Discovery and testing of the module using Linux-based i2c-tools.

**Listing 1: I2CDevice.h**

#ifndef I2C\_H\_

#define I2C\_H\_

#define I2C\_0 "/dev/i2c-0"

#define I2C\_1 "/dev/i2c-1"

#define I2C\_2 "/dev/i2c-2" /\*\* Error found and code fixed and uploaded to \*Loop by Aminuddin Mohammed so reference added. \*https://loop.dcu.ie/mod/forum/discuss.php?d=503899

\*accessed on 23rd Feb 2023\*/

namespace EE513{

/\*\*

\* @class I2CDevice

\* @brief Generic I2C Device class that can be used to connect to any type of \*I2C device and read or write to its registers

\*/

class I2CDevice{

private:

unsigned int bus;

unsigned int device;

int file;

public:

I2CDevice(unsigned int bus, unsigned int device);

virtual int open();

virtual int write(unsigned char value);

virtual unsigned char readRegister(unsigned int registerAddress);

virtual unsigned char\* readRegisters(unsigned int number, unsigned int fromAddress=0);

virtual int writeRegister(unsigned int registerAddress, unsigned char value);

virtual void debugDumpRegisters(unsigned int number = 0xff);

virtual void close();

virtual ~I2CDevice();

};

}

/\* namespace EE513\*/

#endif /\* I2C\_H\_ \*/