LCD 16x2 I2C Display with Nucleo STM32F411RE using STM32CubeIDE

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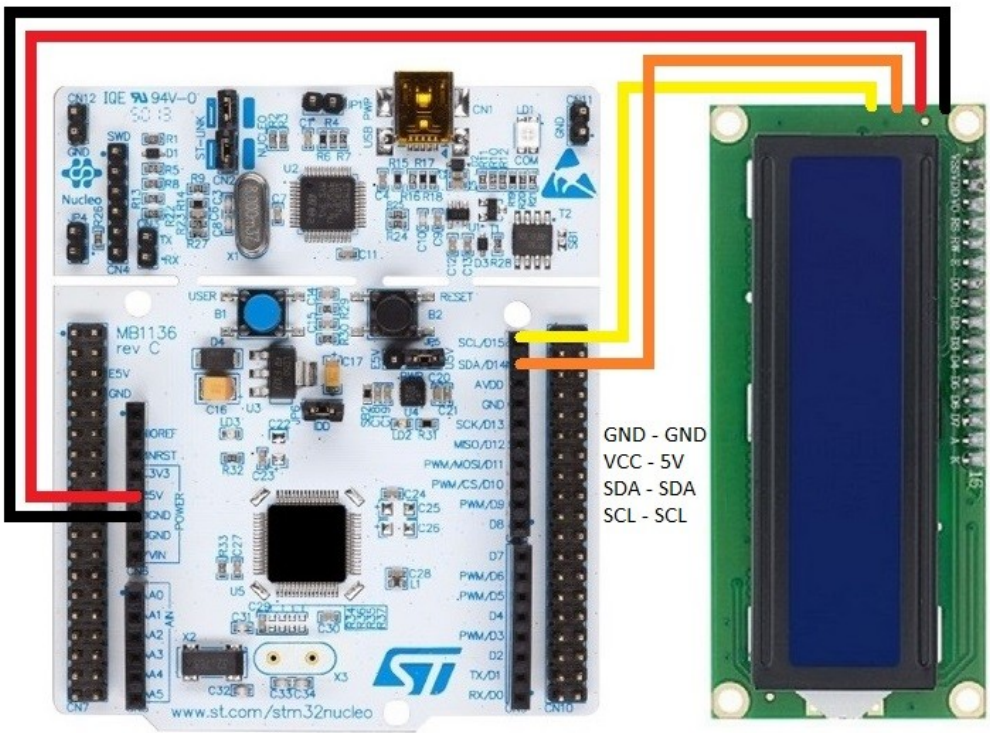
Summary of Instructions :

