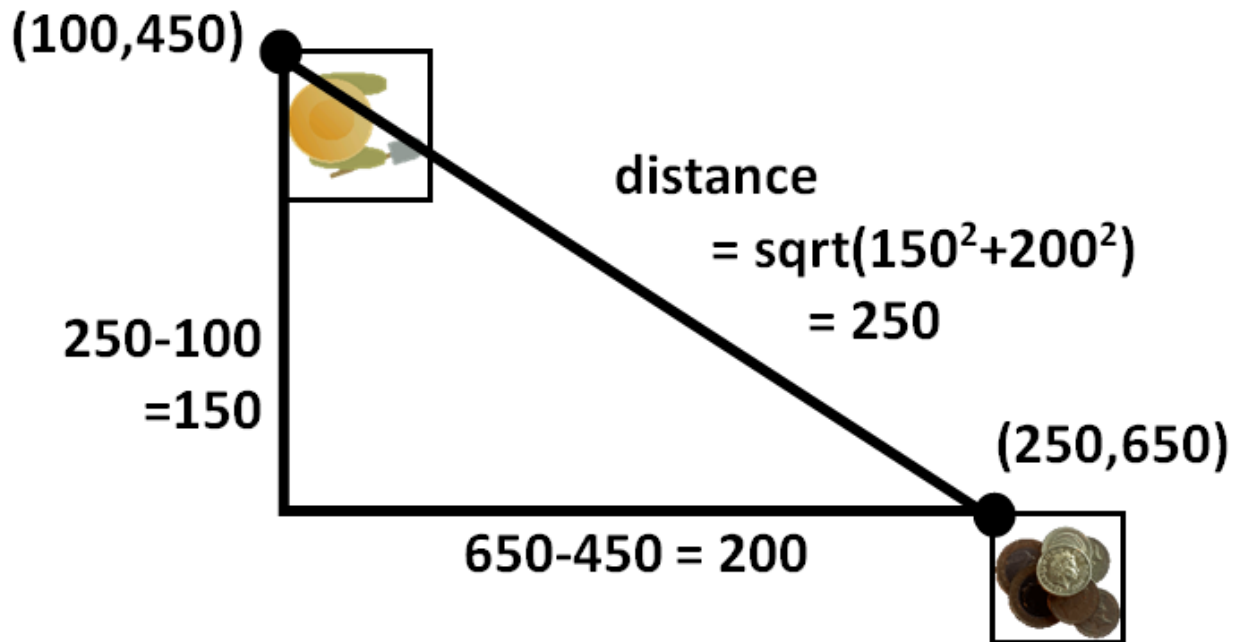
# Chapter 4



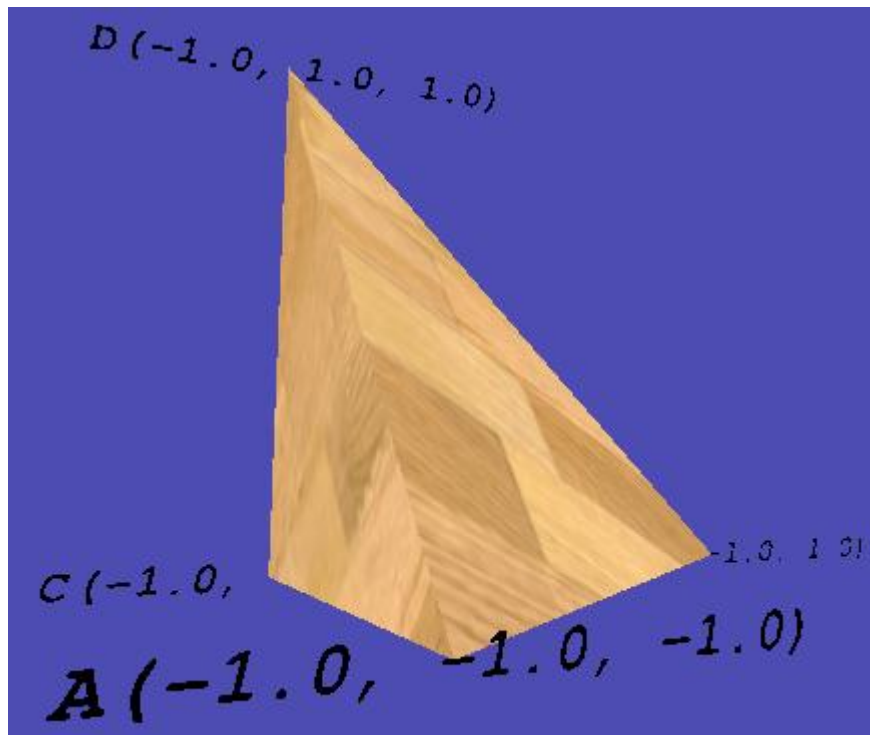
(x,y)

