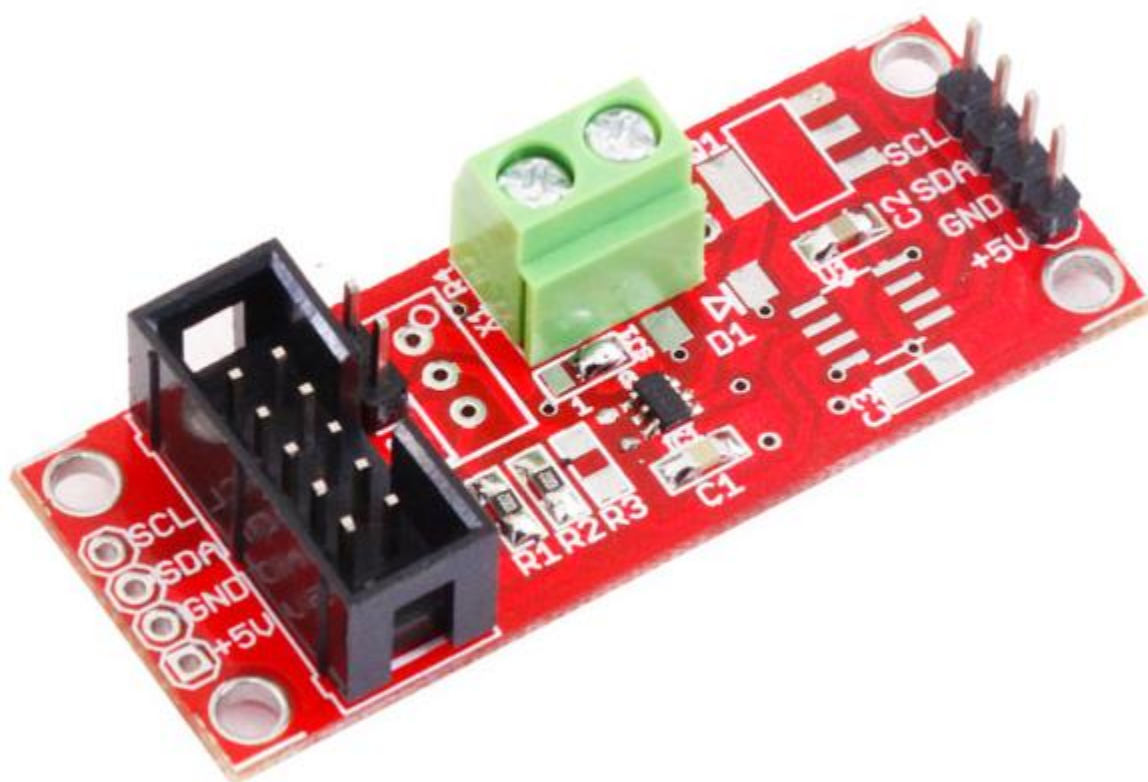




**Research
Design Lab**



I2C 12 bit DAC

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Introduction:

The I2C-DAC board is a 12-bit digital-to-analog converter device using I2C bus. There are no external components required. Only two signal lines SDA and SCL plus supply voltage and ground are required to be connected. This makes it perfect for embedded systems that require digital-to-analog converter.

Features:

- Simple I2C interface.
- 2.7 to 5.2V supply range.
- Resolution: 12-bit.
- High quality PCB FR4 Grade with FPT Certified.

