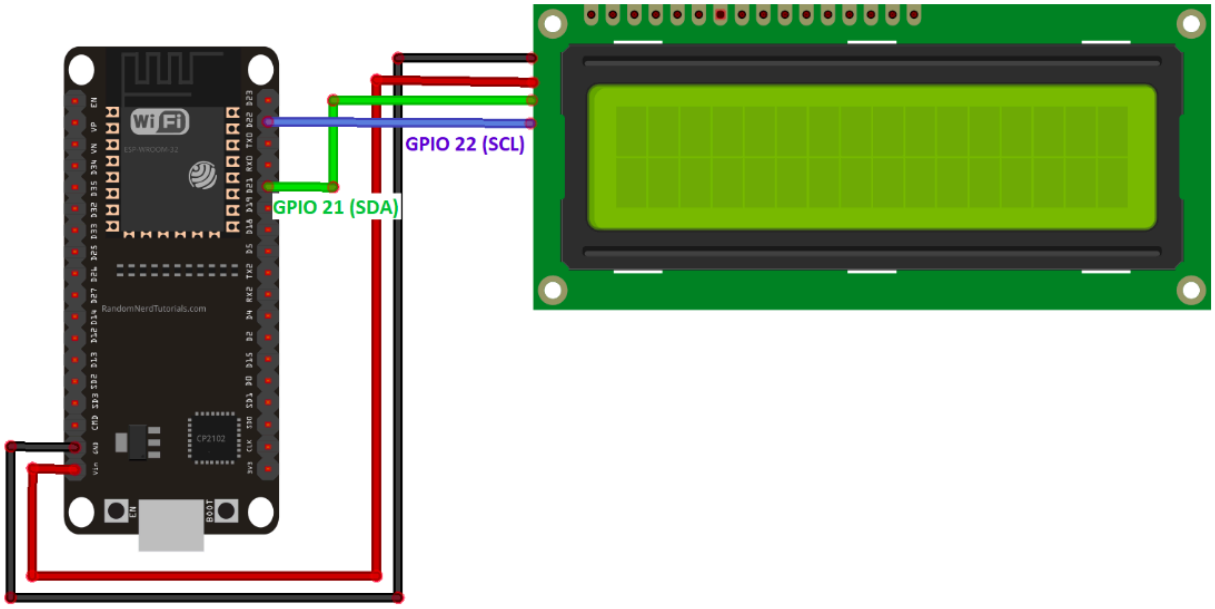
Wiring



ESP32	LCD
5V	VCC
GND	GND
P22	SCL
P21	SDA

Code

1. #Includes

```
#include <LiquidCrystal_I2C.h>
#include <WiFi.h>
```

Used LiquidCrystal_I2C library to communicate with LCD and WiFi library to connect ESP32 to the WiFi

2. Global variables

```
// set the LCD number of columns and rows
int lcdColumns = 16;
int lcdRows = 2;
const char* ssid = "ResNet Mobile Access";
#define ONBOARD_LED 2
```

Defined LCD columns and rows as 16 and 2 since we are using this type of LCD (can be changed for different LCD's)
Ssid: used UCI ResNet Mobile Access after registering device mac on the UCI internet portal

2025-10-12 15:00:47		2043a869a4b4		ESP32 device 1	n/a	Edit	Remove

Defined P2 for onboard LED

3. LCD configuration

```
// set LCD address, number of columns and rows
LiquidCrystal_I2C lcd(0x27, lcdColumns, lcdRows);
```

Using this function to set lcd configurations, here 0x27 is the I2C address of LCD identified by ESP32

4. Setup function

```
void setup(){
  Serial.begin(115200);
  WiFi.mode(WIFI_STA);
  WiFi.begin(ssid);

  pinMode(ONBOARD_LED,OUTPUT); //settings for led

  Serial.print("Connecting to WiFi..");
  while(WiFi.status() != WL_CONNECTED){
    digitalWrite(ONBOARD_LED,LOW);
    delay(10);
    Serial.print('.');
  }
  digitalWrite(ONBOARD_LED,HIGH);

  Serial.println("");
  Serial.println("Connected to WiFi network!");
  Serial.print("IP address: ");
  Serial.println(WiFi.localIP());
  // initialize LCD
  lcd.init();
  // turn on LCD backlight
  lcd.backlight();
  lcd.setCursor(0, 0);
  lcd.print("IP Address");
}
```

Here we are waiting for the internet to be connected first, until then on board led is off, once internet is connected, then we turn on the on board LED, print IP address on Serial monitor and print “IP Address” on the first row of the LCD

5. Loop function

```
void loop(){
  lcd.setCursor(0, 1);
  lcd.print(WiFi.localIP());
}
```

Here we are printing IP address on the second row of LCD

Result

Video Link:
https://drive.google.com/file/d/1f6cDQj96rU1QSIaDIU-e3roXprS7RQas/view?usp=sharing

1. Arduino IDE serial monitor

```
rst:0x1 (POWERON_RESET),boot:0x13 (SPI_FAST_FLASH_BOOT)
configsip: 0, SPIWP:0xee
clk_drv:0x00,q_drv:0x00,d_drv:0x00,cs0_drv:0x00,hd_drv:0x00,wp_drv:0x00
mode:DIO, clock div:1
load:0x3fff0030,len:4980
load:0x40078000,len:16612
load:0x40080400,len:3480
entry 0x400805b4
Connecting to WiFi..................................................
Connected to WiFi network!
IP address: 10.8.81.146
```

2. LCD Image