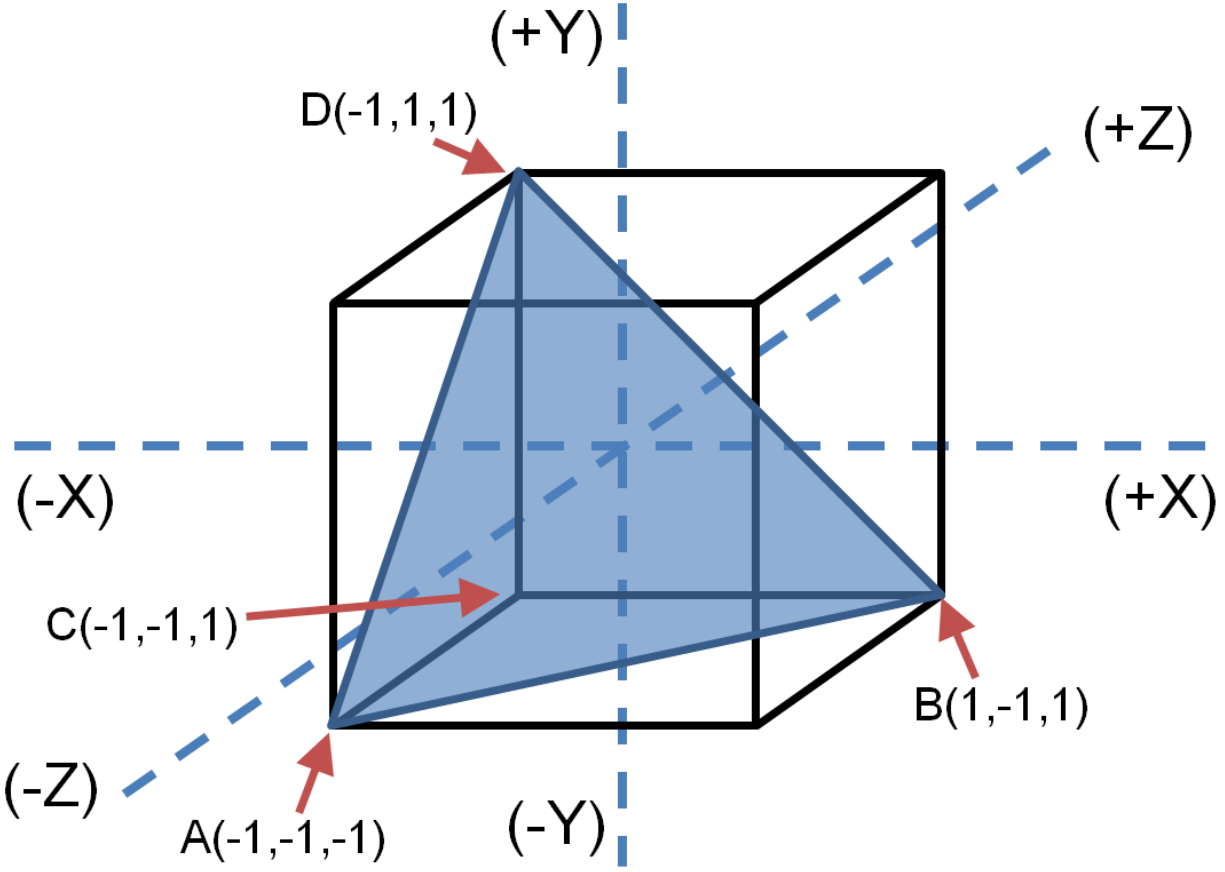




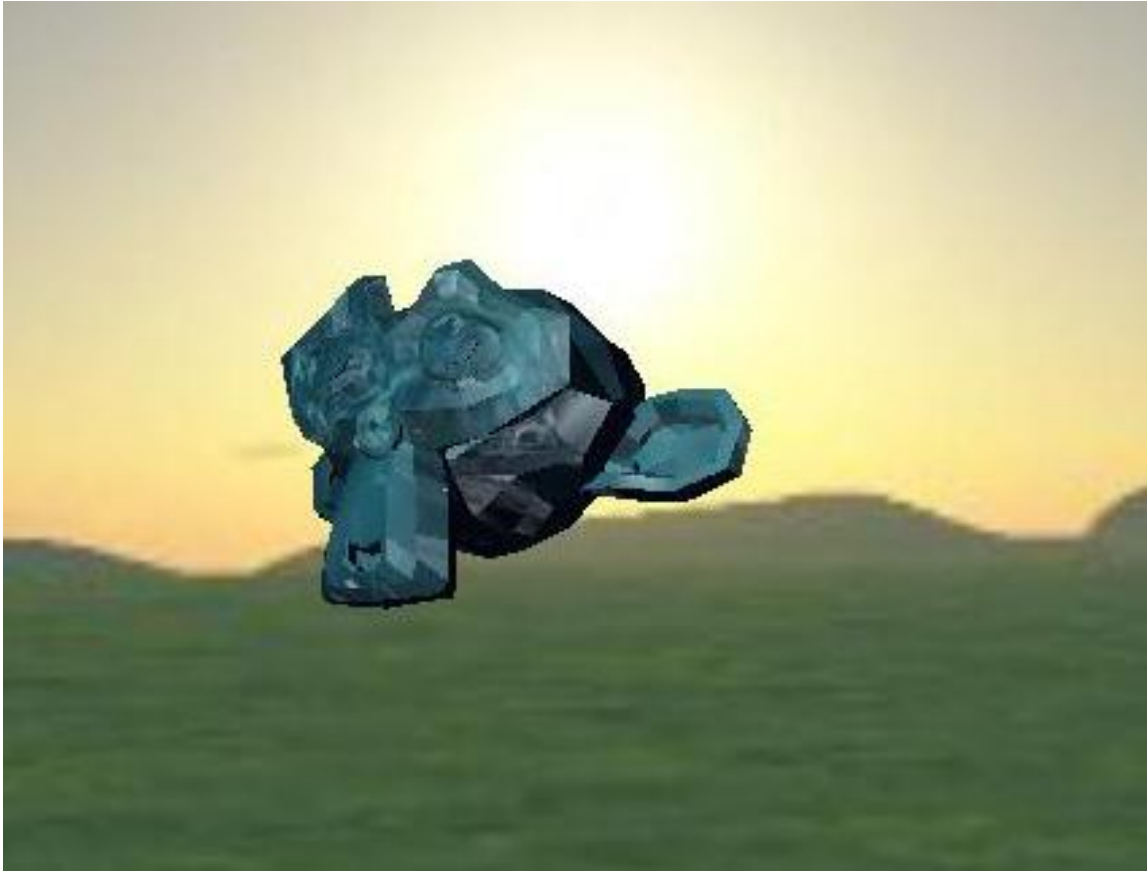


## Chapter 5

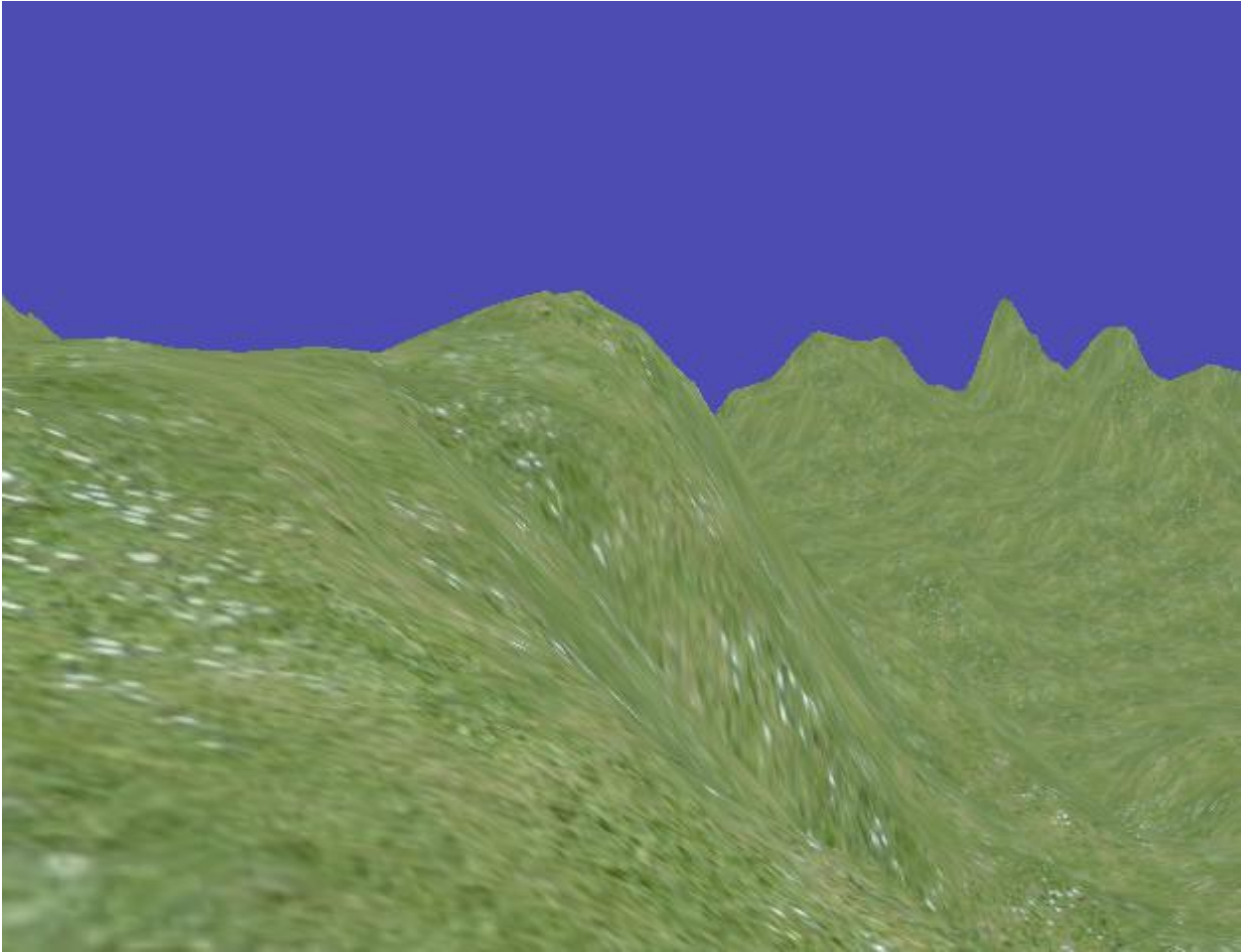


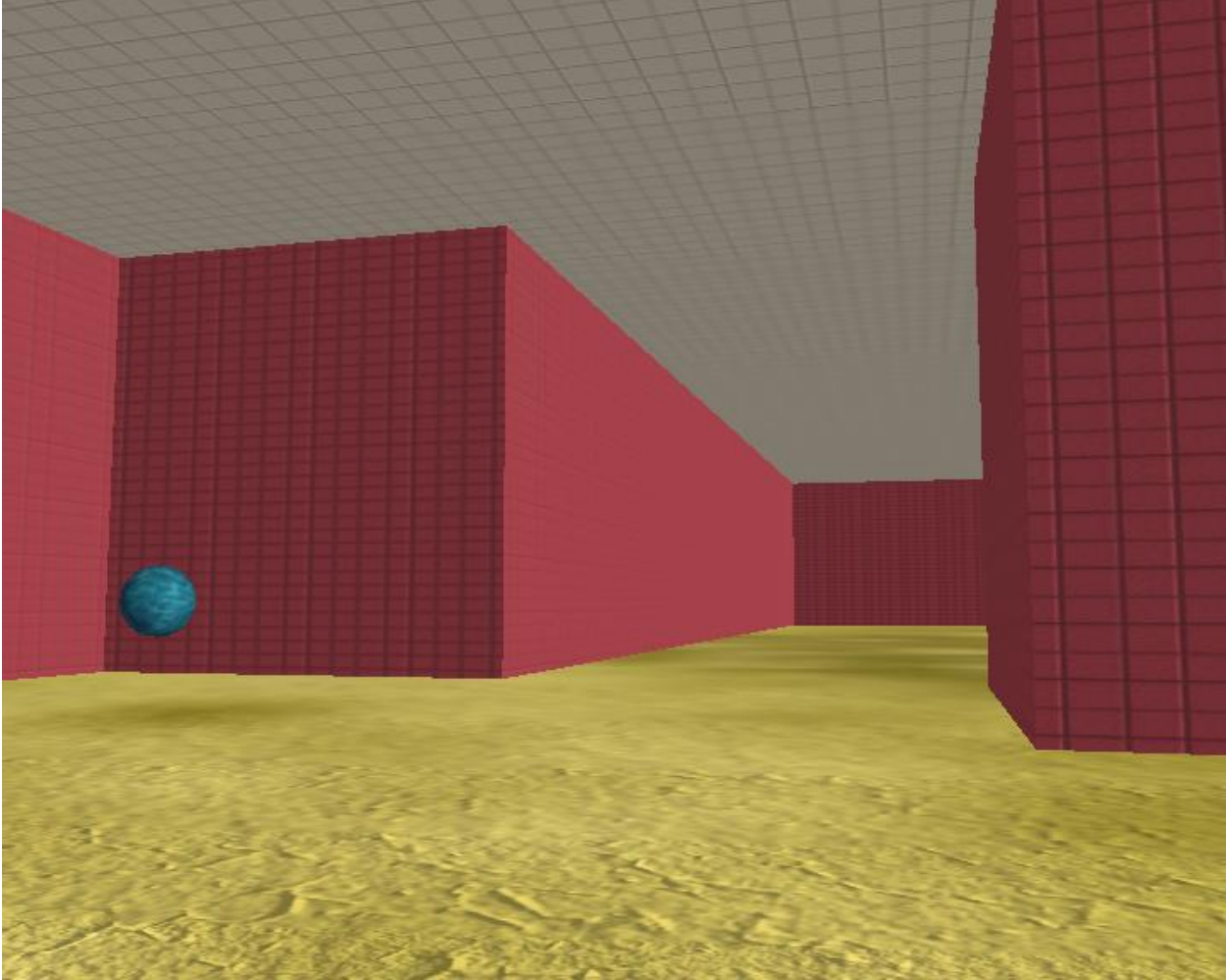


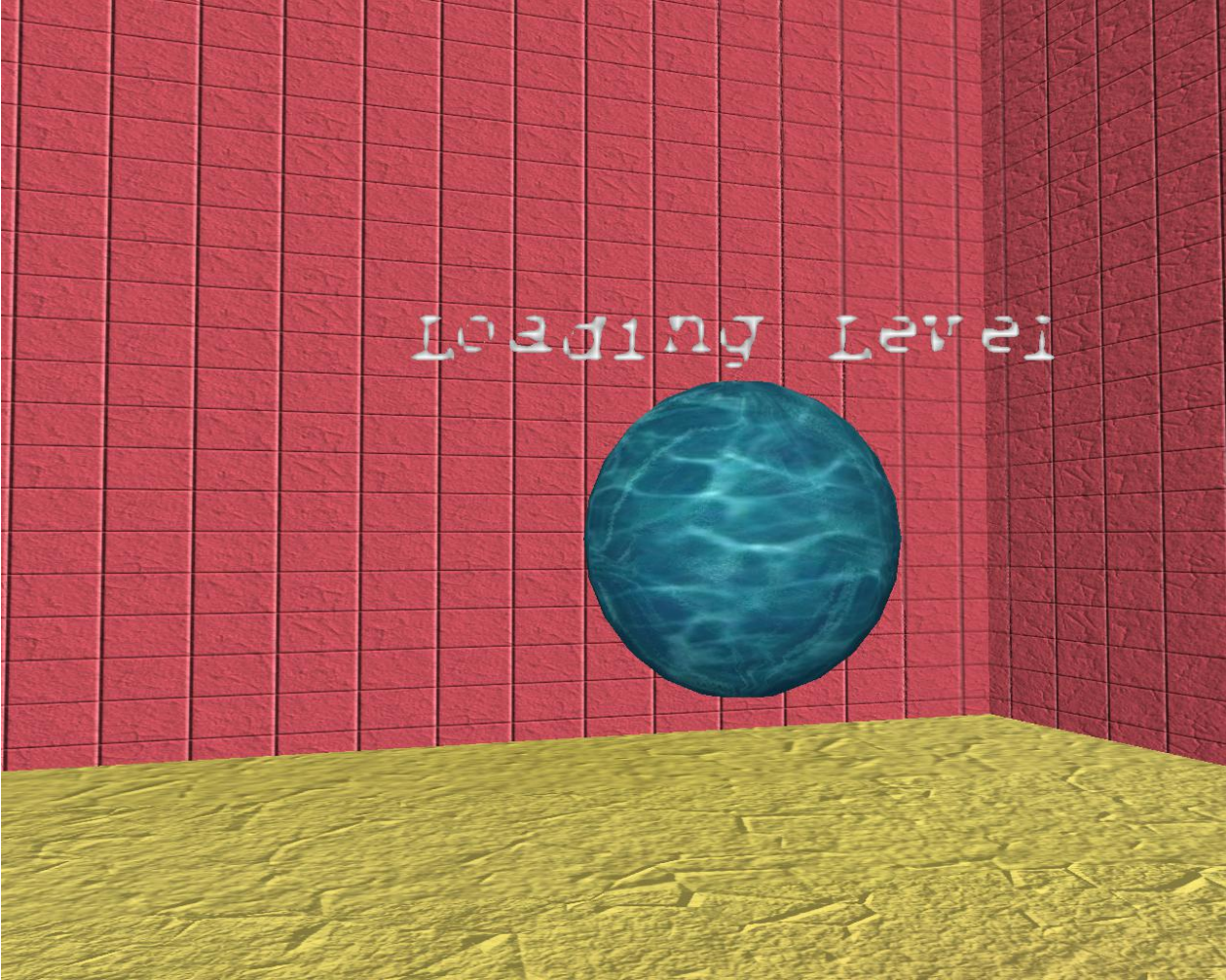




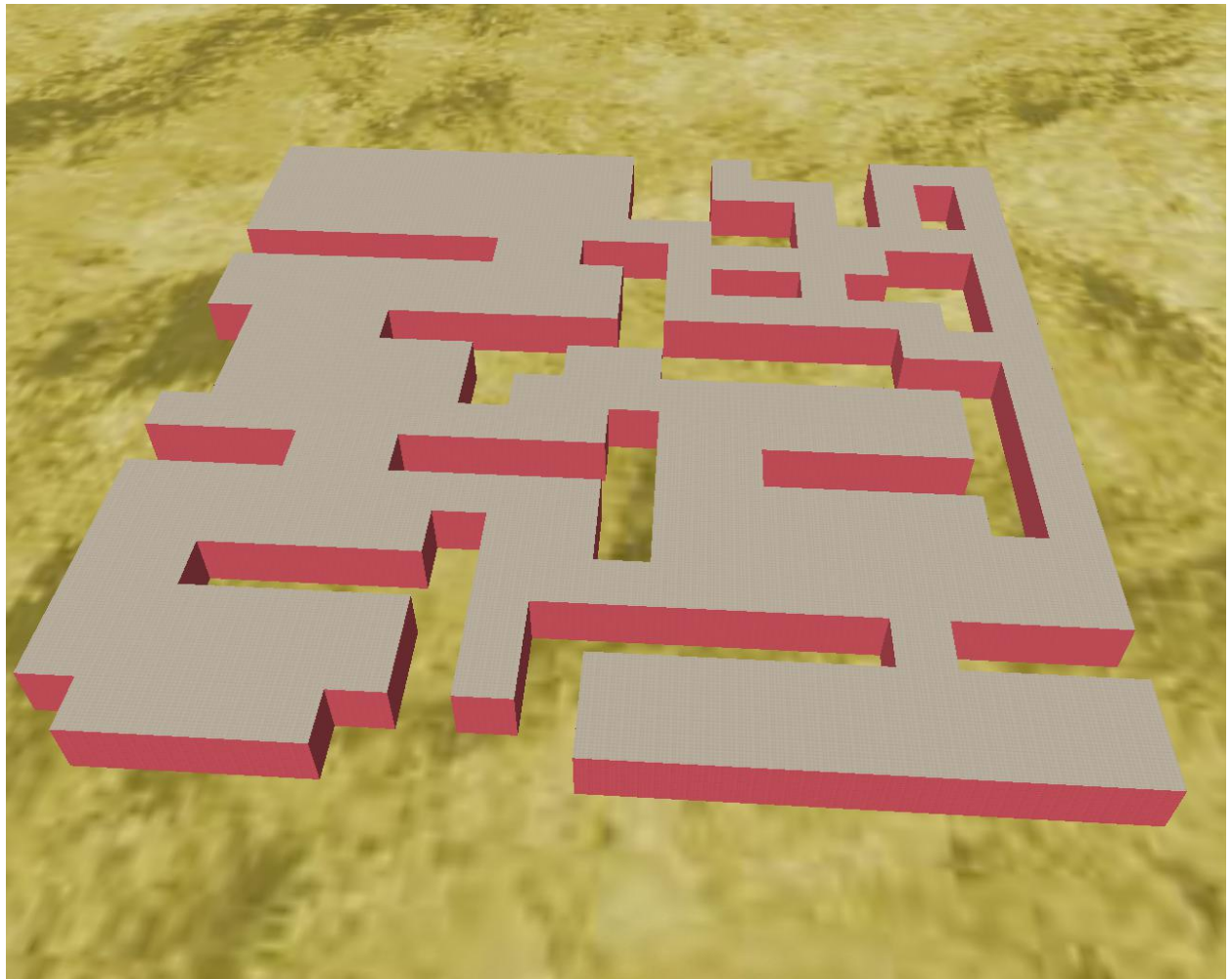


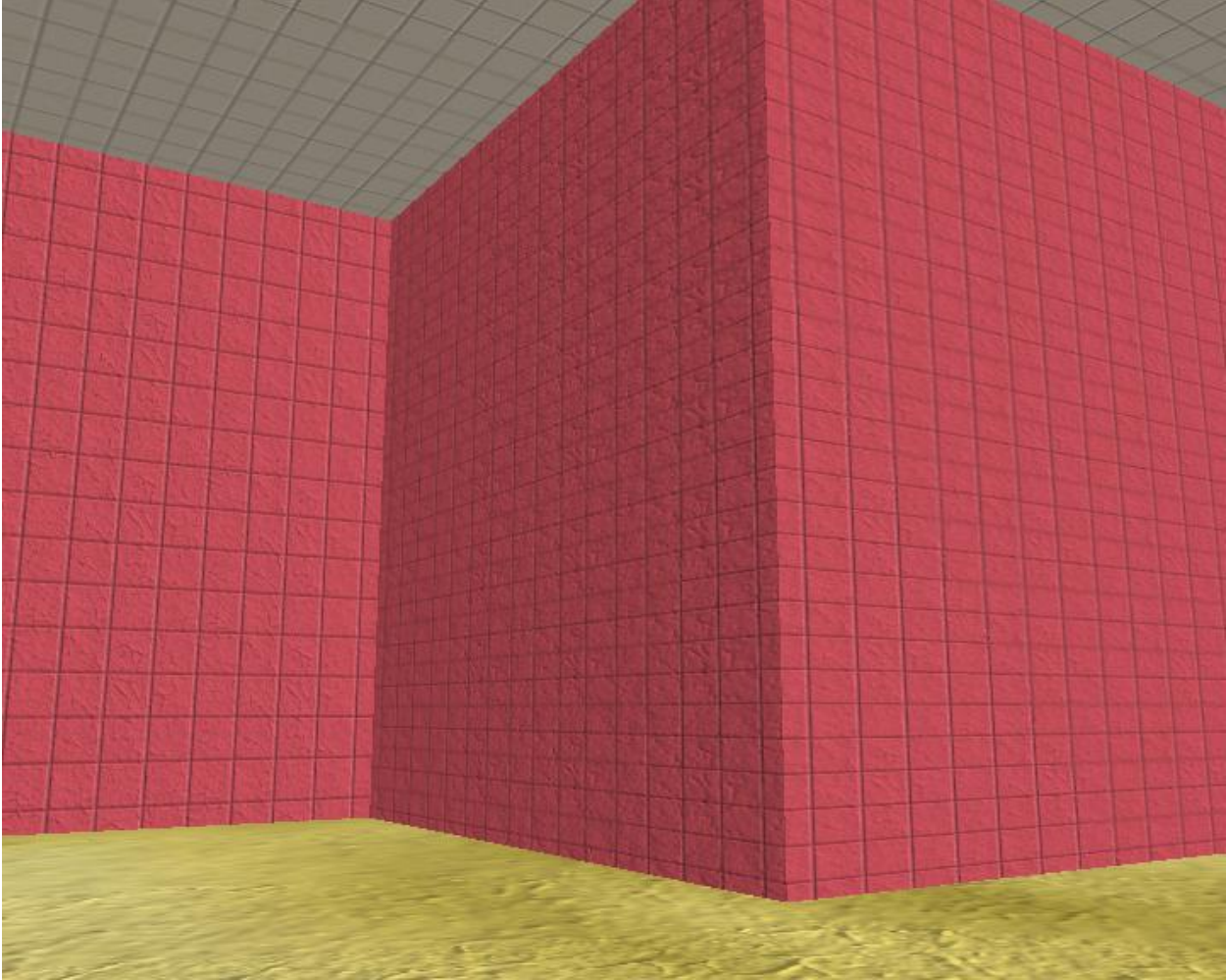




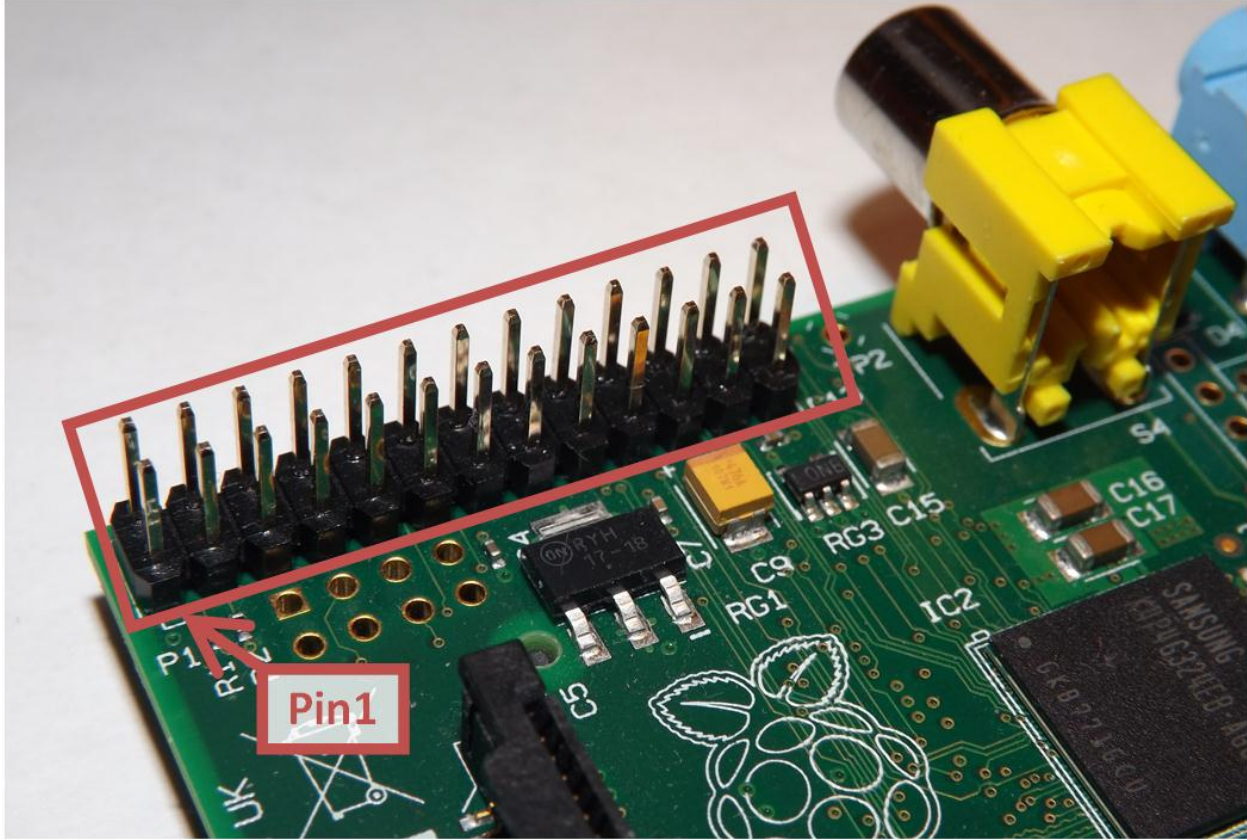






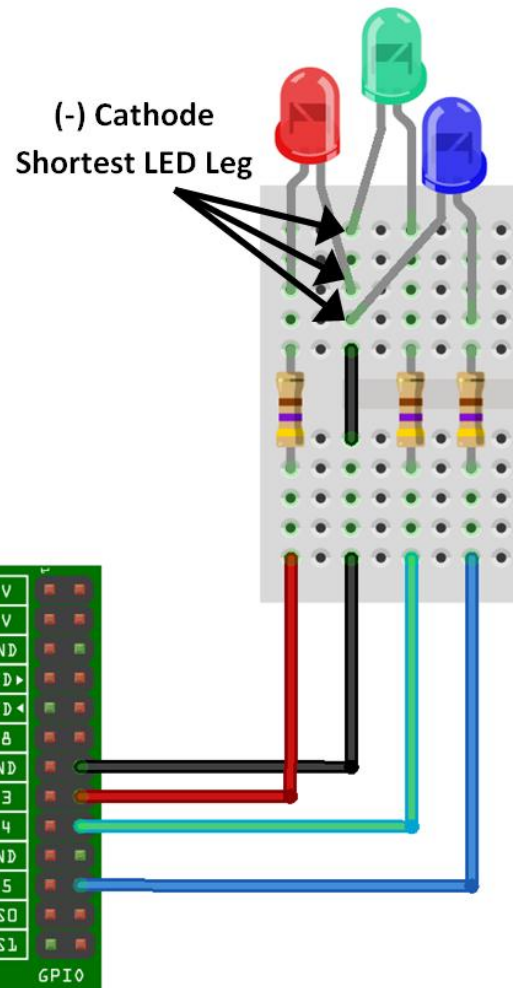
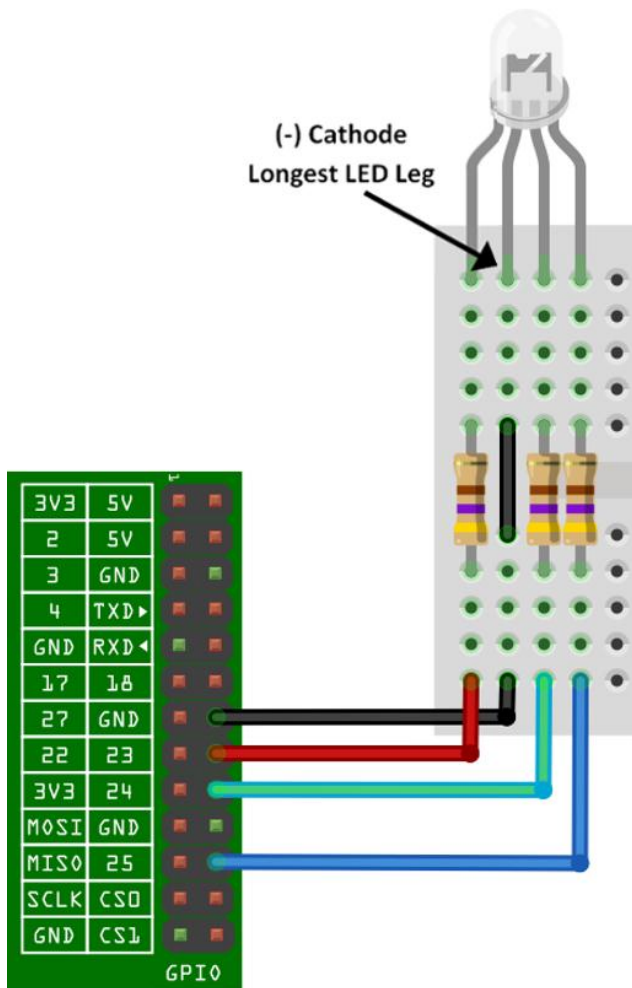
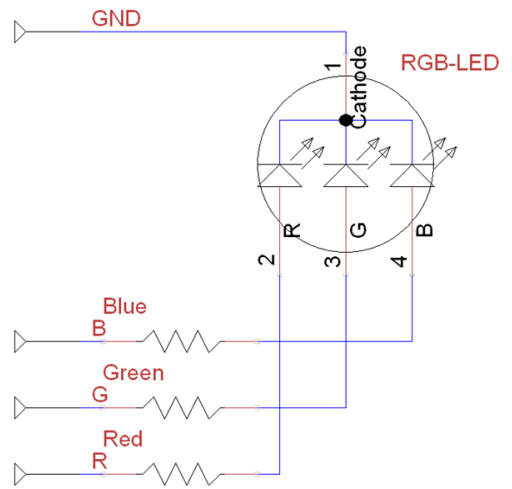
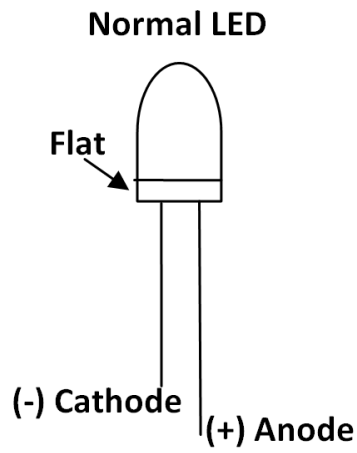
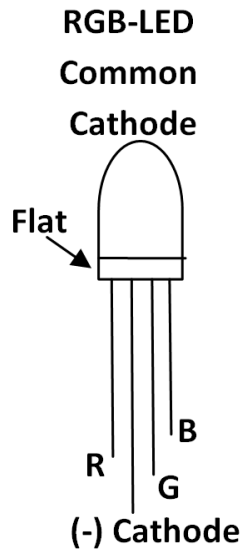


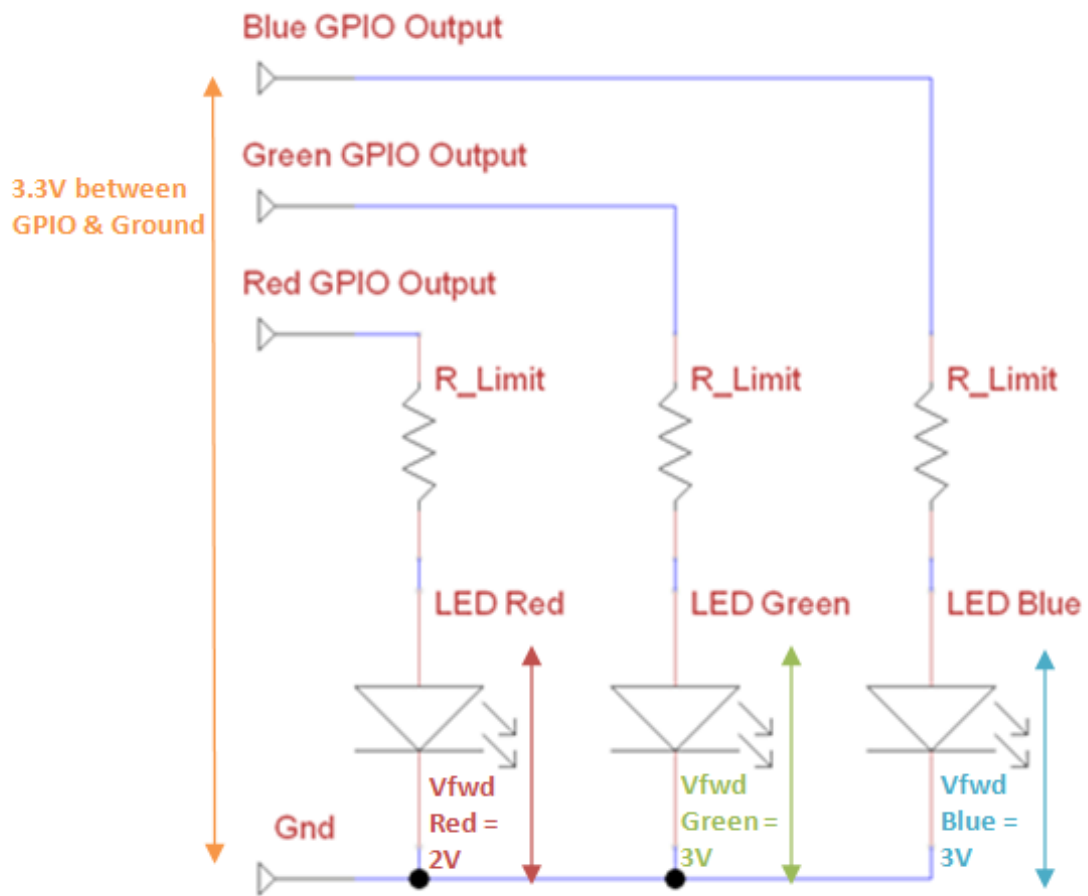
Chapter 6

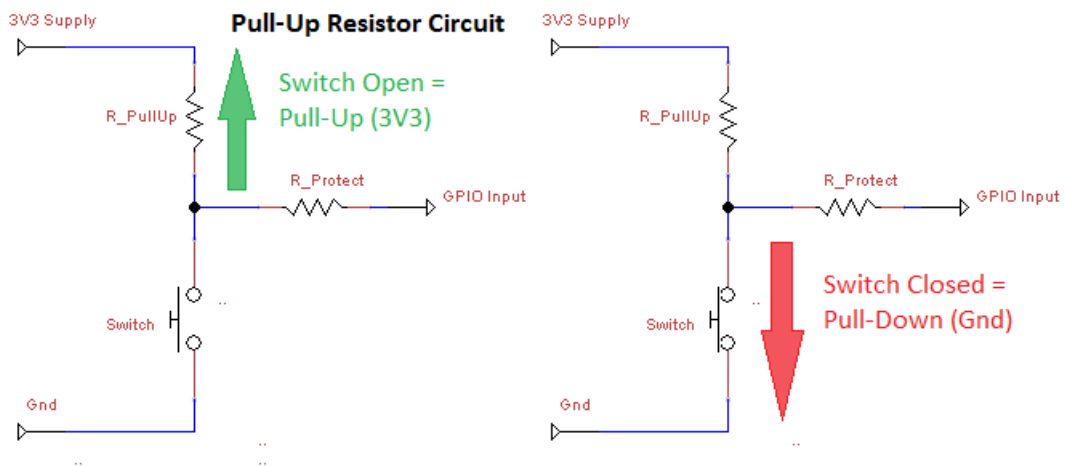
