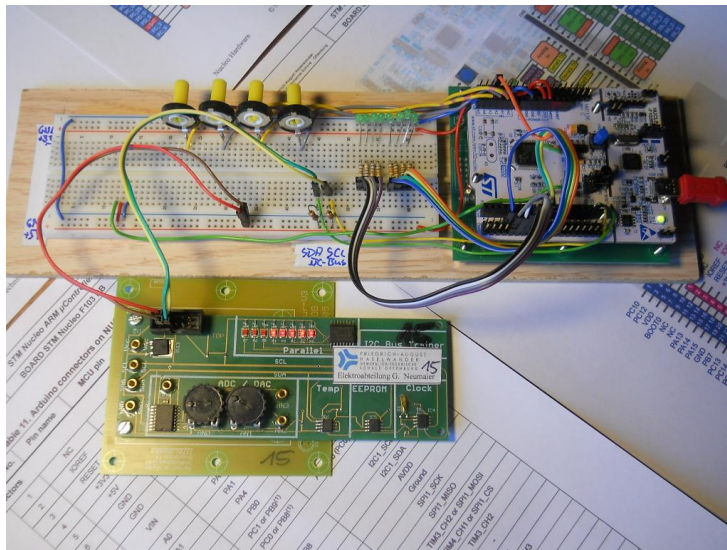




IIC-Bus Ausgabe 8bit am IC PCF8574a

Hardware:



STM Nucleo F103RB ARM μ C

Übungsplatine mit PCF8574a

Software:

Erstellt mit „mbed“ online compiler

```
/*Data send to IIC-board with PCF8574a IC  
Data coming from analog-value Pin A0 = PA_0 Nucleo-board  
you see a 8bit light strip as a result  
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*/
```

```
#include "mbed.h"  
#define PCF8574a_ADDR 0x72 // PCF8574a address IIC-board Birk
```

```
I2C i2c(I2C_SDA, I2C_SCL); //IIC Pins SDA and SCL for ARDUINO pinheader Nucleo-board  
//SCL and SPA pullup resistors 2k2Ohm to+5Volt  
DigitalOut myled(LED1); //LED on Nucleo-board  
AnalogIn analog_value0(A0); //same as Pin PA_0  
Serial pc(SERIAL_TX, SERIAL_RX);
```

```
int main()  
{  
    float mess0;  
    unsigned char mess1, x, LEDs8;  
    char data_write[2]; //must be char!!  
    unsigned char speicher[9] = {0xff, 0x7f, 0x3f, 0x1f, 0x0f, 0x07, 0x03, 0x01, 0x00}; //data for light strip  
    data_write[0] = 0xf2; //LEDs low aktiv dummy  
    int status = i2c.write(PCF8574a_ADDR, data_write, 1, 0);  
    if (status != 0) // Error no acknowledge detected  
    {  
        while (1) //-> endless loop when error no IIC-IC detected  
        {  
            myled = !myled;  
            wait(0.7);  
        }  
    }  
}
```

```
while (1) //endless loop  
{
```



```
mess0 = analog_value0.read(); // Converts and read the analog input value (value from 0.0 to 1.0)
mess0 = mess0 * 255; // Change the value to be in the 0 to 255 range -> 8bit
mess1 = (char) mess0; //type converting from float to char(8bit)
printf("Analogvalue0 = %.1f \r\n", mess0); //Rs232 output-> You will see this in terminalprogram on PC
//%.1f -> display 1 digit after comma
//
x= mess1/29; //Remainder of the division falls away, only whole numbers
LEDs8= speicher[x]; //brings accordingly x values aus dem array "speicher"
data_write[0] = ~LEDs8; //8bit analog-value ~ inverted leds lowaktiv!!
i2c.write(PCF8574a_ADDR , data_write, 1, 1); // no stop
//you see a digital 8bit led-strip at leds contacted to IC PCF8574a
}
}
```