

# Hardware Projects

## Internet clock with LCD display

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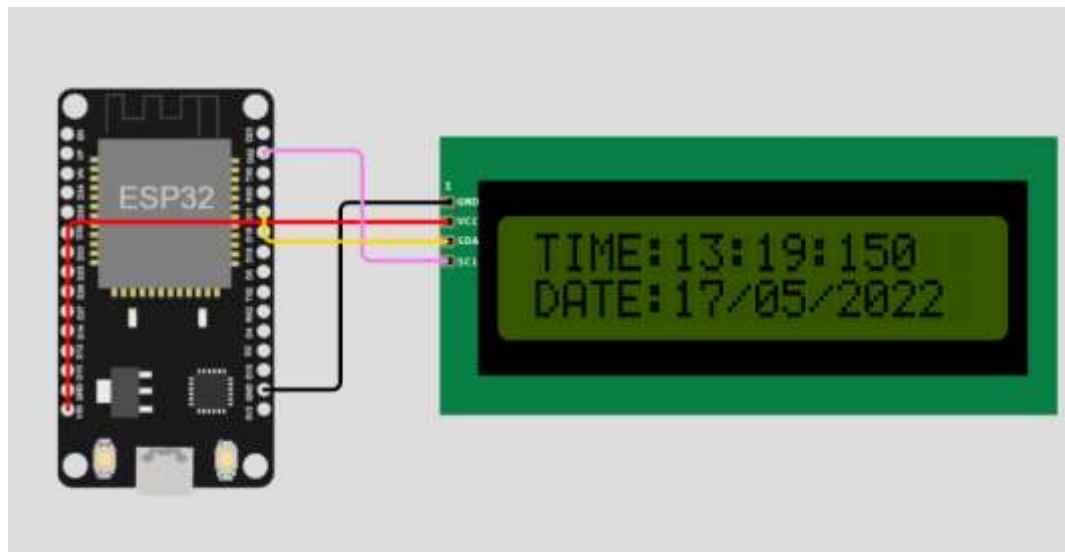
### ❖ Aim of the project

To show the time and Date of the internet in LCD

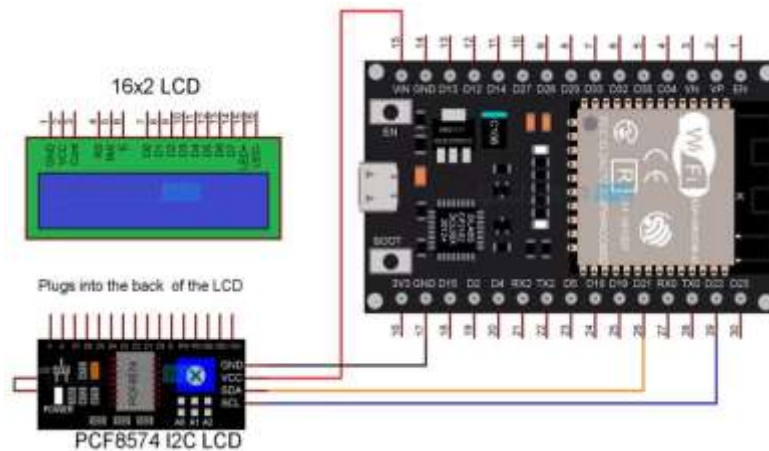
### ❖ List of the used components

1. Esp32
2. 16\*2 Lcd display
3. I2c lcd controller
4. Jumpers
5. Breadboard

### ❖ Schematic of the circuit implemented.



### ❖ Procedure to use this circuit.



1. Connect the circuit as shown in the figure
- ❖ Connect pin 1-16 of I2C module to pin 1-16 of LCD display.
  - ❖ SDA pin of I2C module -> SDA pin of ESP32 i.e D21.
  - ❖ SCL pin of I2C module -> SCL pin of ESP32 i.e D22.
2. Write the code in arduino
  3. Download the libraries Like WiFiUdp.h , NTPClient.h, LiquidCrystal\_I2C.h,...
  4. Upload the code in esp32.

### ❖ Budget of the project.

1. ESP32 (250 EGP)
2. 16\*2 LCD display (50 EGP)
3. I2C LCD controller (30 EGP)
4. Jumpers (5 EGP)

### ❖ Challenges that the team had and how to overcome them

- 1-we noticed that the light of LCD is so high, so we controlled it by the potentiometer in PCF8577 I2C LCD
- 2-When we run the code in esp32, it shows wrong data and time  
Then we noticed that the ssid and password should match with the wife we connect it with Arduino.

## ❖ Application



## ❖ References.

- 1- <https://iotdesignpro.com/projects/internet-clock-using-16x2-lcd-and-esp32>.
- 2- <https://microdigisoft.com/getting-epoch-unix-time-with-esp32-through-ntp-server-using-arduino-ide/>
- 3- <https://kb.narrative.io/what-is-unix-time>

## ❖ Video link

[https://drive.google.com/file/d/1qK4A-fxtrDIlz4NFk5P3vDN3q\\_m\\_28Qu/view?usp=sharing](https://drive.google.com/file/d/1qK4A-fxtrDIlz4NFk5P3vDN3q_m_28Qu/view?usp=sharing)