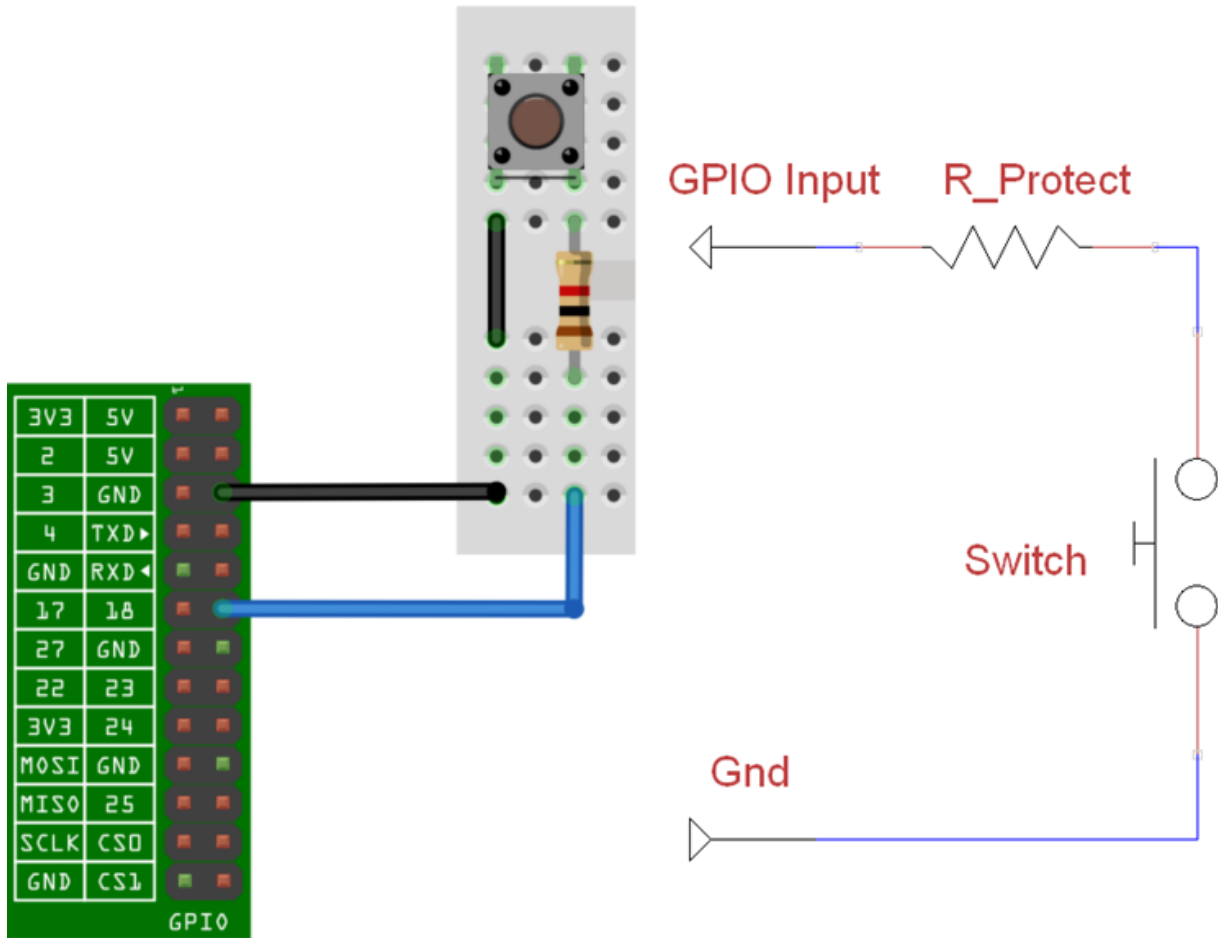


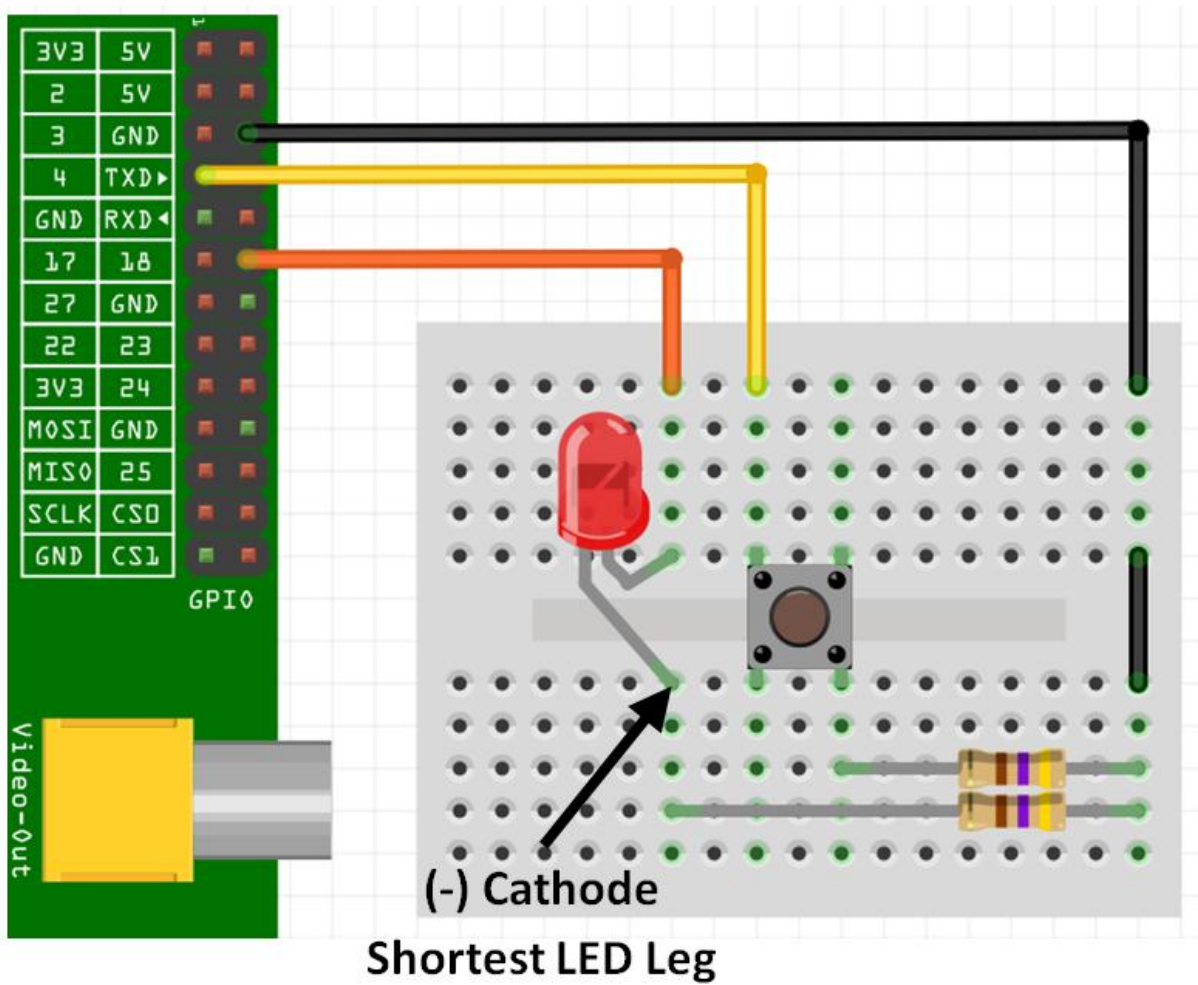
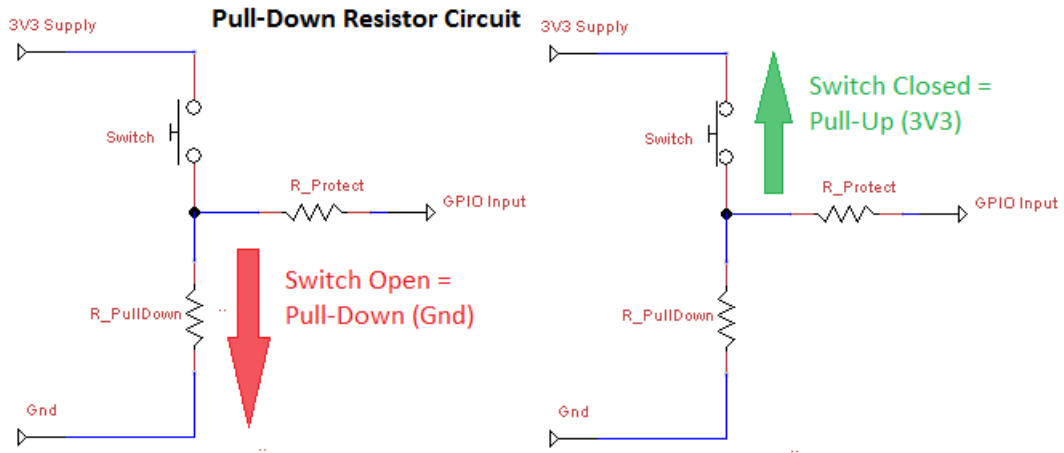
GPIO.BCM (Rev1/2)		P1		GPIO.BCM	
		GPIO.BOARD			
<50mA	3V3	1	2	5V	
BCM GPIO00/02	SDA0/1	3	4	5V	
BCM GPIO01/03	SCL0/1	5	6	GND	
BCM GPIO04		7	8	TX	BCM GPIO14
	GND	9	10	RX	BCM GPIO15
BCM GPIO17		11	12	PWM0	BCM GPIO18
BCM GPIO21/27		13	14	GND	
BCM GPIO22		15	16		BCM GPIO23
<50mA	3v3	17	18		BCM GPIO24
BCM GPIO10	SPIMOSI	19	20	GND	
BCM GPIO9	SPIMISO	21	22		BCM GPIO25
BCM GPIO11	SPI SCLK	23	24	SPI CE0 N	BCM GPIO08
	GND	25	26	SPI CE1 N	BCM GPIO07
GPIO.BCM		P5		GPIO.BCM	
<50mA	3V3	2	1	5V	
BCM GPIO29	SCL0	4	3	SDA0	BCM GPIO28
BCM GPIO31		6	5		BCM GPIO30
	GND	8	7	GND	