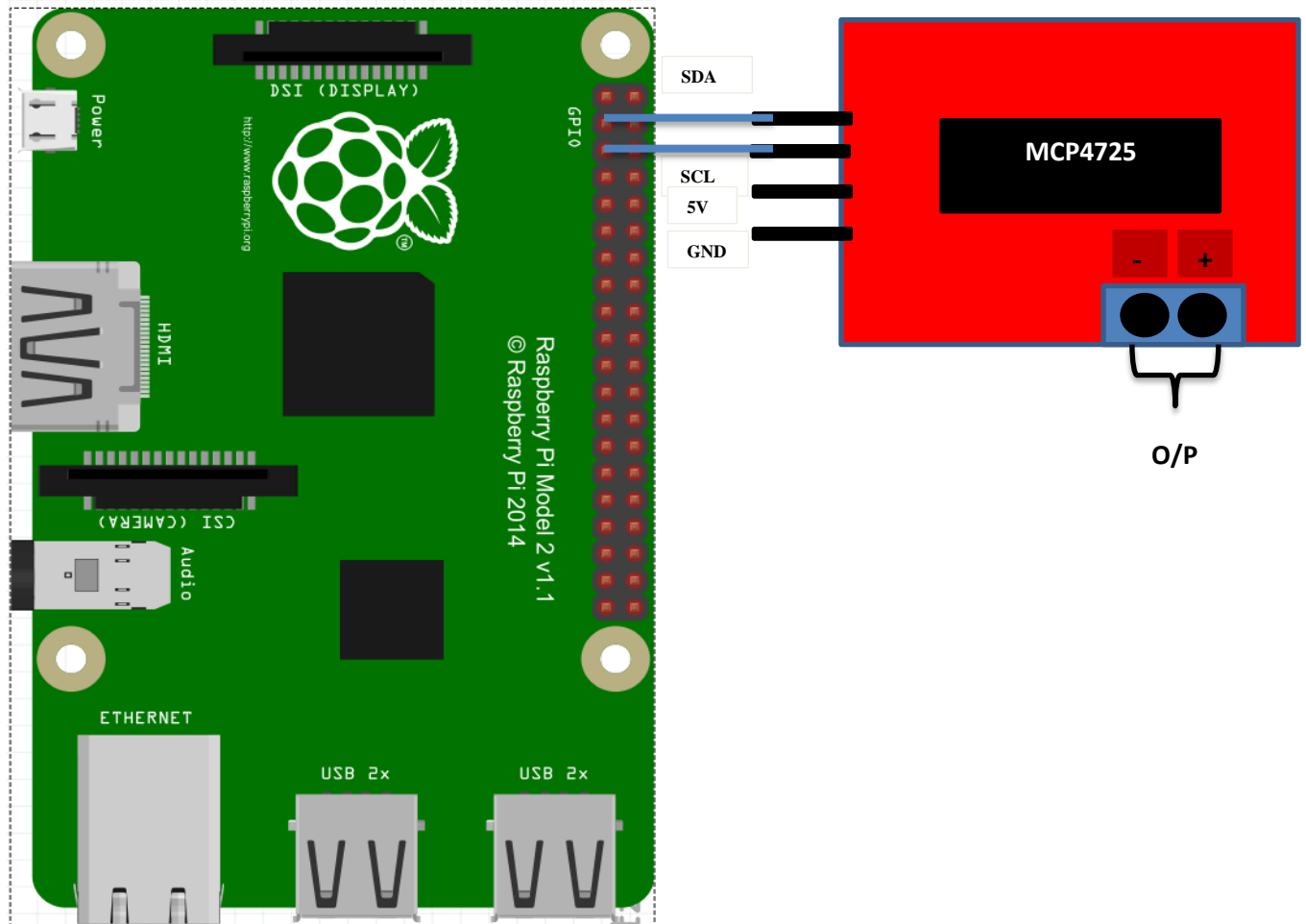
MCP4725 Features:

- 12-Bit Resolution
- On-Board Non-Volatile Memory (EEPROM)
- ± 0.2 LSB DNL (typical)
- External A0 Address Pin
- Normal or Power-Down Mode
- Fast Settling Time of 6 μ s (typical)
- External Voltage Reference (VDD)
- Rail-to-Rail Output
- Low Power Consumption
- Single-Supply Operation: 2.7V to 5.5V
- I2CTM Interface:
 - - Eight Available Addresses
 - - Standard (100 kbps), Fast (400 kbps), and High-Speed (3.4 Mbps) Modes
- Small 6-lead SOT-23 Package

Package Contains:

- I2C 12 bit DAC

Internal Block connections:

