# I2C Communication Between ESP32 and Arduino

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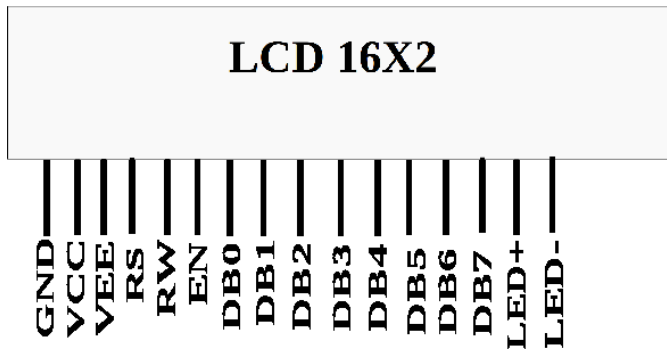


Fig. 2.0.1: lcd

*Abstract*—Through this manual, we will learn how to setting up the ESP32 as a Master and Arduino as a Slave using I2C protocol.

## 1 COMPONENTS

| Component | Value | Quantity |
|---|---|---|
| ESP32 | Devkit V1 | 1 |
| Arduino | UNO | 1 |
| Connecting Wires | | 30 |
| LCD | 16 X 2 | 1 |

TABLE 1.1

## 2 SETTING UP THE MASTER AND SLAVE

2.1. Connect the ESP32 pins to Arduino pins as per Table 2.1.1.

2.2. Connect the ESP32 pins to LCD pins as per Table 2.2.1.

2.3. Configure Arduino Uno as a Slave using the following code.
https://github.com/gadepall/vaman/blob/master/esp32/codes/ide/i2c/I2C_Sender_Arduino/src/main.cpp

| I2C | ESP32 | Arduino |
|---|---|---|
| SDA | GPIO 21 | A4 |
| SDC | GPIO 22 | A5 |
| | VCC | VCC |
| | GND | GND |

TABLE 2.1.1

| ESP32 | LCD Pins | LCD Pin Label | LCD Pin Description |
|---|---|---|---|
| GND | 1 | GND | |
| 5V | 2 | Vcc | |
| GND | 3 | Vee | Contrast |
| GPIO 19 | 4 | RS | Register Select |
| GND | 5 | R/W | Read/Write |
| GPIO 23 | 6 | EN | Enable |
| GPIO 18 | 11 | DB4 | Serial Connection |
| GPIO 17 | 12 | DB5 | Serial Connection |
| GPIO 16 | 13 | DB6 | Serial Connection |
| GPIO 15 | 14 | DB7 | Serial Connection |
| 5V | 15 | LED+ | Backlight |
| GND | 16 | LED- | Backlight |

TABLE 2.2.1

2.4. Now configure ESP32 as a Master using the following code.
https://github.com/gadepall/vaman/blob/master/esp32/codes/ide/i2c/I2C_Reciever_ESP32/src/main.cpp

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