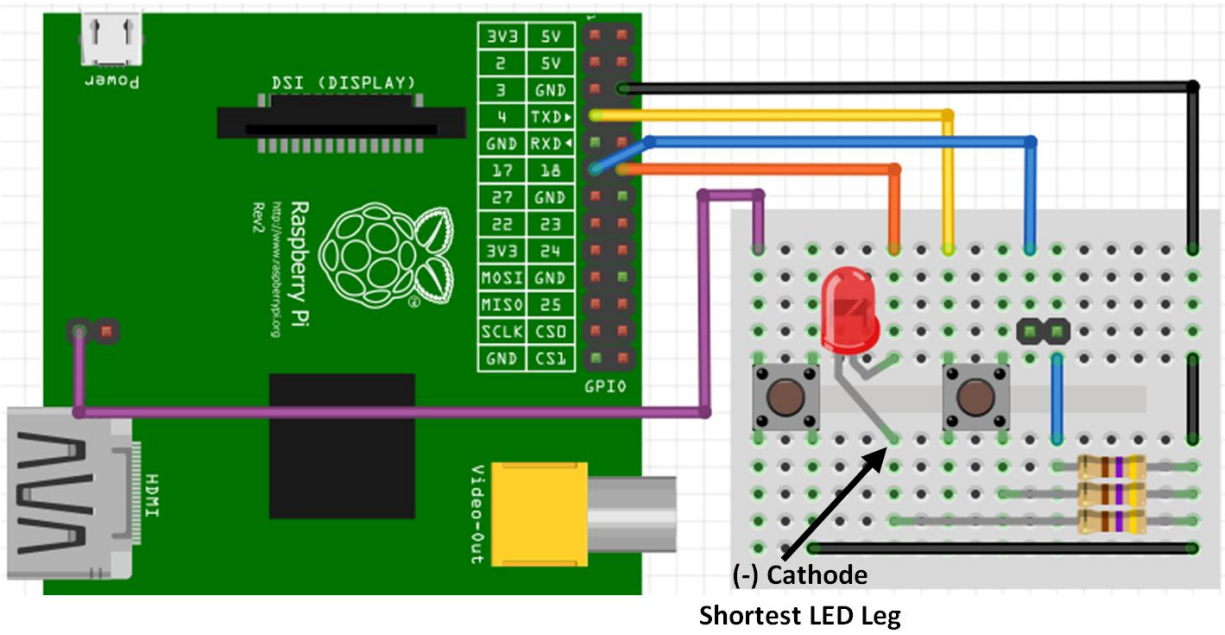
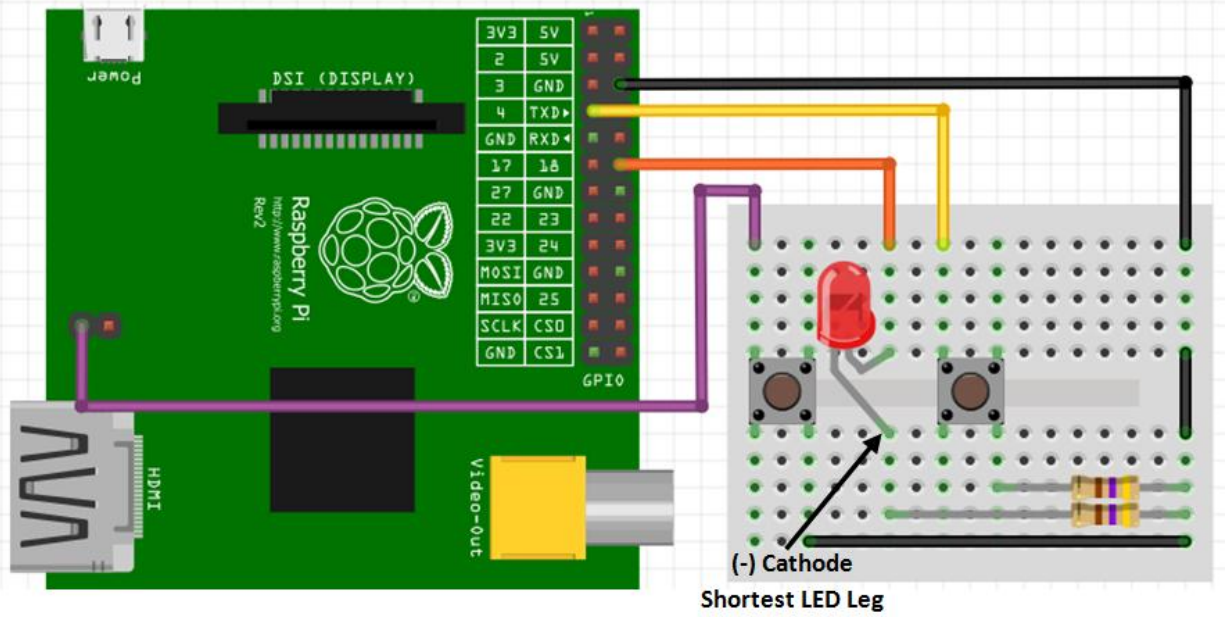


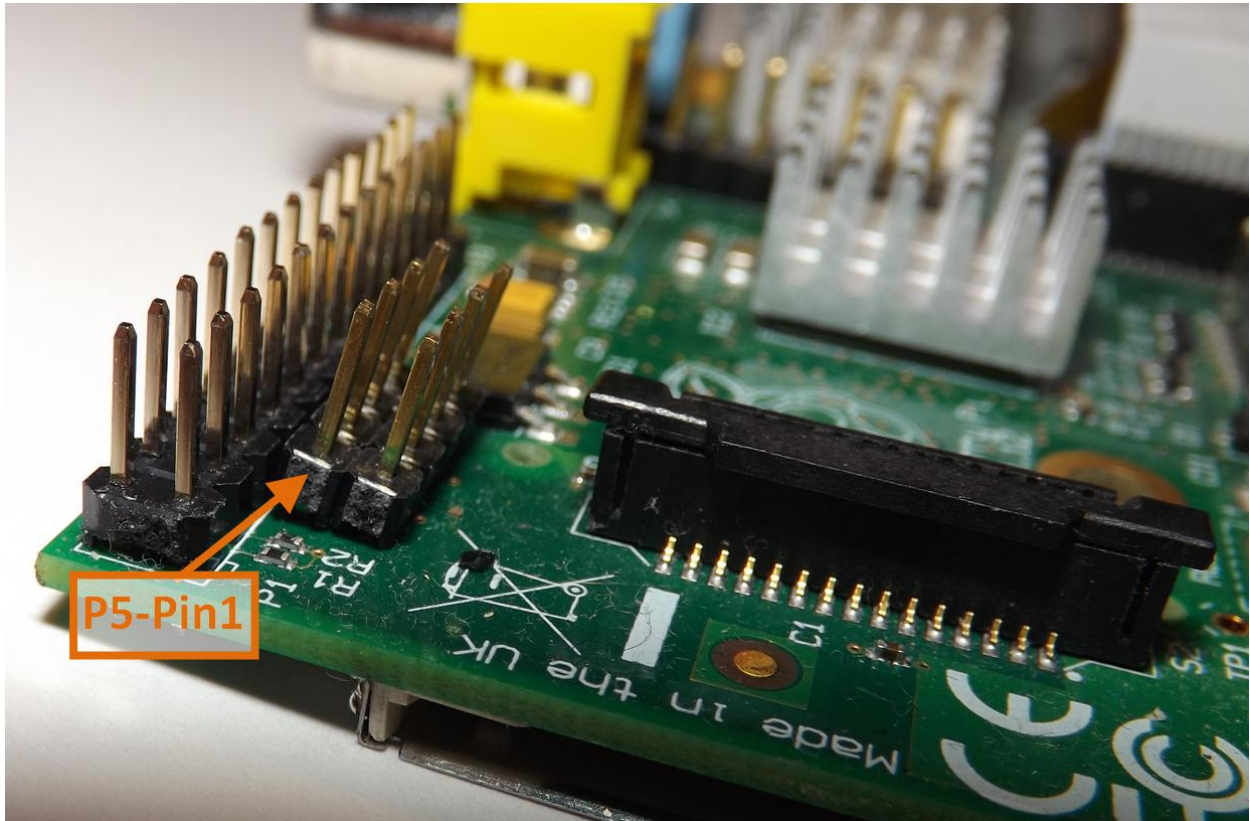






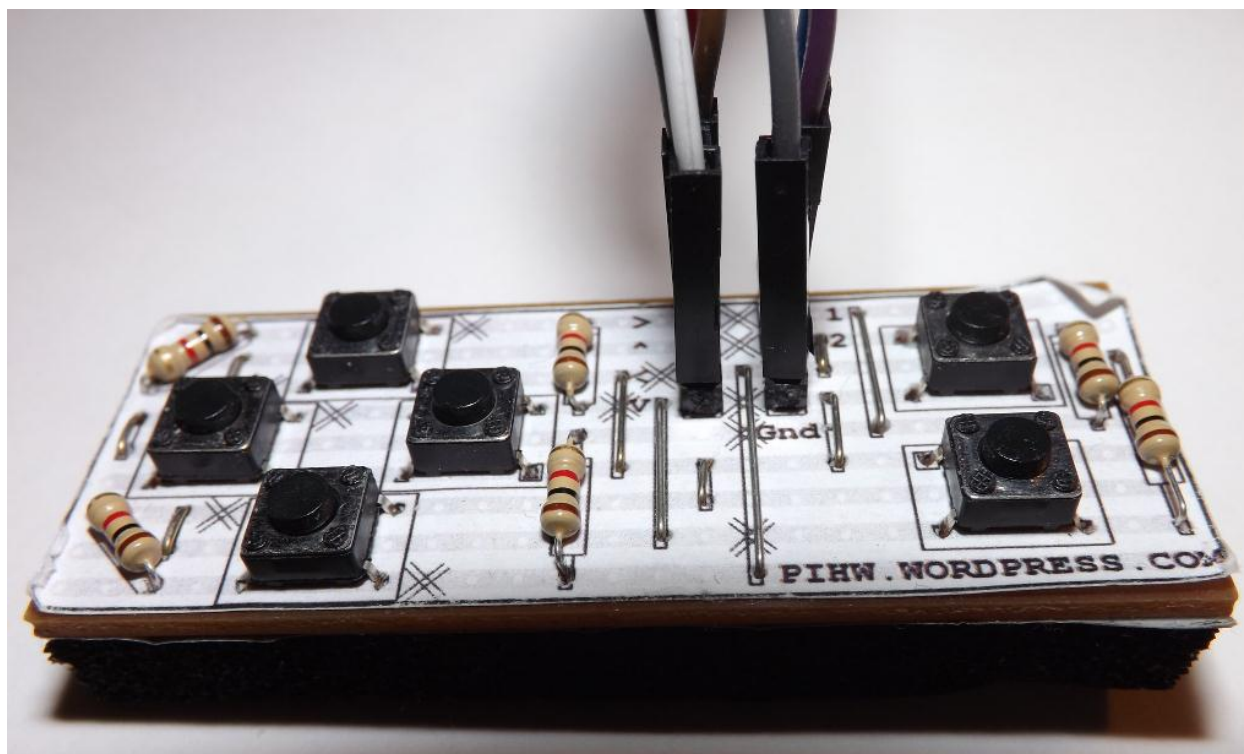
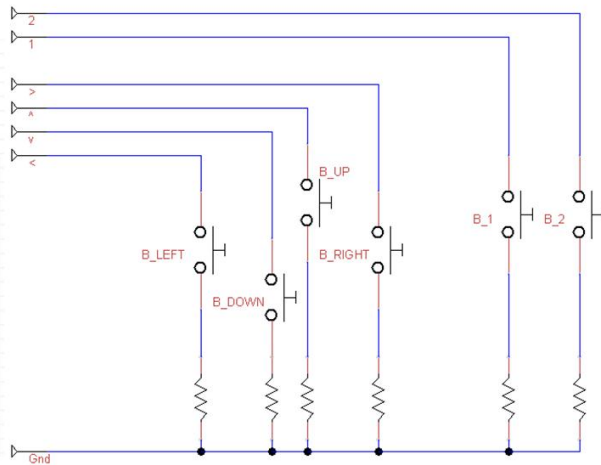
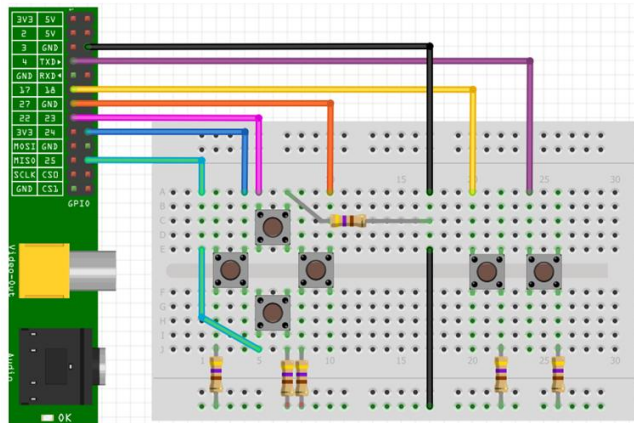




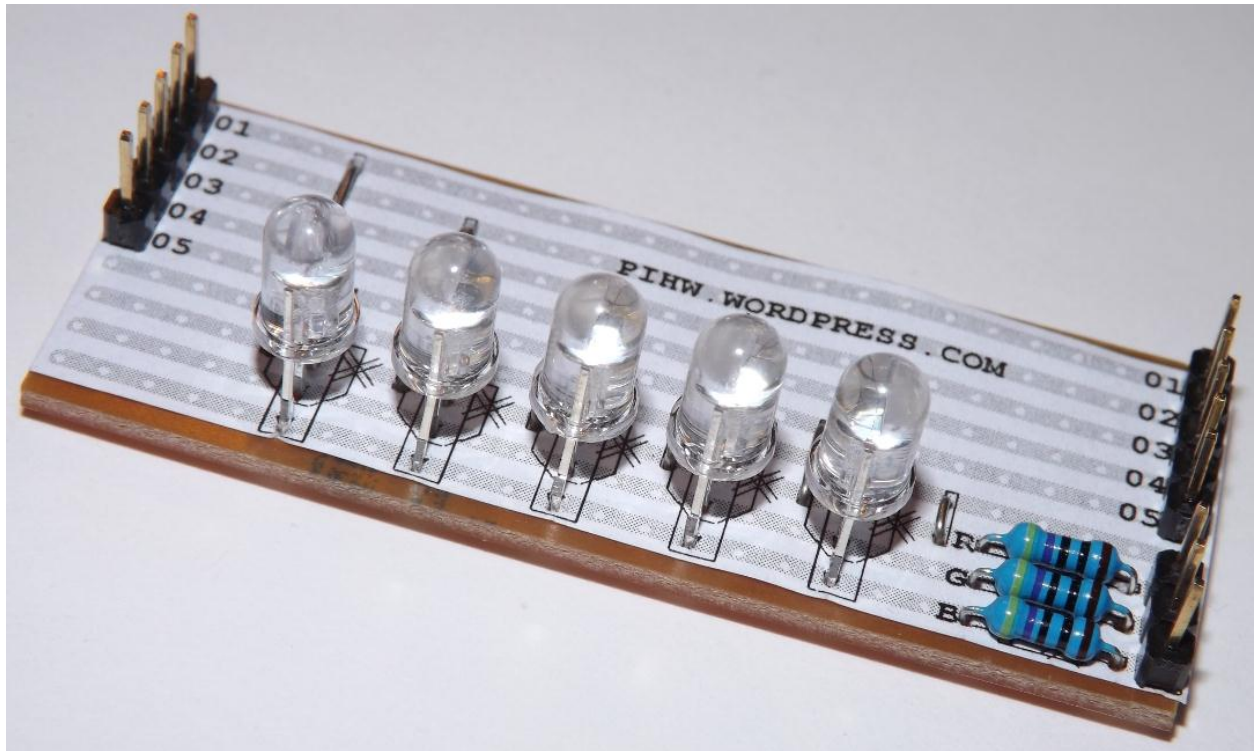


GPIO.BCM		P5		GPIO.BCM	
<50mA	3V3	2	1	5V	
BCM GPIO29	SCL0	4	3	SDA0	BCM GPIO28
BCM GPIO31		6	5		BCM GPIO30
	GND	8	7	GND	





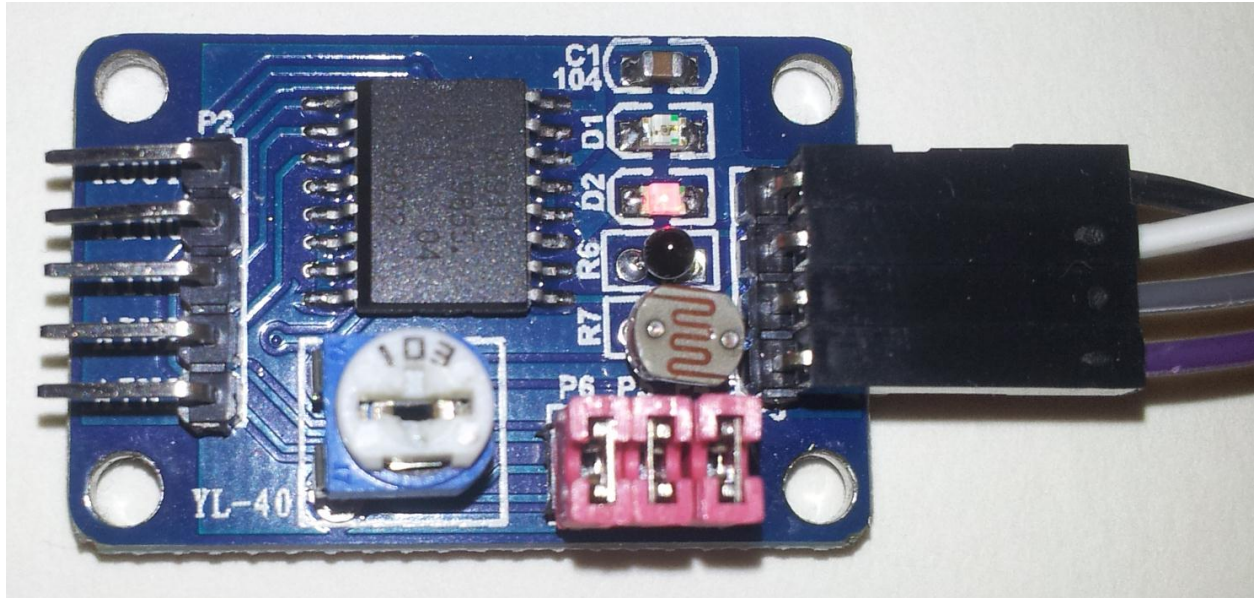




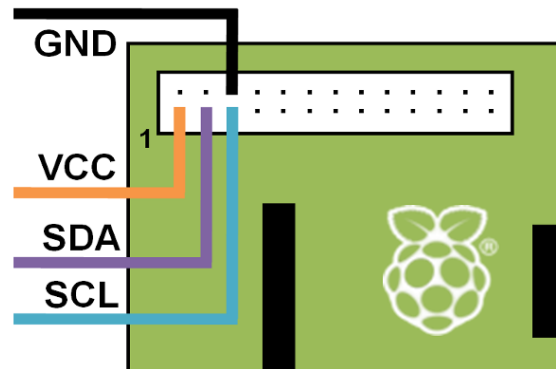
Red Green Blue	000	001	010	011	100	101	110	111
LED State	OFF	Blue	Green	Cyan	Red	Magenta	Yellow	White

