GPIO RPi Shield

XC9050

Hardware installation

Installing the shield is as simple as placing over the raspberry pi 3B/3B+/4B and using the included spacers to ensure structural stability.

Each pin of the GPIO shield is labelled and there is an easy tap-out for `BCM` pins `2 – 20`

Software setup

Firstly, install the python3 package SMBUS

```
sudo apt install -y python3-smbus
```

And enable the i2c communications in `raspi-config`. You can make sure it's all working by typing the following in the terminal.

```
i2cdetect -y 1
```

You should see an output that suggests that the device is at address `0x48` which shows that it is both connected and communicating correctly.

Python software example

For more information about command parameters, please have a look at the datasheet

```
#!/usr/bin/env python3
import time
from smbus import SMBus
bus = SMBus(1)

# this device should be address 0x48
def readChannel(params):
    global bus
    bus.write_byte(0x48, params & 0x03) # select the channel
    bus.write_byte(0x48, 0)  # give it time to convert
    return bus.read_byte(0x48)

def analogOut(out):
    global bus
    bus.write_byte(0x48, 0x80)
    bus.write_byte(0x48, out & 0xFF)
    bus.write_byte(0x48, 0x00)

def readAll():
    global bus
    bus.write_byte(0x48, 0x04) # auto-increment command
    data = []
    for _ in range(4):
        data.append(bus.read_byte(0x48))
    return data

while(True):
    print('all values are:')
    print(readAll())
    print('channel 1 is:')
    print(readChannel(1))
    print('check AOUT, should be about 2.5v')
    print(analogOut(255 / 2))
    time.sleep(3)
```