CEIS 114
FINAL COURSE PROJECT

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INTRODUCTION

Arduino is an open-source software that is free; downloading it to my computer allowed me to write and execute codes. The project consisted of 6 steps leading up to simulating a traffic light system with an emergency signal. All components used in this project are from the IOT CORE KIT.

MODULE 2

- DOWNLOADING ARDUINO WAS EASY HOWEVER I RAN INTO A PROBLEM WITH MY COMPUTER WHERE IT WOULD NOT ALLOW ME TO CONNECT TO THE ESP32.
- DOWNLOADING A COM3 DRIVER WAS NEEDED.
- DOWNLOADED DOIT_DEVKIT
- GATHERING INVENTORY

INVENTORY (PICTURE)

ESP 32 Board

Colored LEDs: Red, Yellow, Green, and Blue

Wires

Breadboard(s)

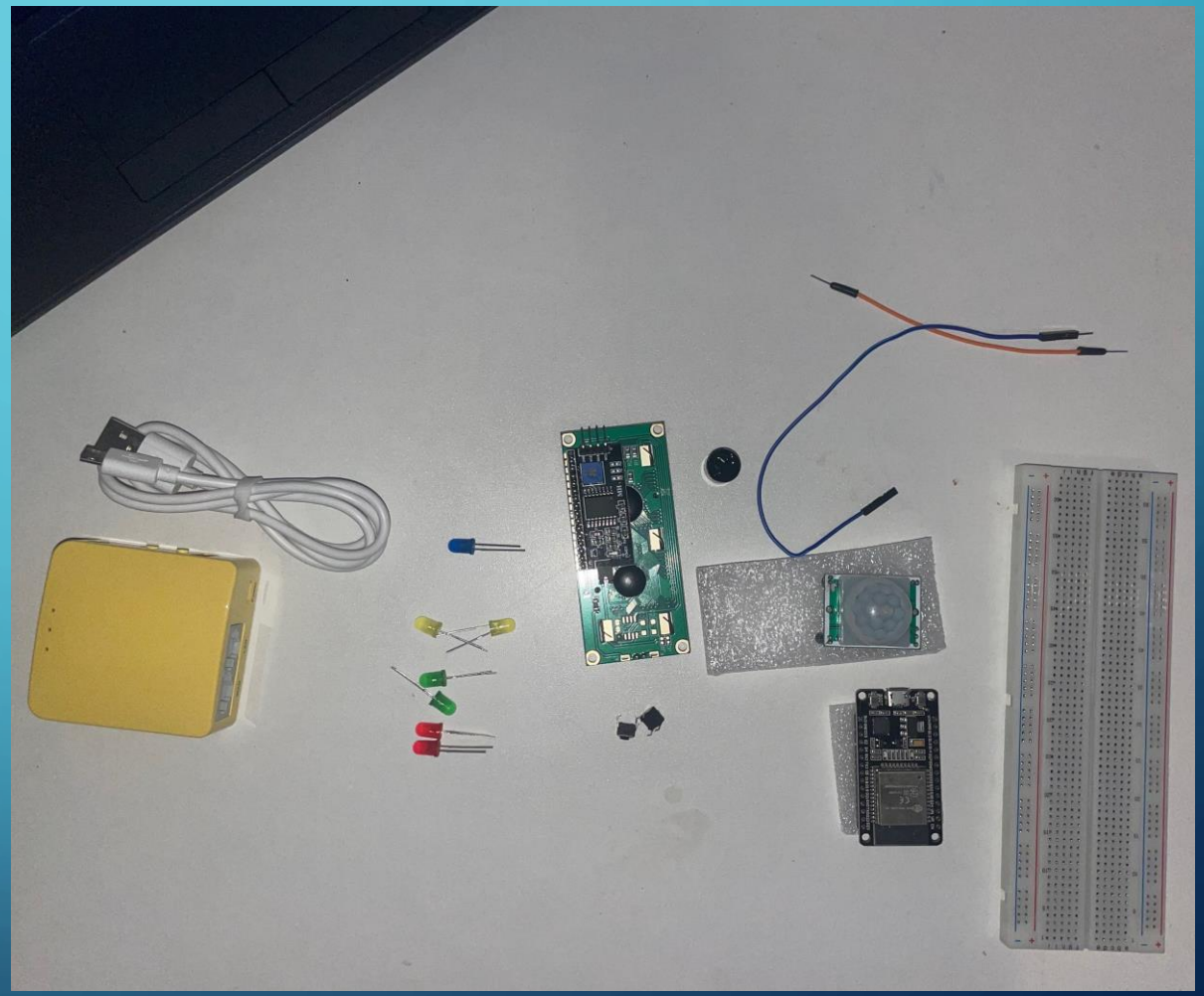
LCD Unit with I2C Adapter

Active Buzzer

Mini Router

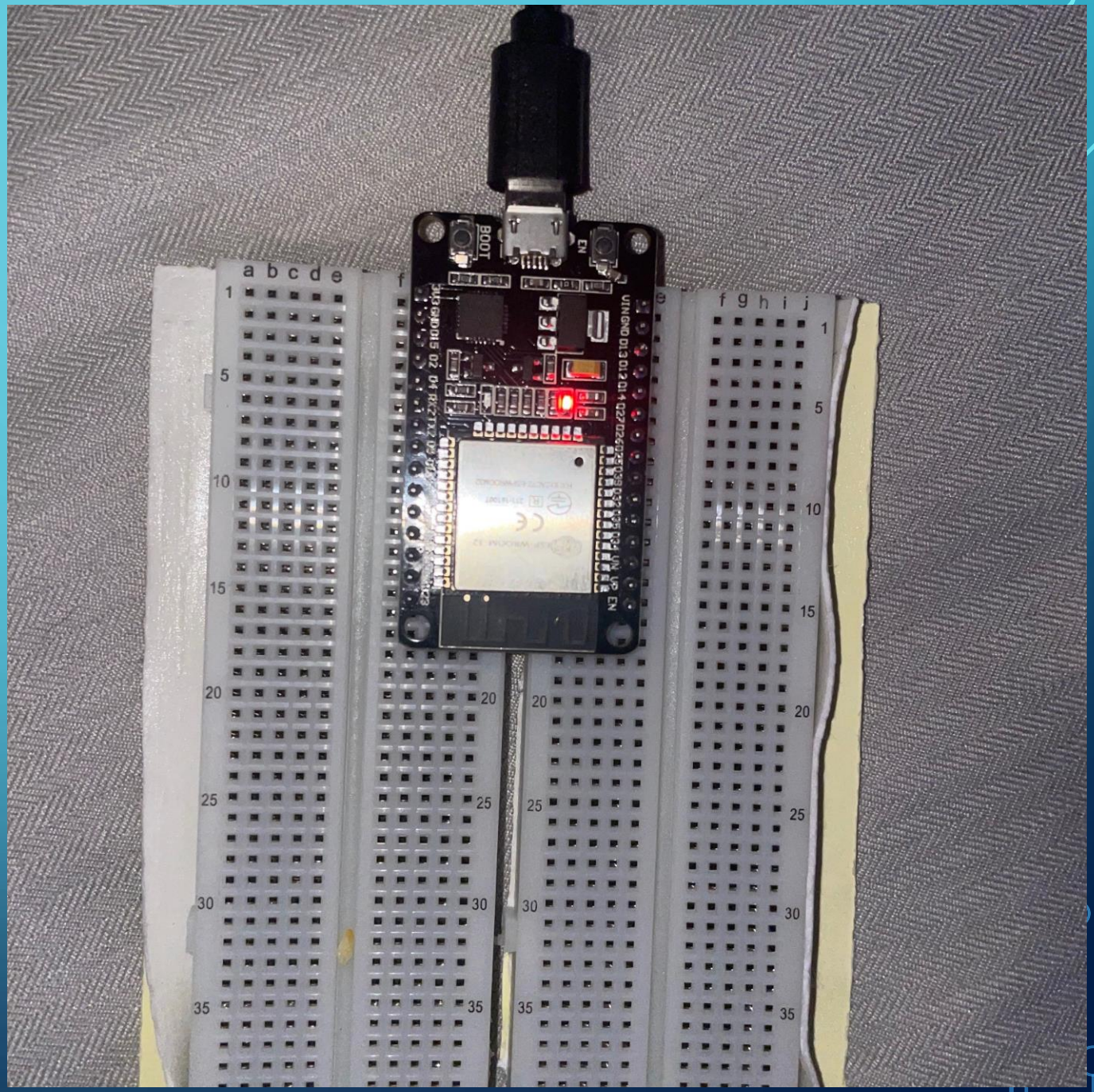
Push Button(s)