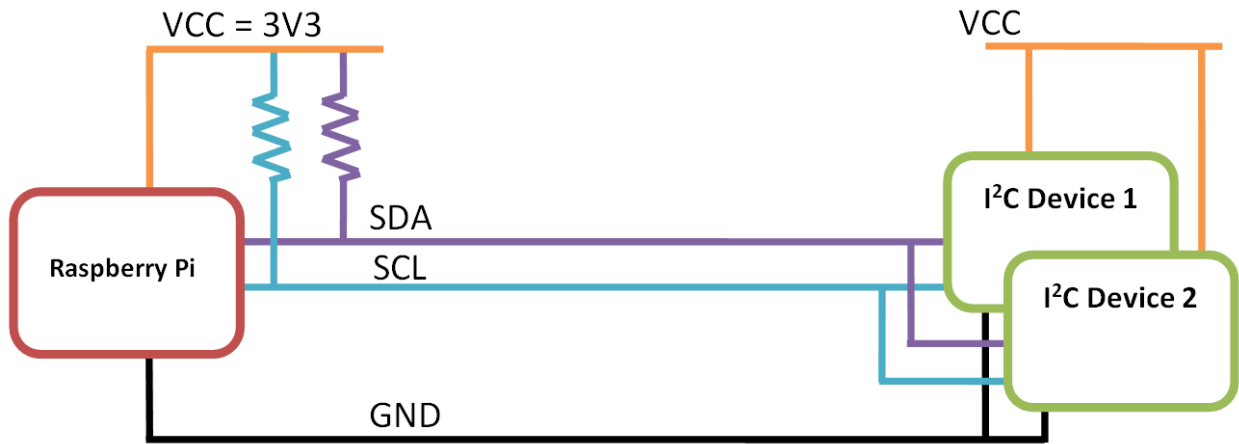


## Chapter 7

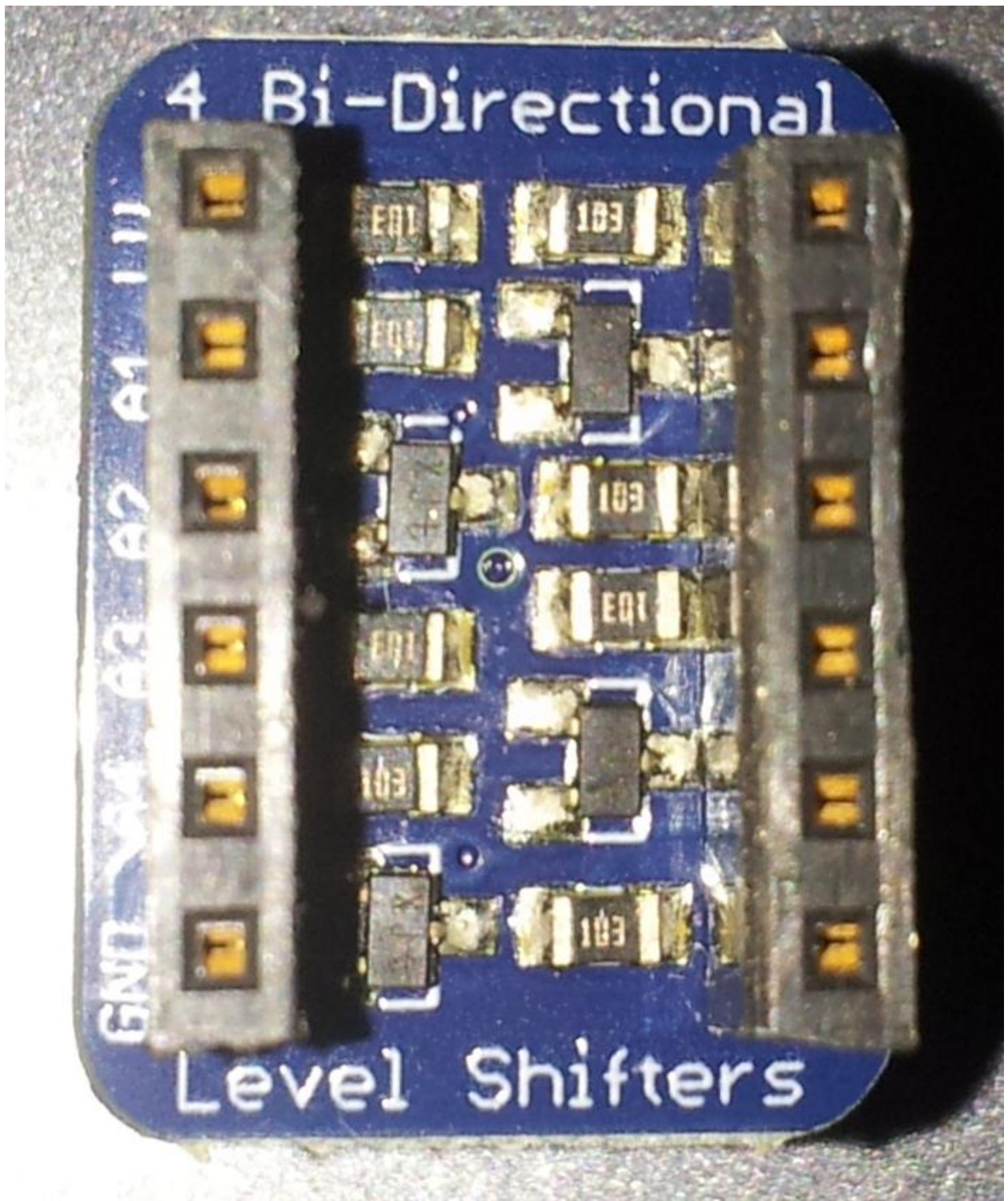


I <sup>2</sup> C Device	Raspberry Pi P1		I <sup>2</sup> C Device
VCC	1	2	
SDA	3	4	
SCL	5	6	GND





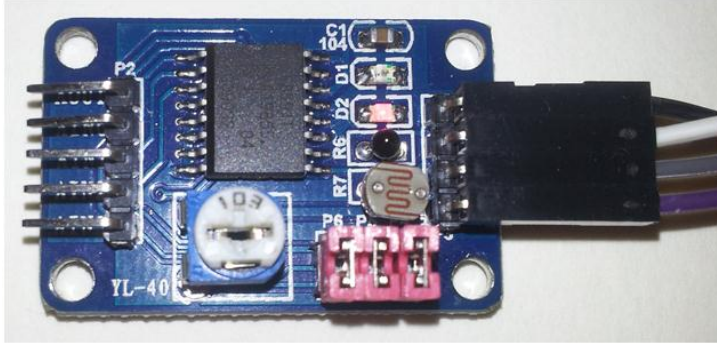




4 Bi-Directional

GND VCC A3 A2 A1 I1

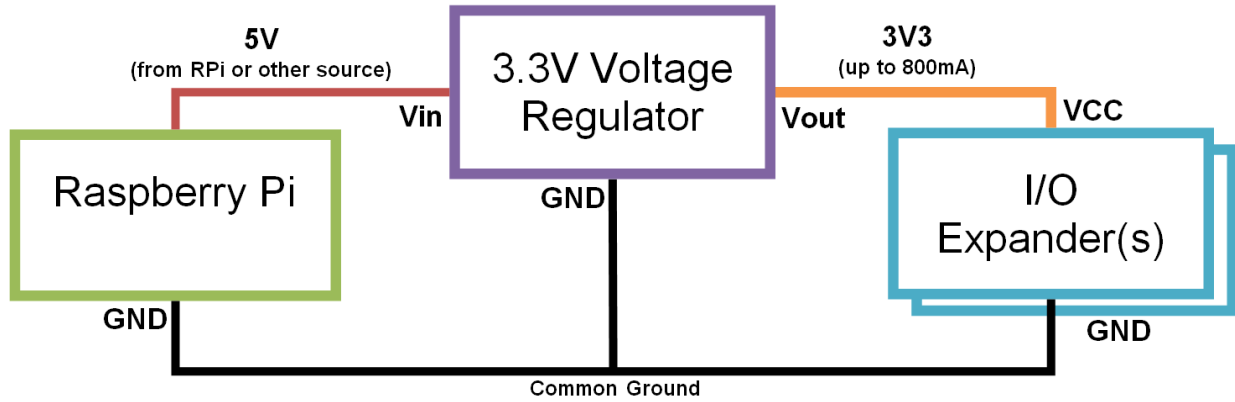
Level Shifters



I <sup>2</sup> C Device	Raspberry Pi P1		I <sup>2</sup> C Device
VCC	1	2	
SDA	3	4	
SCL	5	6	GND

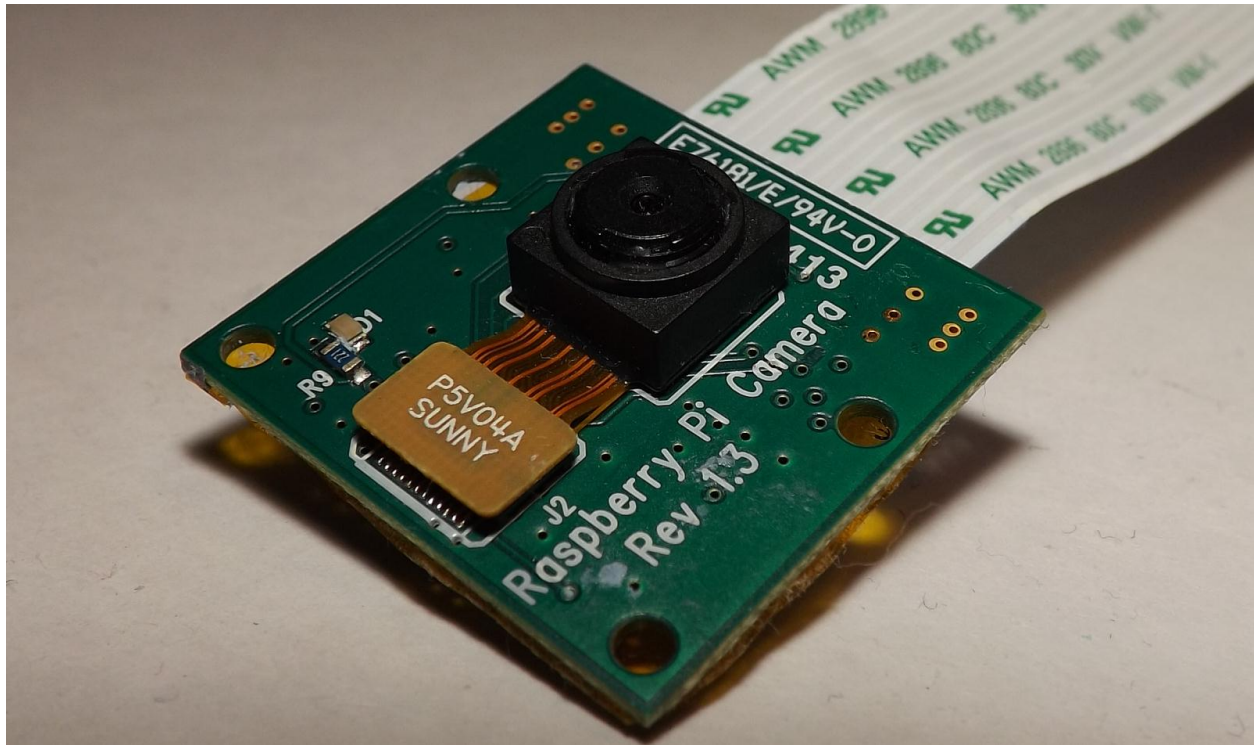






## Chapter 8





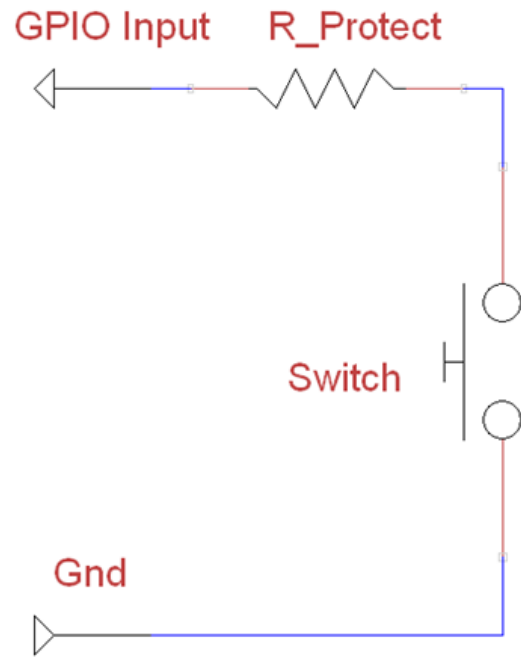
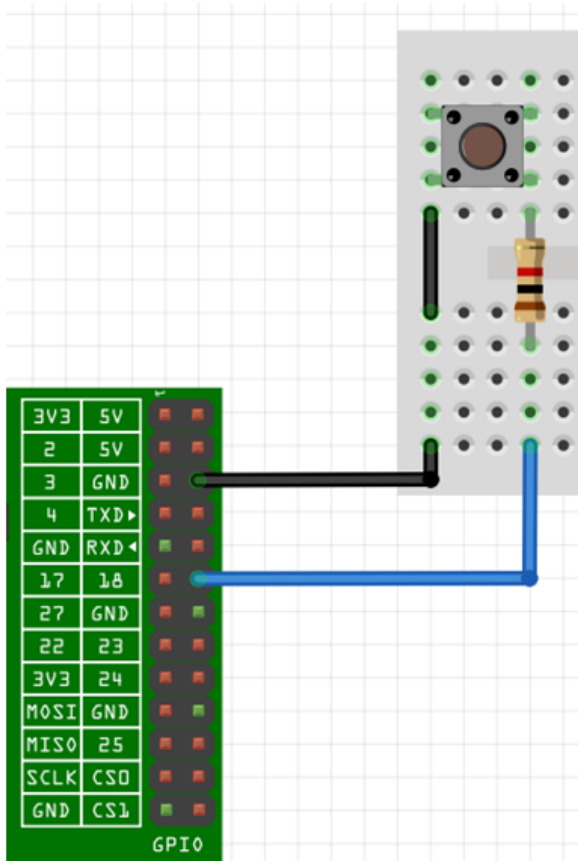
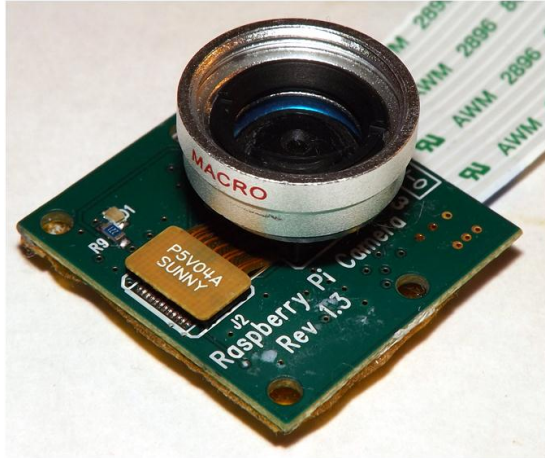