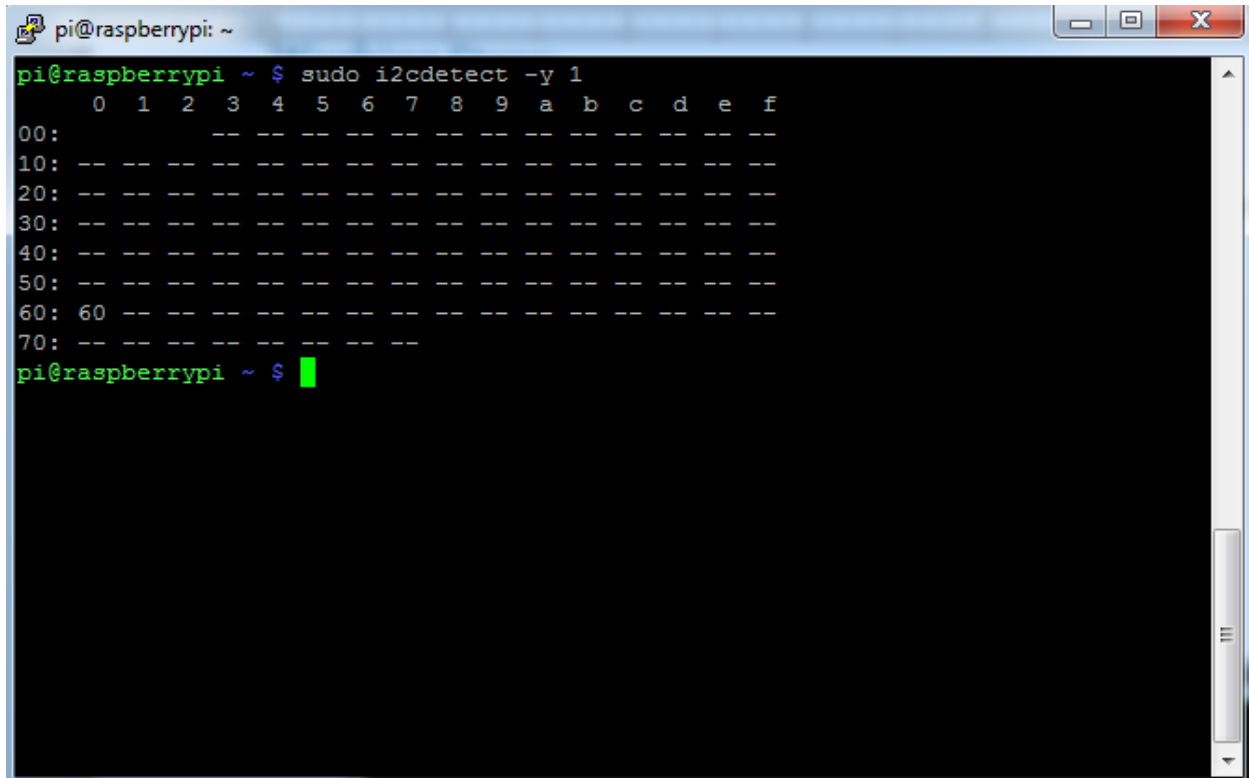


Working Steps:

Steps 1:

First check whether raspberry is detecting I2C device by typing following command.

Sudo i2cdetect -y 1



```
pi@raspberrypi: ~  
pi@raspberrypi ~ $ sudo i2cdetect -y 1  
    0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f  
00:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
10:  -- -- -- -- -- -- -- -- 60 -- -- -- -- -- --  
20:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
30:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
40:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
50:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
60:  60 -- -- -- -- -- -- -- -- -- -- -- -- -- --  
70:  -- -- -- -- -- -- -- -- -- -- -- -- -- -- --  
pi@raspberrypi ~ $
```

Step 2:

Type following command to set 5 volts at the output

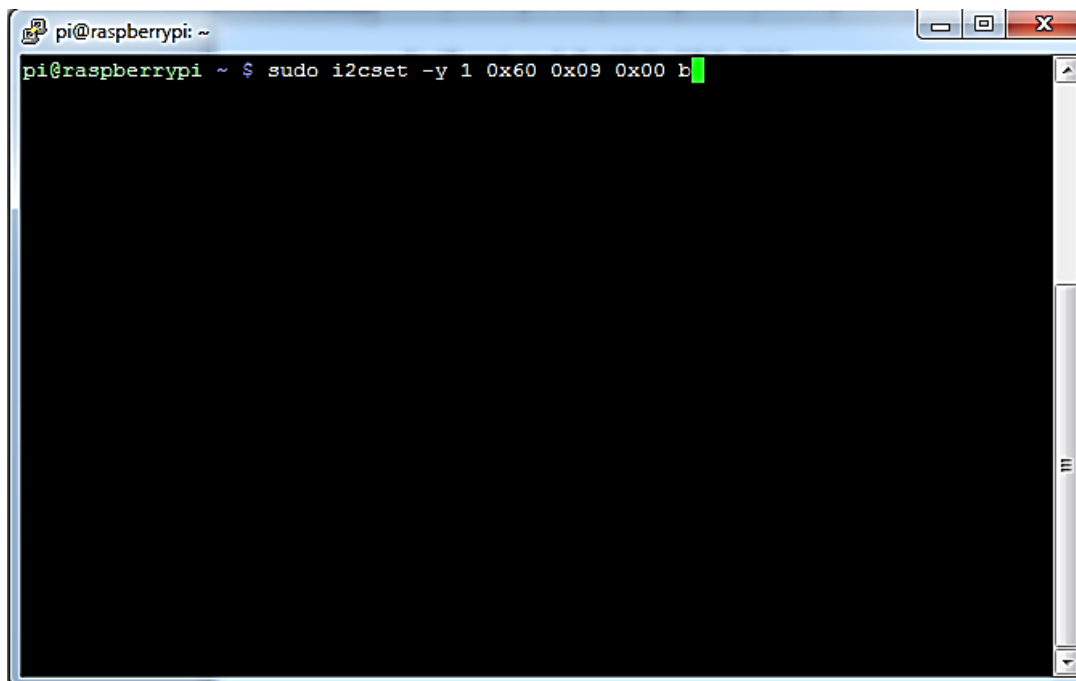
sudo i2cset -y 1 0x60 0x0f 0xff b

Next using Voltmeter check voltage at the O/P terminal it will show around 4.68V

Step 3:

To get 1 volt type below command and check voltage across o/p using voltmeter.

sudo i2cset -y 1 0x60 0x09 0x00 b

A screenshot of a terminal window on a Raspberry Pi. The window title is 'pi@raspberrypi: ~'. The prompt is 'pi@raspberrypi ~ \$'. The command 'sudo i2cset -y 1 0x60 0x09 0x00 b' has been entered, and a green cursor is at the end of the command. The terminal background is black, and the text is green.

```
pi@raspberrypi: ~  
pi@raspberrypi ~ $ sudo i2cset -y 1 0x60 0x09 0x00 b
```