Softwares/Links Needed

- Code
    - **https://codeshare.io/km9X13**

- Arduino IDE
    - **https://www.arduino.cc/en/software**

- 16x2 LCD Module Library
    - **https://codeload.github.com/johnrickman/LiquidCrystal_I2C/zip/refs/heads/master**

- CP210X Universal Windows Drivers
    - **https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads**

Setting Up Arduino IDE for ESP32 Board

1. Install CP210X Windows Drivers
2. Open Arduino IDE
3. Click File > Preferences
4. Scroll to “Additional boards Manager URLs”
5. Copy this link:
   https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json
6. Click OK
7. Go to Tools > Board > Boards Manager
8. Type “esp” on the search bar
9. Click Install on “esp32 by Espressif”
10. Wait until the package is installed.
11. Go to Tools > Board > Boards Manager > esp32 and select “DOIT ESP32 DEVKIT V1”
12. Open Device Manager in Windows
13. Scroll to Ports (COM & LPT)

14. Take note of the COM Number of the CP210x Bridge
15. Go back to Arduino IDE
16. Go to Tools, then select COM Port Number
17. You can now compile and upload the code.

Adding Additional Libraries

For LCD:

1. Download the 16x2 LCD Library
2. Go to Sketch > Include Library > Add .ZIP File
3. Find the downloaded LCD Library .ZIP file “LiquidCrystal_I2C-master.zip”
4. Add the library
5. Done!

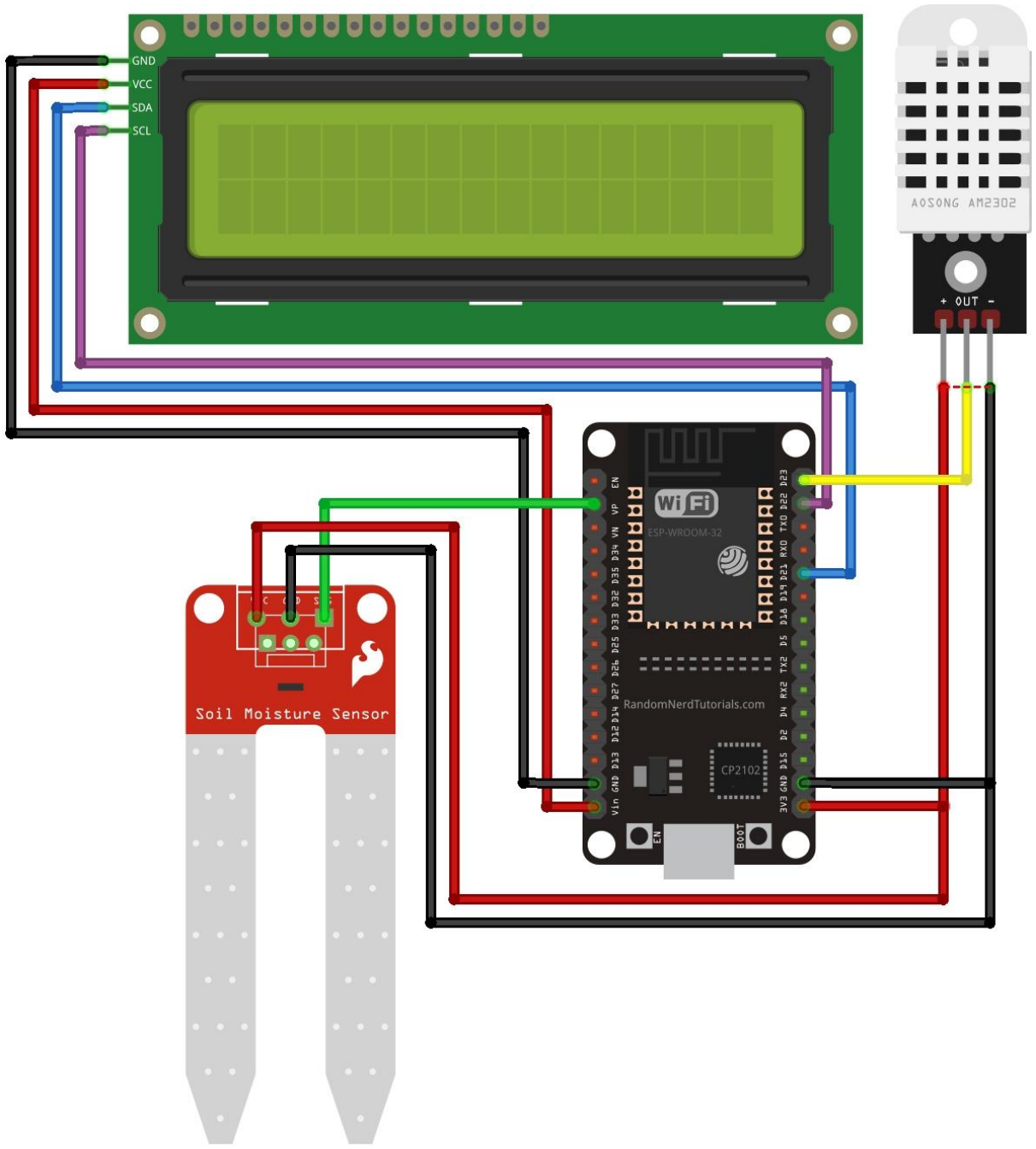
For DHT22 Sensor:

1. Go to Sketch > Include Library > Manage Library
2. Type “DHT” and click install on the “DHT sensor library by Adafruit”
3. Done!

What to Do When Uploading the Code

1. Open Serial Monitor (Tools > Serial Monitor)
2. Wait until the “Compiling” message is gone
3. When the “Uploading” message shows up, hold the BOOT button on the ESP32 Board
4. When the Serial Monitor shows values with %, let go of the BOOT button
5. Once complete, press the EN button once.

PINS / WIRING GUIDE



Left: ESP32, Right: Module/Sensor Pins

16x2 LCD MODULE	
VIN	Pin VIN
GND	Pin GND
SDA	Pin 21
SCL	Pin 22

SOIL MOISTURE SENSOR	
+	Pin 3V3
-	Pin GND
A0	Pin VP

DHT22 TEMPERATURE SENSOR	
+	Pin 3V3
-	Pin GND
OUT	Pin 23