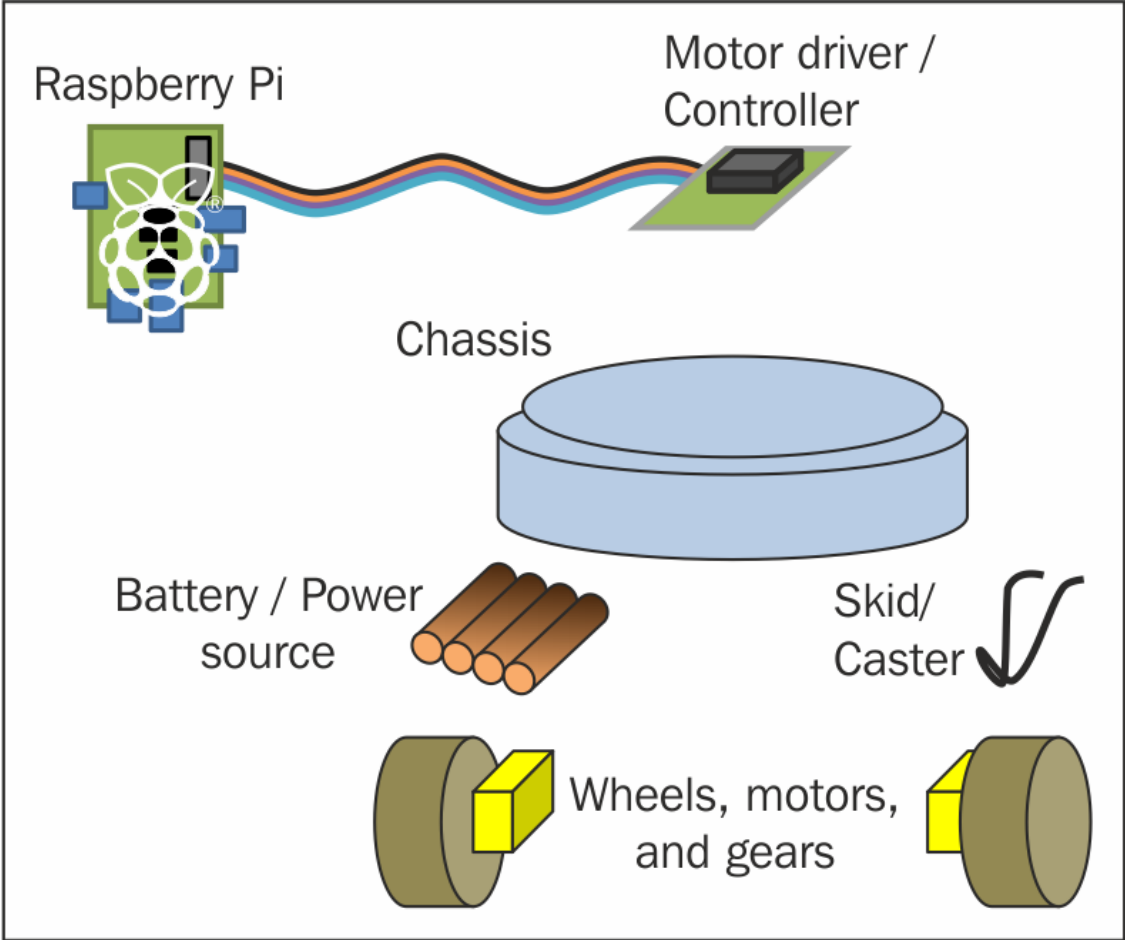


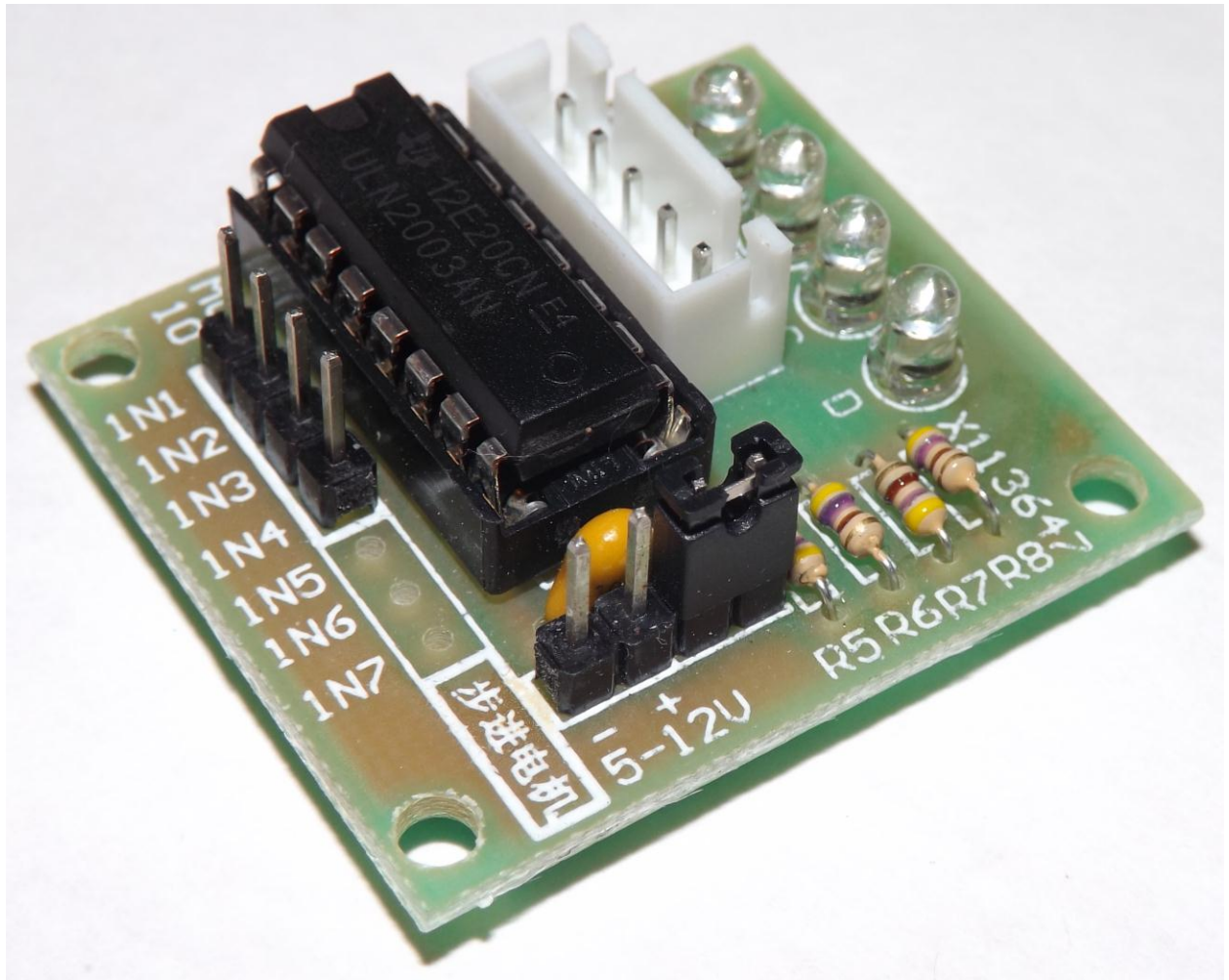


**Chapter 9**

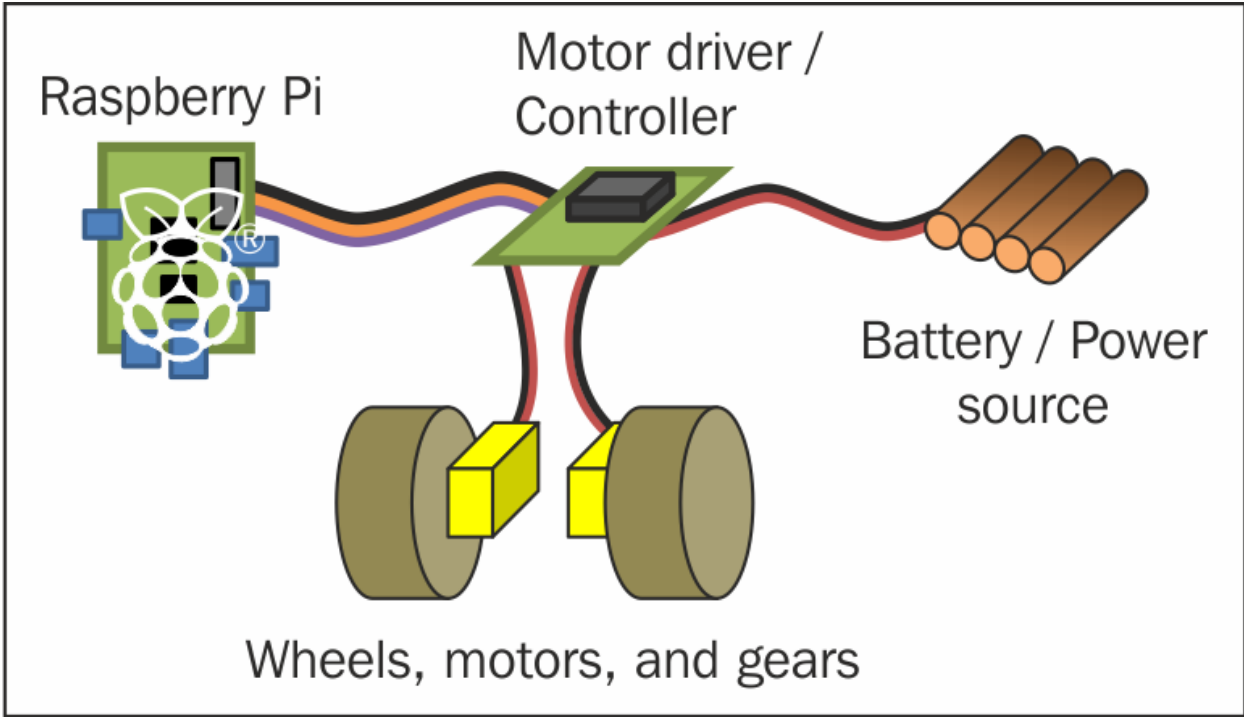
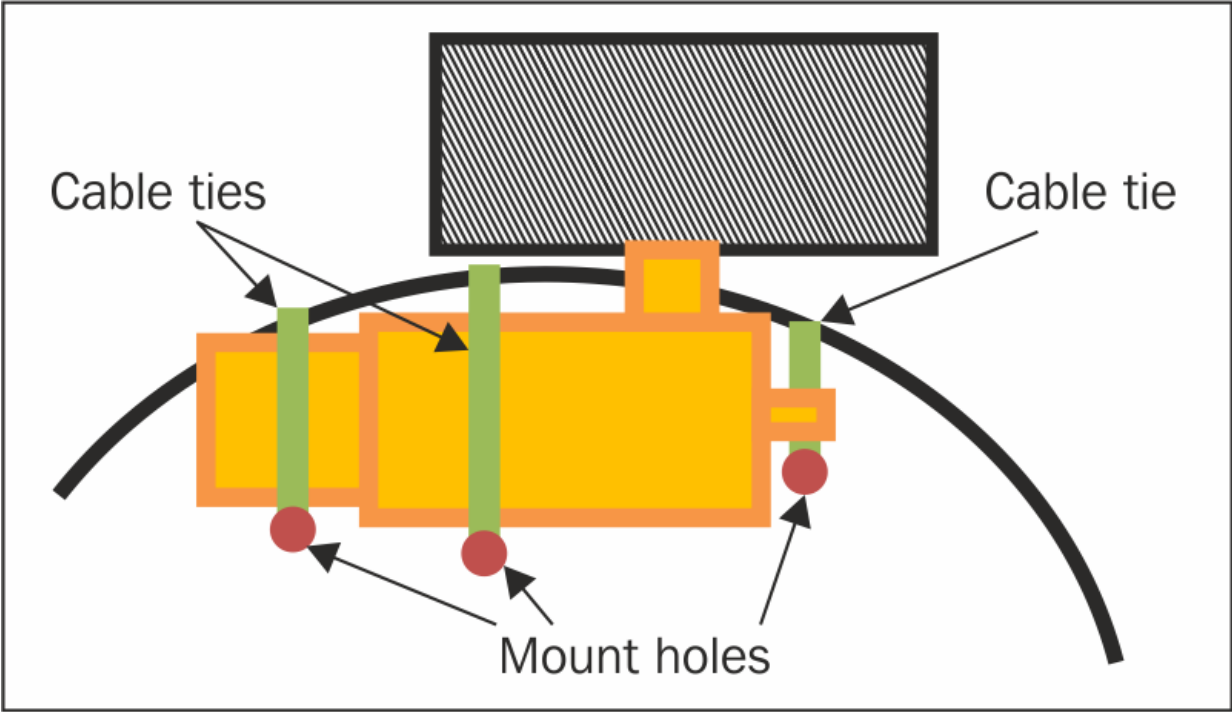