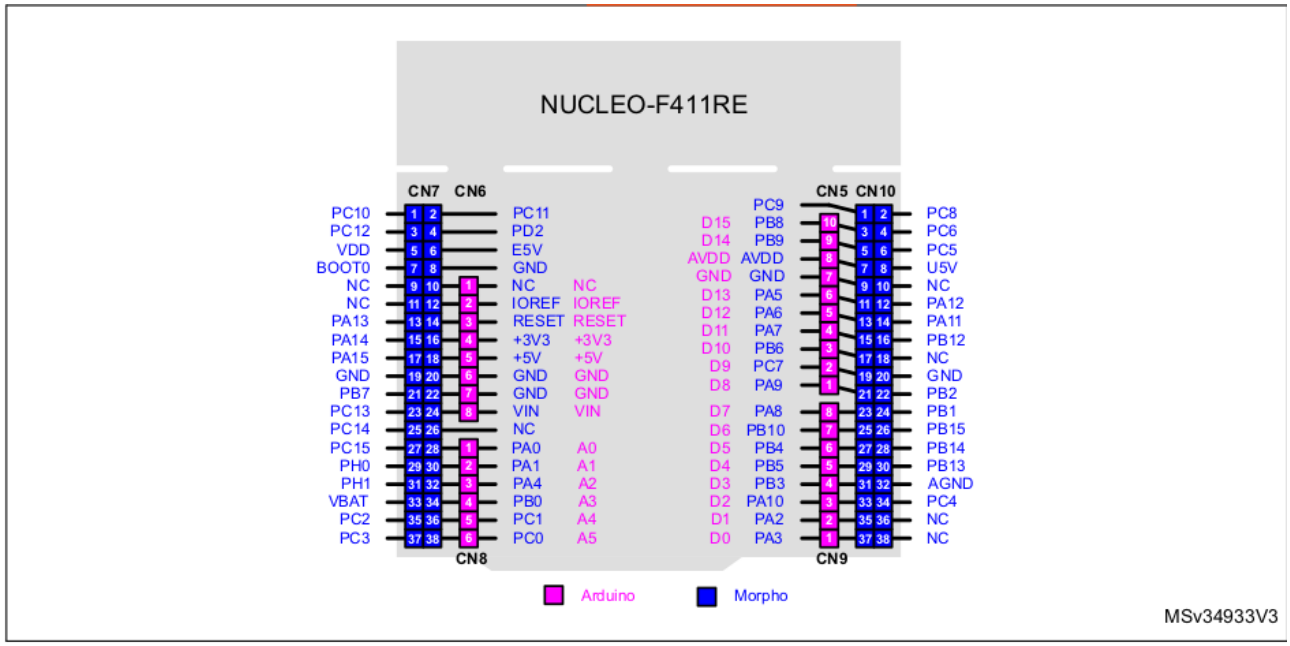
I am going to interface LCD to STM32 using an I2C device (PCF8574). PCF8574 can be used as a port extender, to which LCD will be connected.

Requirements:

- laptop with stm32cubeIDE installed
- jumper wires
- I2C Module has a inbuilt PCF8574 I2C chip that converts I2C serial data to parallel data for the LCD display
- stm32f411re
- 16x2 LCD displat

Wiring Diagram :





STM32CubeIDE Settings :

Create a new project select your stm32 board give a name and make these settings

Click connectivity --> Click I2C1

For I2C select I2C

Set PB8 to I2C1_SCL

Set PB9 to I2C1_SDA

Libraries :

Github project link :

https://github.com/mahammadarif/LCD-with-i2c

```
/* USER CODE BEGIN 2 */
  HD44780_Init(2);
  HD44780_Clear();
  HD44780_SetCursor(0,0);
  HD44780_PrintStr("HELLO");
  HD44780_SetCursor(10,1);
  HD44780_PrintStr("WORLD");
  HAL_Delay(2000);

  HD44780_Clear();
  HD44780_SetCursor(0,0);
  HD44780_PrintStr("HELLO");
  HAL_Delay(2000);
```

```
  HD44780_NoBacklight();
  HAL_Delay(2000);
  HD44780_Backlight();

  HAL_Delay(2000);
  HD44780_Clear();
  HD44780_Cursor();
  HAL_Delay(2000);
  HD44780_Blink();
  HAL_Delay(5000);
  HD44780_NoBlink();
  HAL_Delay(2000);
  HD44780_NoCursor();
  HAL_Delay(2000);

  HD44780_NoDisplay();
  HAL_Delay(2000);
  HD44780_Display();

  HD44780_Clear();
  HD44780_SetCursor(0,0);
  HD44780_PrintStr("Learning STM32 with LCD is fun :- )");


  int x;
  for(int x=0; x<40; x=x+1)
  {
    HD44780_ScrollDisplayLeft();  //HD44780_ScrollDisplayRight();
    HAL_Delay(500);
  }

  char snum[5];
  for ( int x = 1; x <= 10 ; x++ )
  {
    itoa(x, snum, 10);
    HD44780_Clear();
    HD44780_SetCursor(0,0);
    HD44780_PrintStr(snum);
    HAL_Delay (1000);
  }

  HD44780_Clear();
      HAL_Delay(2000);
      HD44780_Display();

      HD44780_Clear();
      HD44780_SetCursor(0,0);
      HD44780_PrintStr("thank you!");
/* USER CODE END 2 */
```