Setting Up and Installing Picon Zero

Requirements:

- Picon Zero
- Raspberry Pi Connected to Internet, keyboard and screen

Ensure I2C and smbus are installed:

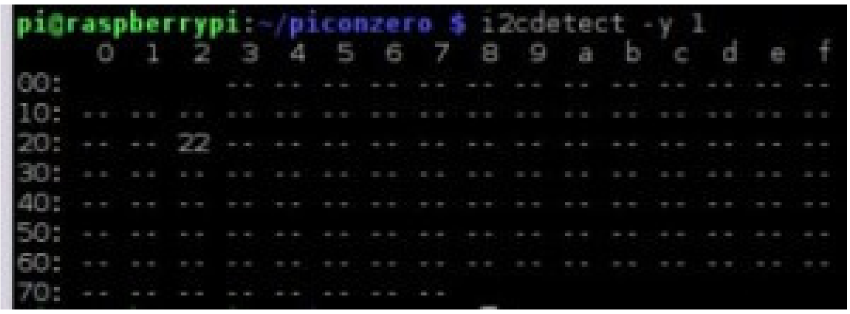
The Picon Zero is an I2C device, so you must ensure that your Raspberry Pi is setup to use I2C and smbus correctly:

- sudo apt-get install python-smbus python3-smbus python-dev python3-dev
- sudo nano /boot/config.txt
  - and add the following 2 lines to the end of the file:
  - dtparam=i2c1=on
  - dtparam=i2c_arm=on
  - Press <ctrl-x> and accept the default prompts to save the file
- sudo reboot

Plug the Picon Zero onto the Pi and run

- i2cdetect -y 1

If all is well, you will see the Picon Zero showing up as address 22 as below:



```
pi@raspberrypi:~/piconzero $ i2cdetect -y 1
     0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f
00:          -- -- -- -- -- -- -- -- -- -- -- -- --
10: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
20: -- -- 22 -- -- -- -- -- -- -- -- -- -- -- -- --
30: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
40: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
50: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
60: -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --
70: -- -- -- -- -- -- -- --
```

Install Picon Zero Python Code

The Picon Zero is provided with a python library which allows very simple access to all the features in an intuitive and consistent manner. A separate small library handles the ultrasonic which is on a GPIO pin and not part of the onboard micro-controller.

Download both libraries and example files by typing the following into the terminal window. Open LXTerminal and type:

- wget http://4tronix.co.uk/piconz.sh -O piconz.sh
- bash piconz.sh

That will create a **piconzero** folder in your home folder, with the libraries and example files:

- **piconzero.py** library module for Picon Zero
- **hcsr04.py** library module for ultrasonic sensor
- **motorTest.py** tests the motor functions using the arrow keys on the keyboard

- **ioTest.py** demonstrates the use of an analog input (potentiometer on Input 0) used to control various forms of output
- **sonarTest.py** demonstrates taking distance readings if you have an HC-SR04 ultrasonic sensor attached
- **tempTest.py** demonstrates reading the temperature from an attached DS18B20 sensor
- **10linesTest.py** shows a simple 10 (or 11) line program that reads an analog input and outputs to various devices (same as **ioTest.py** but without some bells and whistles). Simply to show how easy it can be to use the Picon Zero
- **pixelTest.py** flashes all the attached neopixels from White to Off and back again

Trouble Shooting

Some versions of the operating system have been known to cause reliability issues with the I2C communications. You can test for this by running eg. the sonarTest and seeing if it runs for a while without displaying errors.

If you do get errors, then try upgrading your operating system. Go to LXTerminal again:

- sudo apt-get update
- sudo apt-get dist-upgrade

This may take several minutes. When it is done, power off the system and then reboot.