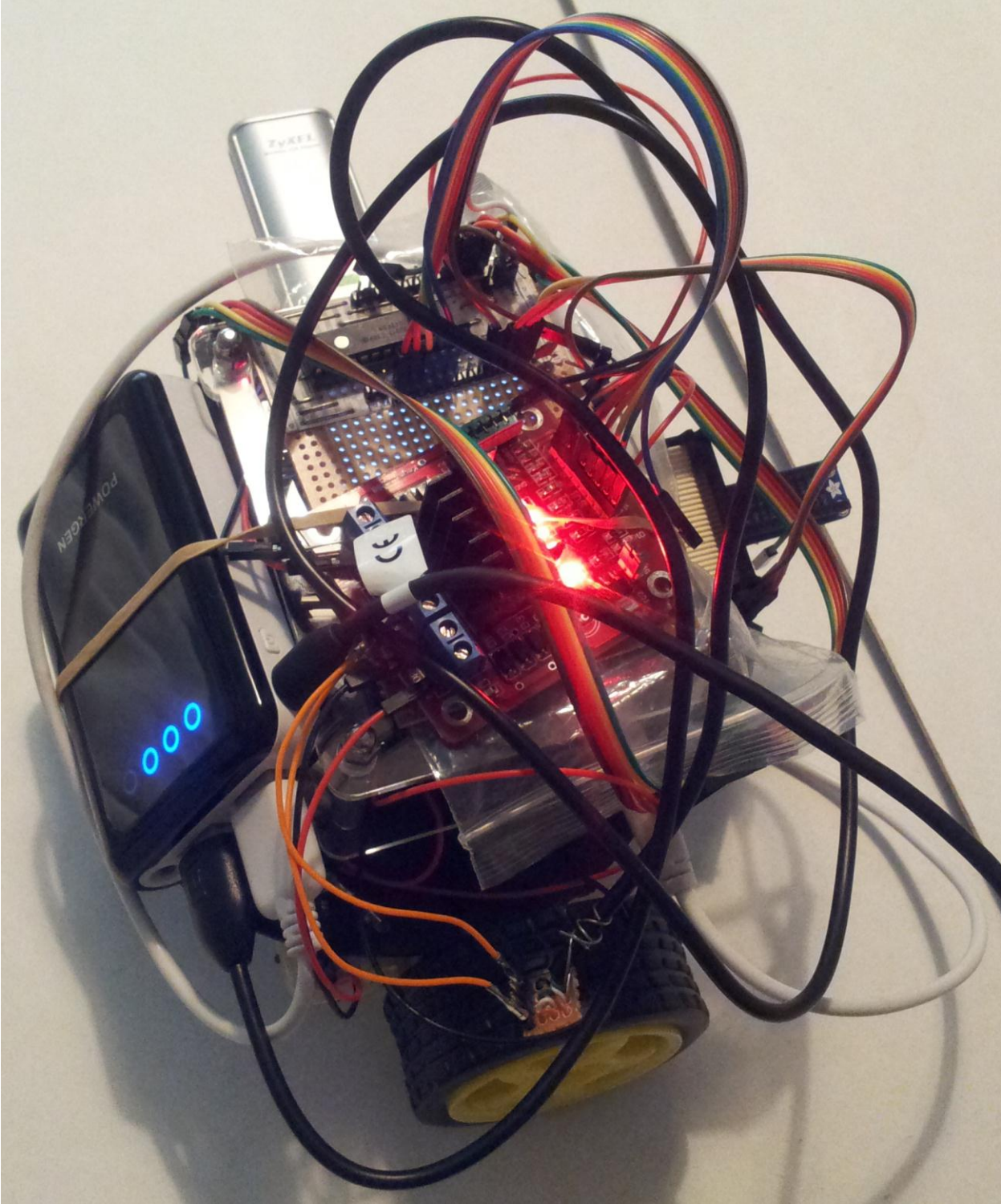




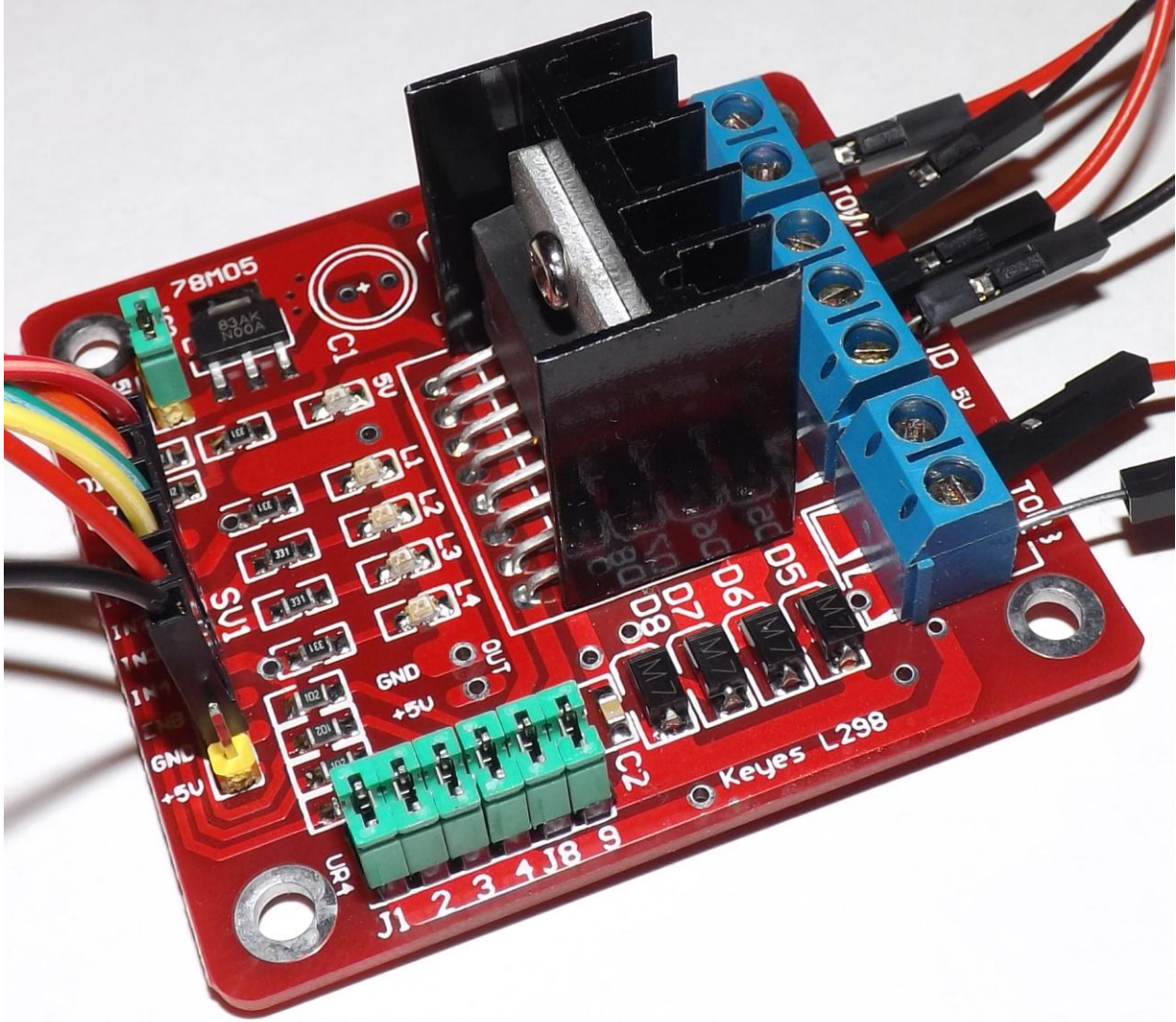


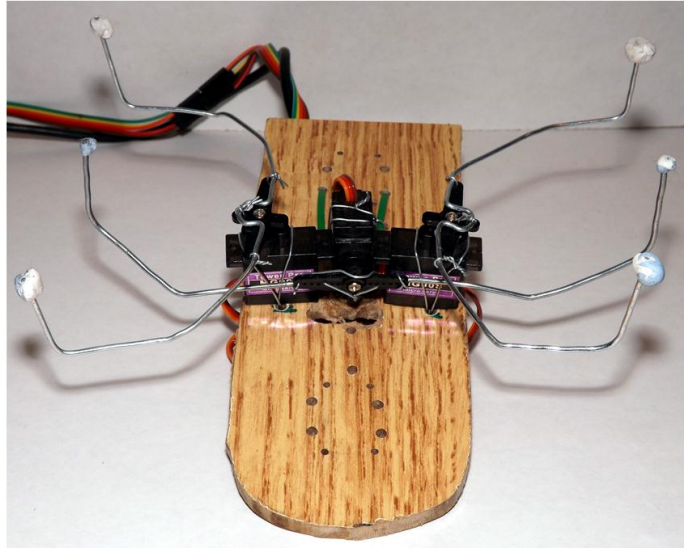
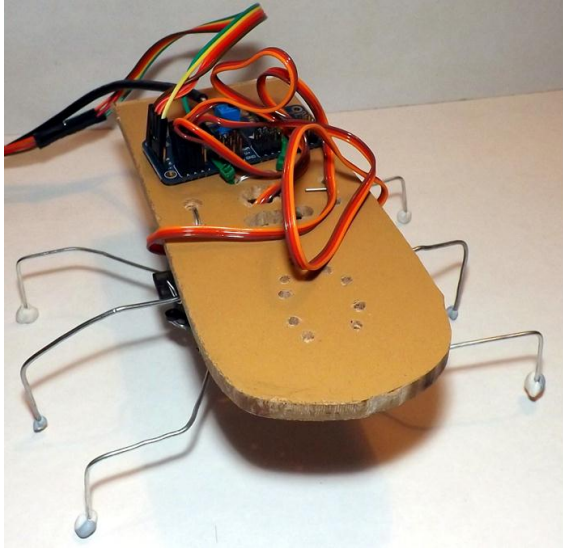




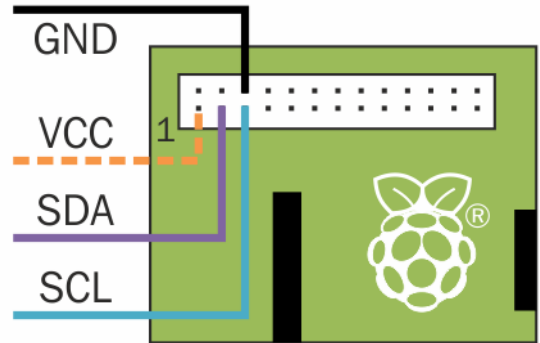


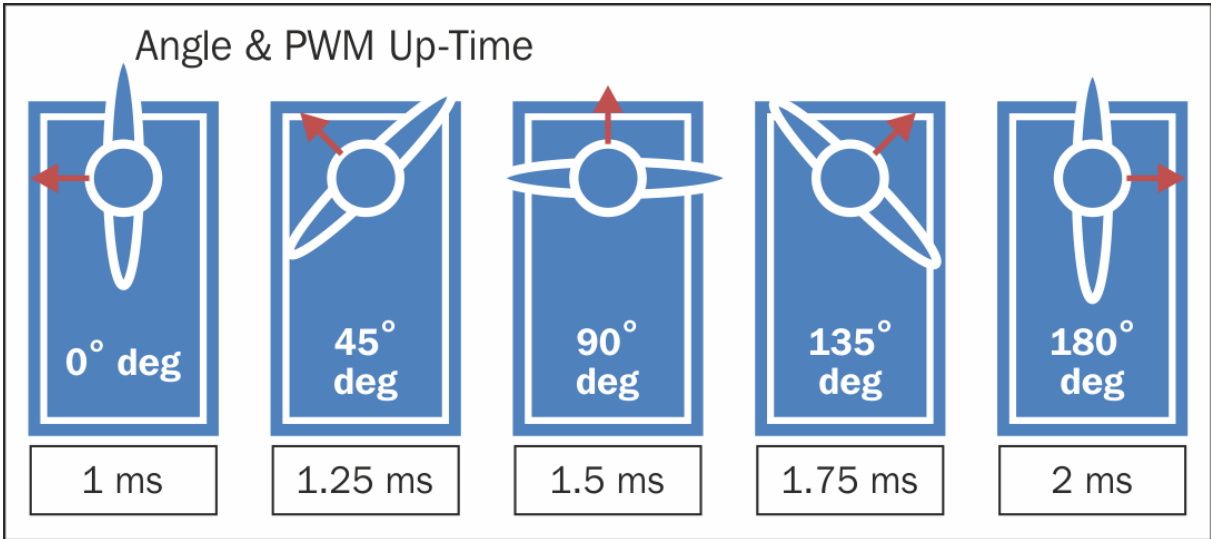
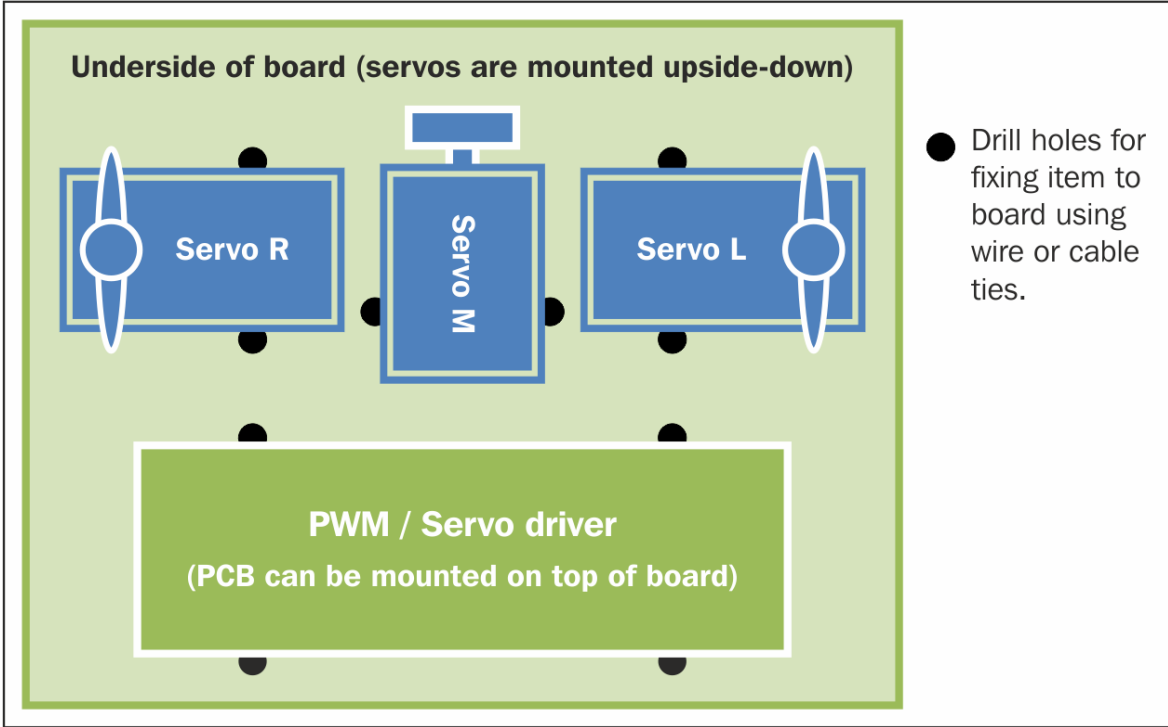




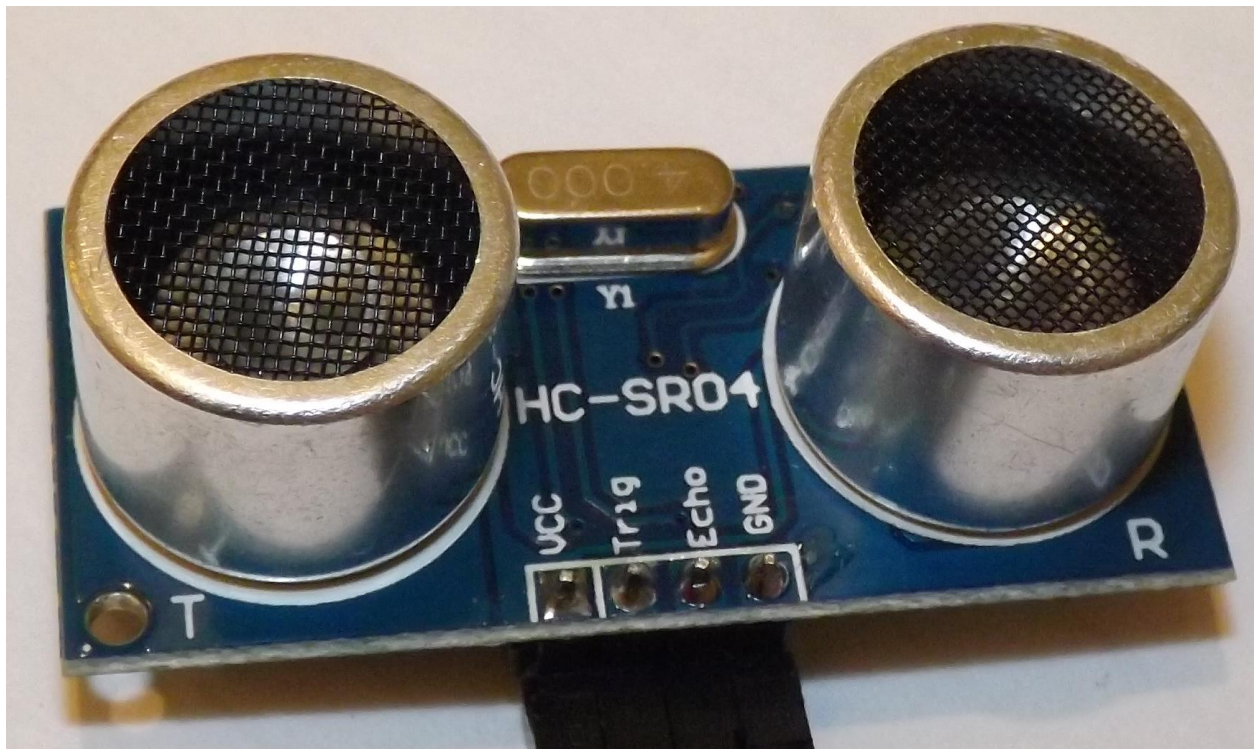


I <sup>2</sup> C device	Raspberry Pi P1		I <sup>2</sup> C device
VCC	1	2	
SDA	3	4	
SCL	5	6	GND











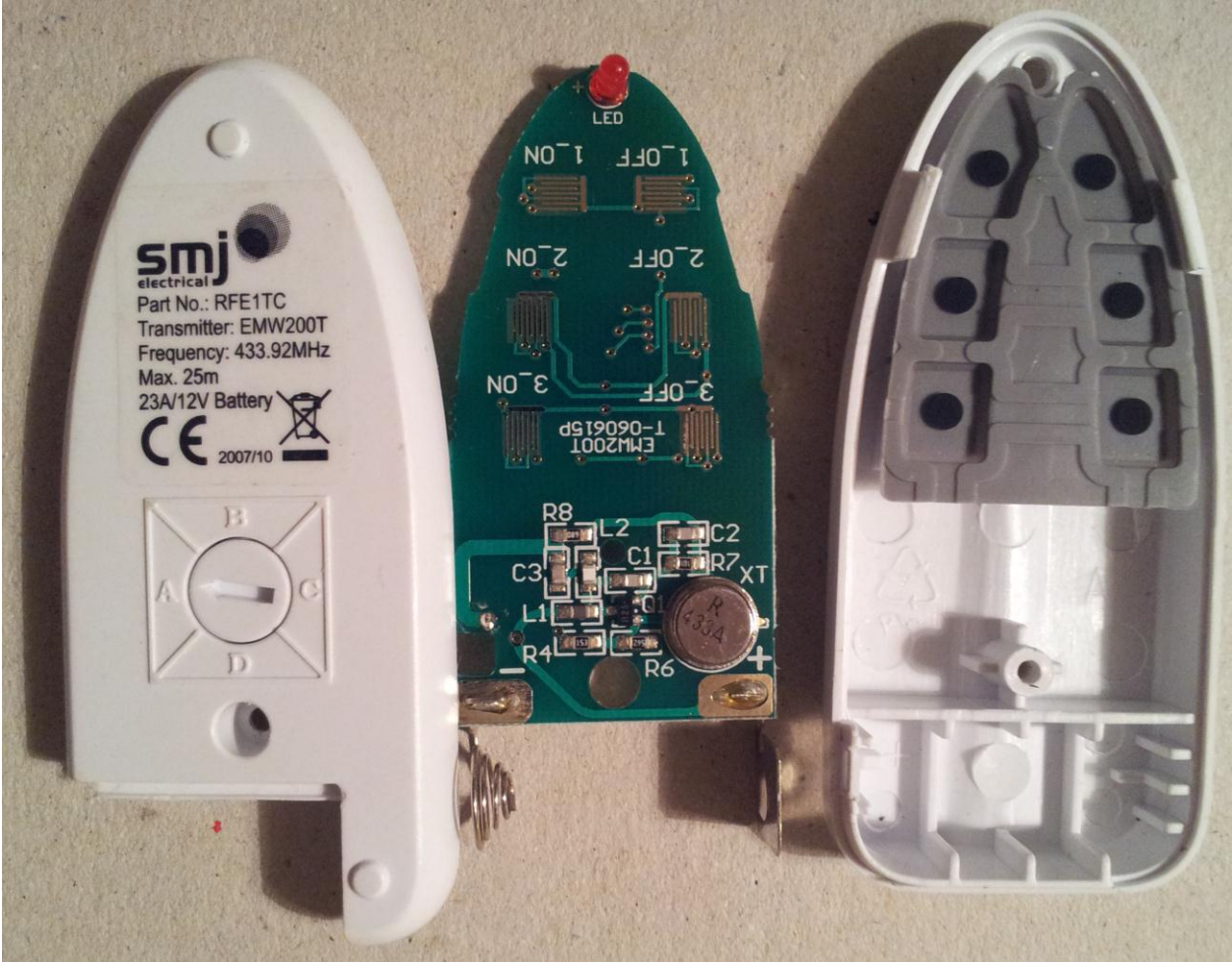
I <sup>2</sup> C Device	Raspberry Pi P1		I <sup>2</sup> C Device
VCC	1	2	
SDA	3	4	
SCL	5	6	GND

