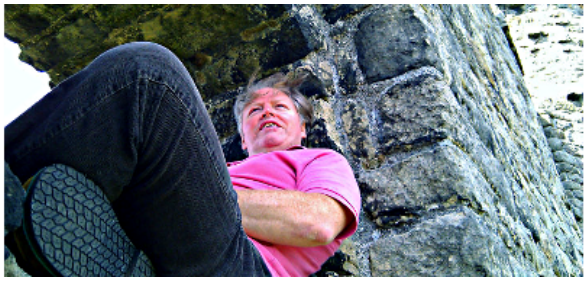
Wiring Pi

GPIO Interface library for the Raspberry Pi



I2C Library

WiringPi includes a library which can make it easier to use the Raspberry Pi's on-board I2C interface.

Before you can use the I2C interface, you may need to use the **gpio** utility to load the I2C drivers into the kernel:

```
gpio load i2c
```

If you need a baud rate other than the default 100Kbps, then you can supply this on the command-line:

```
gpio load i2c 1000
```

will set the baud rate to 1000Kbps – ie. 1,000,000 bps. (K here is times 1000)

To use the I2C library, you need to:

```
#include <wiringPiI2C.h>
```

in your program. Programs need to be linked with **-lwiringPi** as usual.

You can still use the standard system commands to check the I2C devices, and I recommend you do so – e.g. the **i2cdetect** program. Just remember that on a Rev 1 Raspberry pi it's device 0, and on a Rev. 2 it's device 1. e.g.

```
i2cdetect -y 0 # Rev 1
i2cdetect -y 1 # Rev 2
```

Note that you can use the **gpio** command to run the i2cdetect command for you with the correct parameters for your board revision:

```
gpio i2cdetect
```

is all that's needed.

Functions available

- **int wiringPiI2CSetup (int devId) ;**

This initialises the I2C system with your given device identifier. The ID is the I2C number of the device and you can use the **i2cdetect** program to find this out. wiringPiI2CSetup() will work out which revision Raspberry Pi you have and open the appropriate device in /dev.

The return value is the standard Linux filehandle, or -1 if any error – in which case, you can consult *errno* as usual.

E.g. the popular MCP23017 GPIO expander is usually device Id 0x20, so this is the number you would pass into wiringPiI2CSetup().

> *For all the following functions, if the return value is negative then an error has happened and you should consult errno.*

- **int wiringPiI2CRead (int fd) ;**

Simple device read. Some devices present data when you read them without having to do any register transactions.

- **int wiringPiI2CWrite (int fd, int data) ;**

Simple device write. Some devices accept data this way without needing to access any internal registers.

- **int wiringPiI2CWriteReg8 (int fd, int reg, int data) ;**
- **int wiringPiI2CWriteReg16 (int fd, int reg, int data) ;**

These write an 8 or 16-bit data value into the device register indicated.

- **int wiringPiI2CReadReg8 (int fd, int reg) ;**
- **int wiringPiI2CReadReg16 (int fd, int reg) ;**

These read an 8 or 16-bit value from the device register indicated.