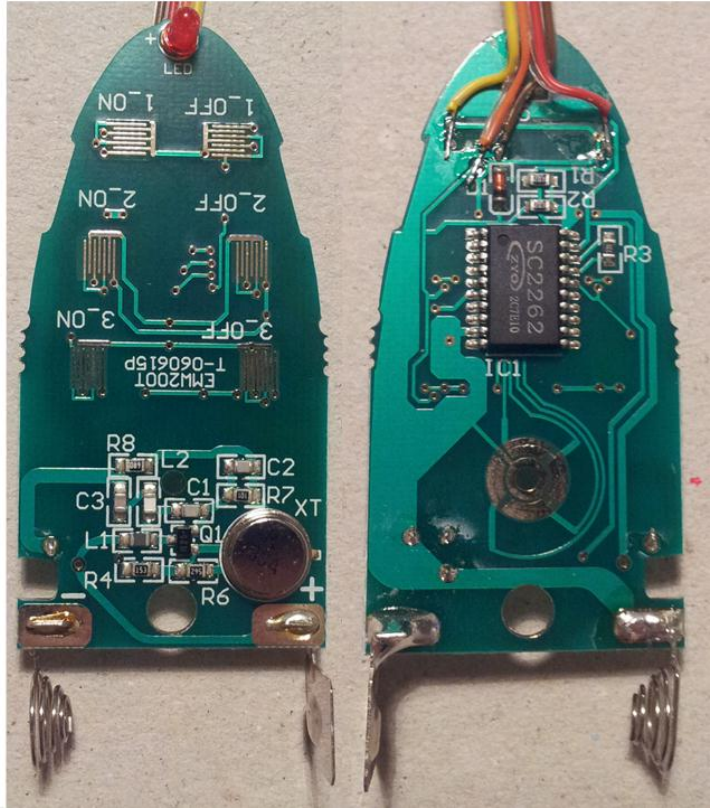
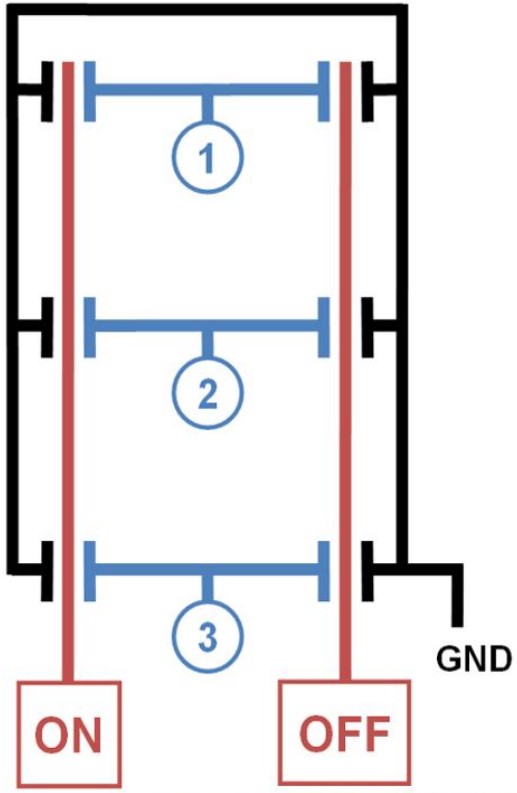


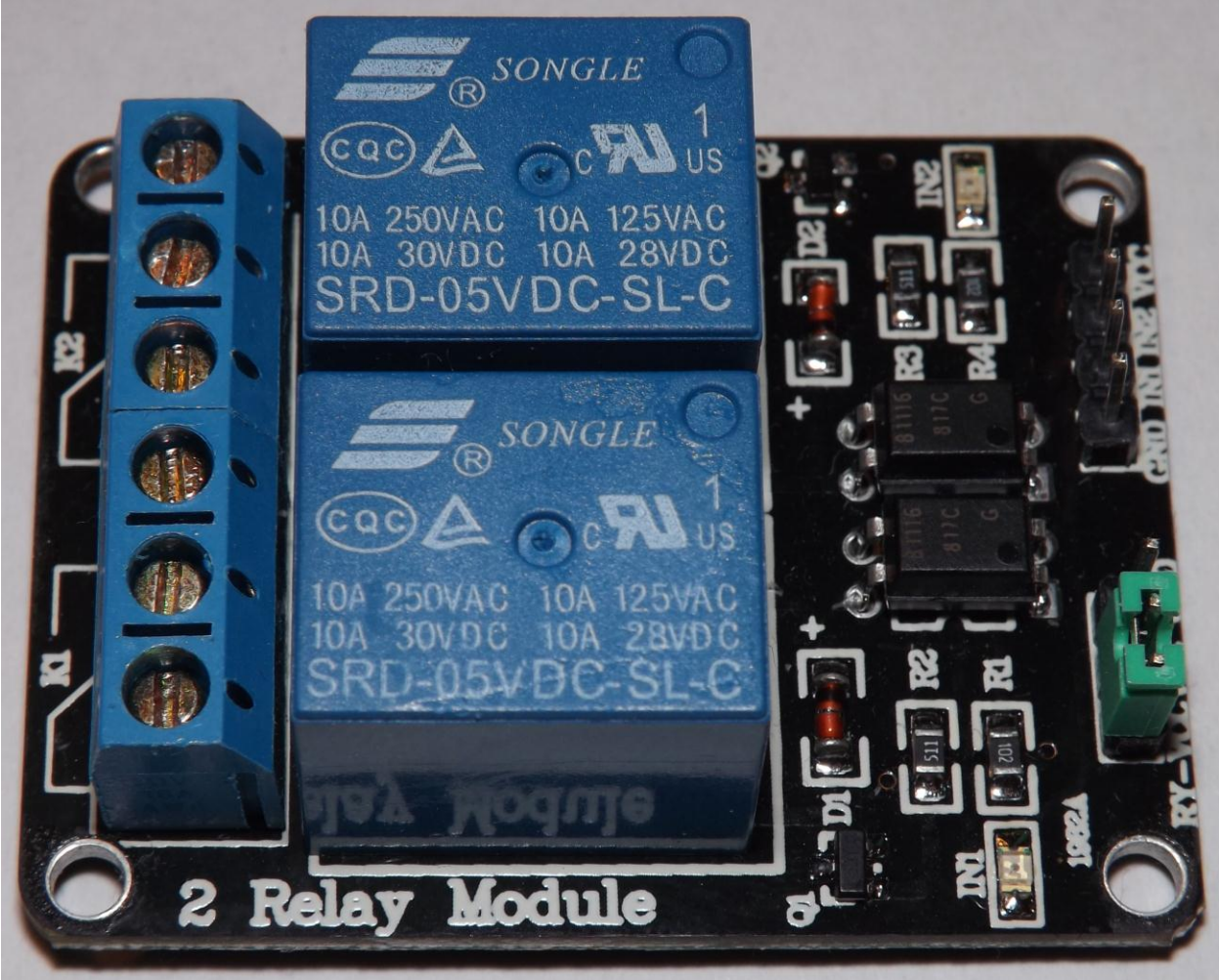
I <sup>2</sup> C Device	PiBorg TriBorg		I <sup>2</sup> C Device
	2	1	VCC
	4	3	SDA
GND	6	5	SCL



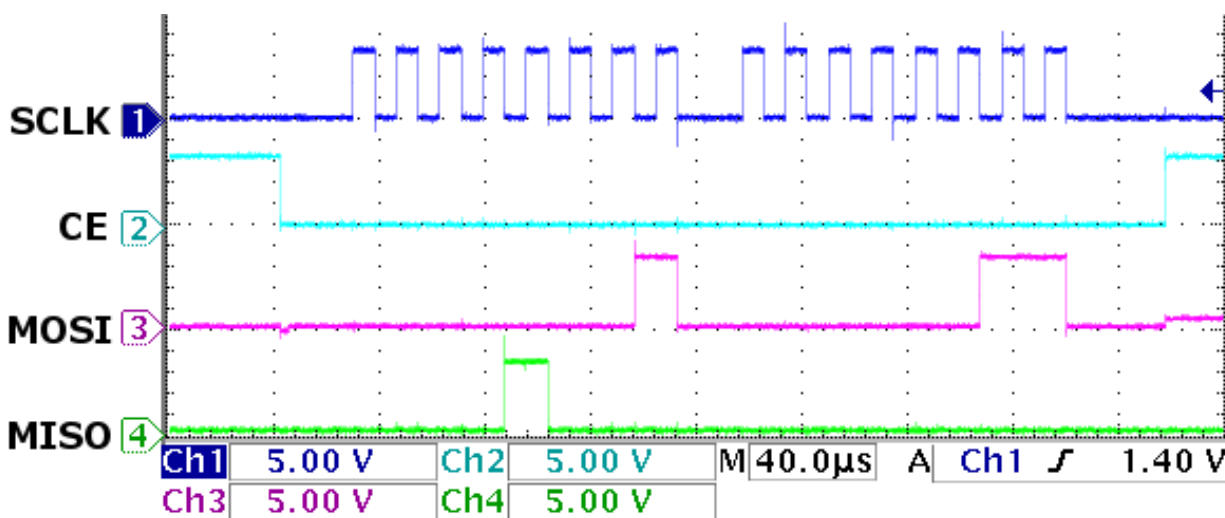
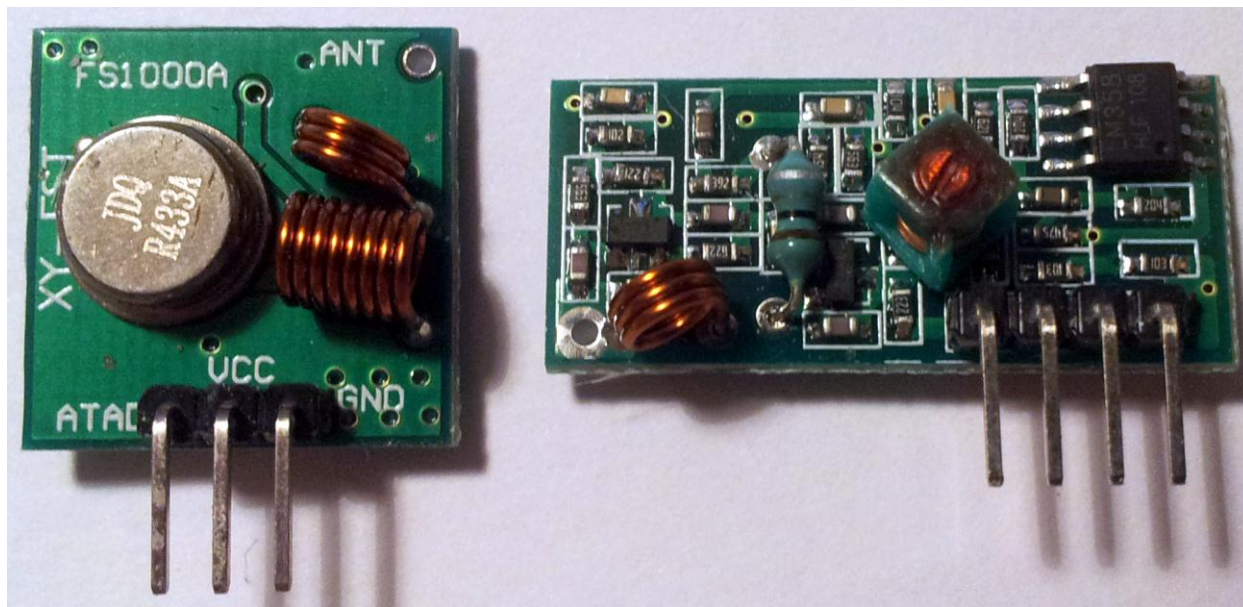
# Chapter 10



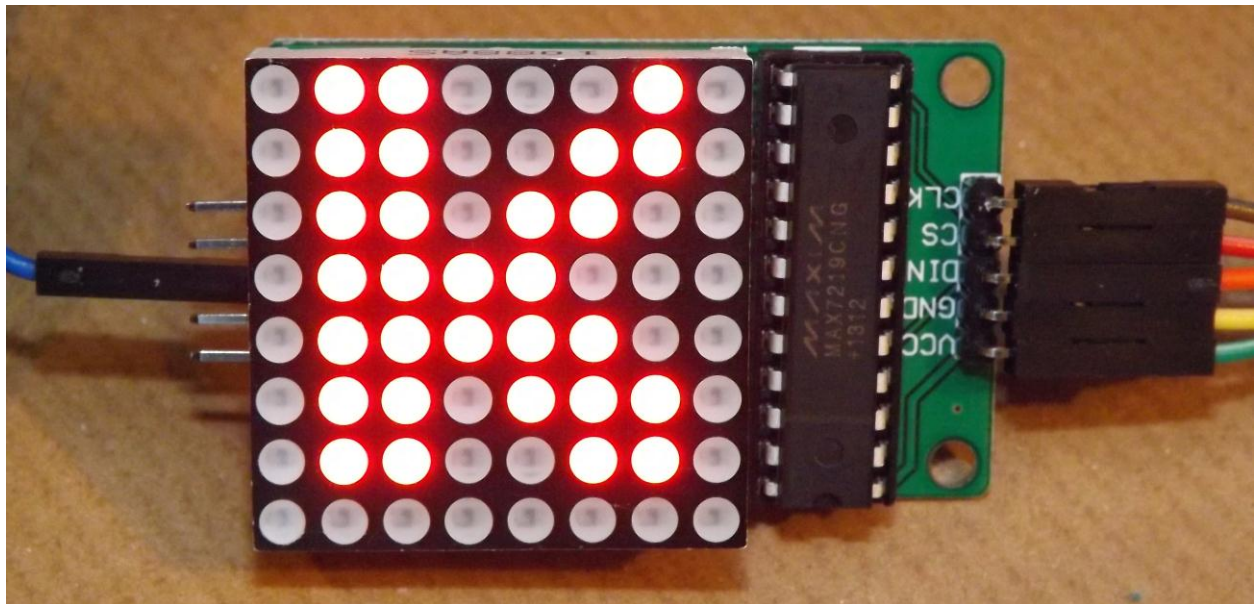
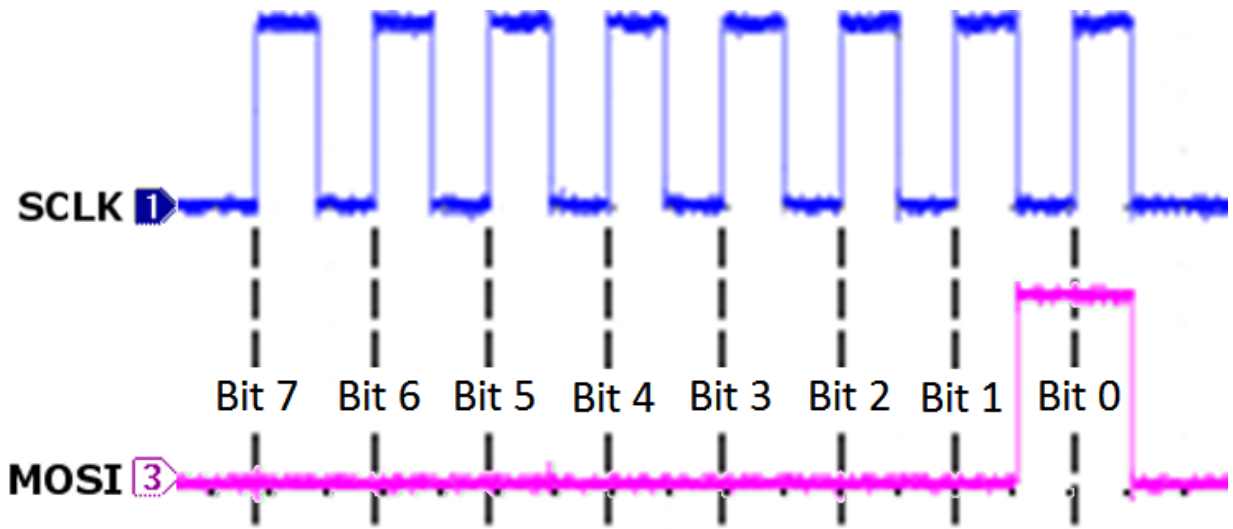


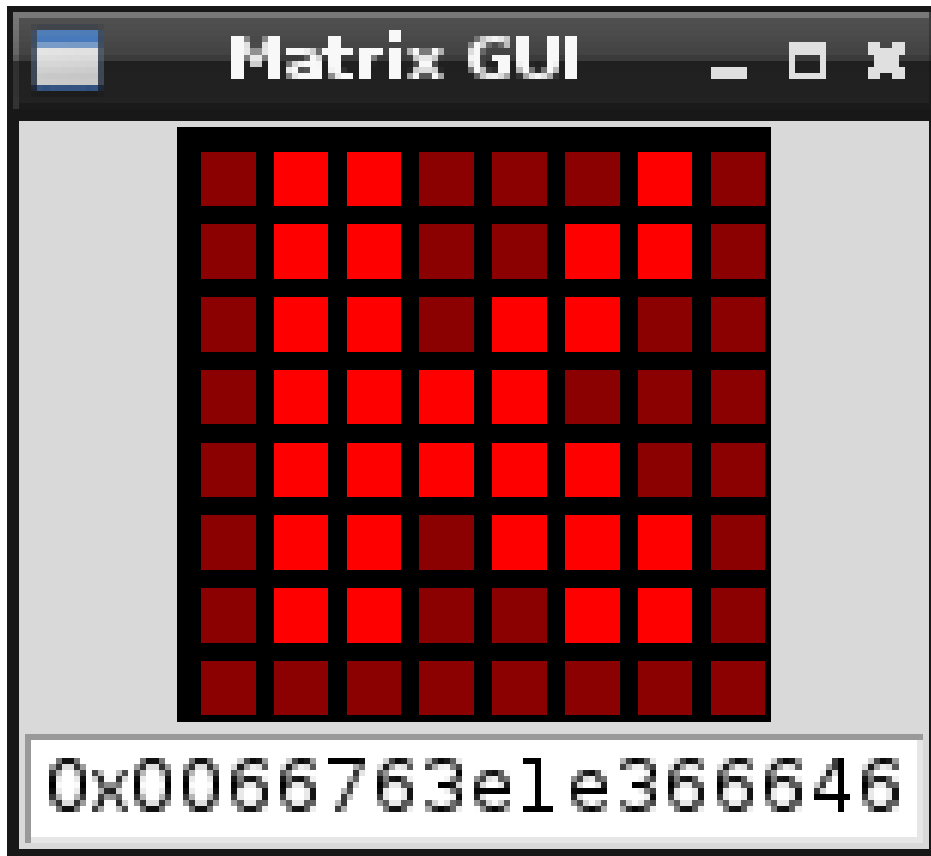












Bits LSB to MSB									
	0	1	2	3	4	5	6	7	
DIG7	0	1	1	0	0	0	1	0	0x46
DIG6	0	1	1	0	0	1	1	0	0x66
DIG5	0	1	1	0	1	1	0	0	0x36
DIG4	0	1	1	1	1	0	0	0	0x1e
DIG3	0	1	1	1	1	1	0	0	0x3e
DIG2	0	1	1	0	1	1	1	0	0x76
DIG1	0	1	1	0	0	1	1	0	0x66
DIG0	0	0	0	0	0	0	0	0	0x00