PIR Motion Sensor



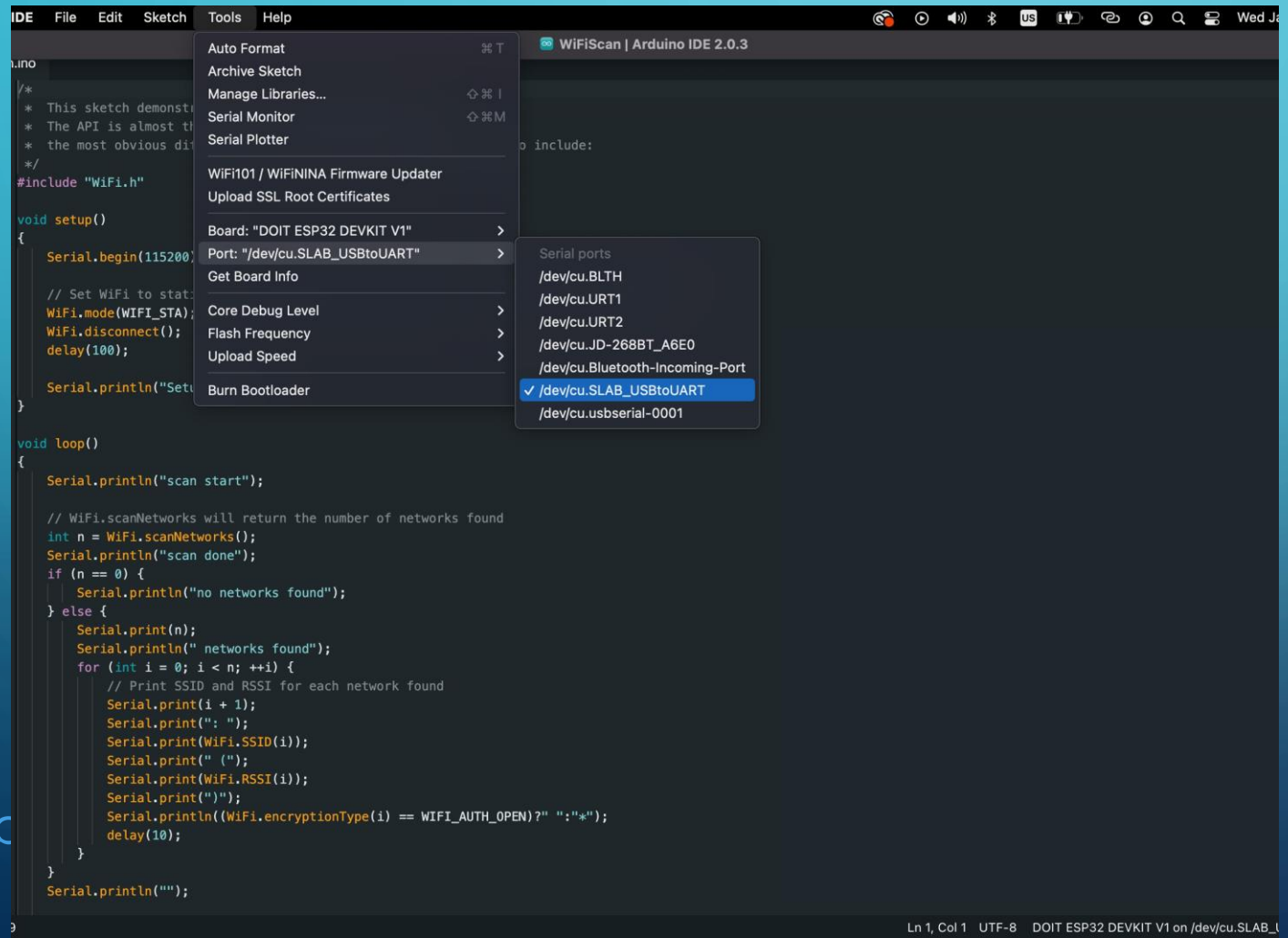
ESP32 (PICTURE)

MICROCONTROLLER MOUNTED AND POWERED ON



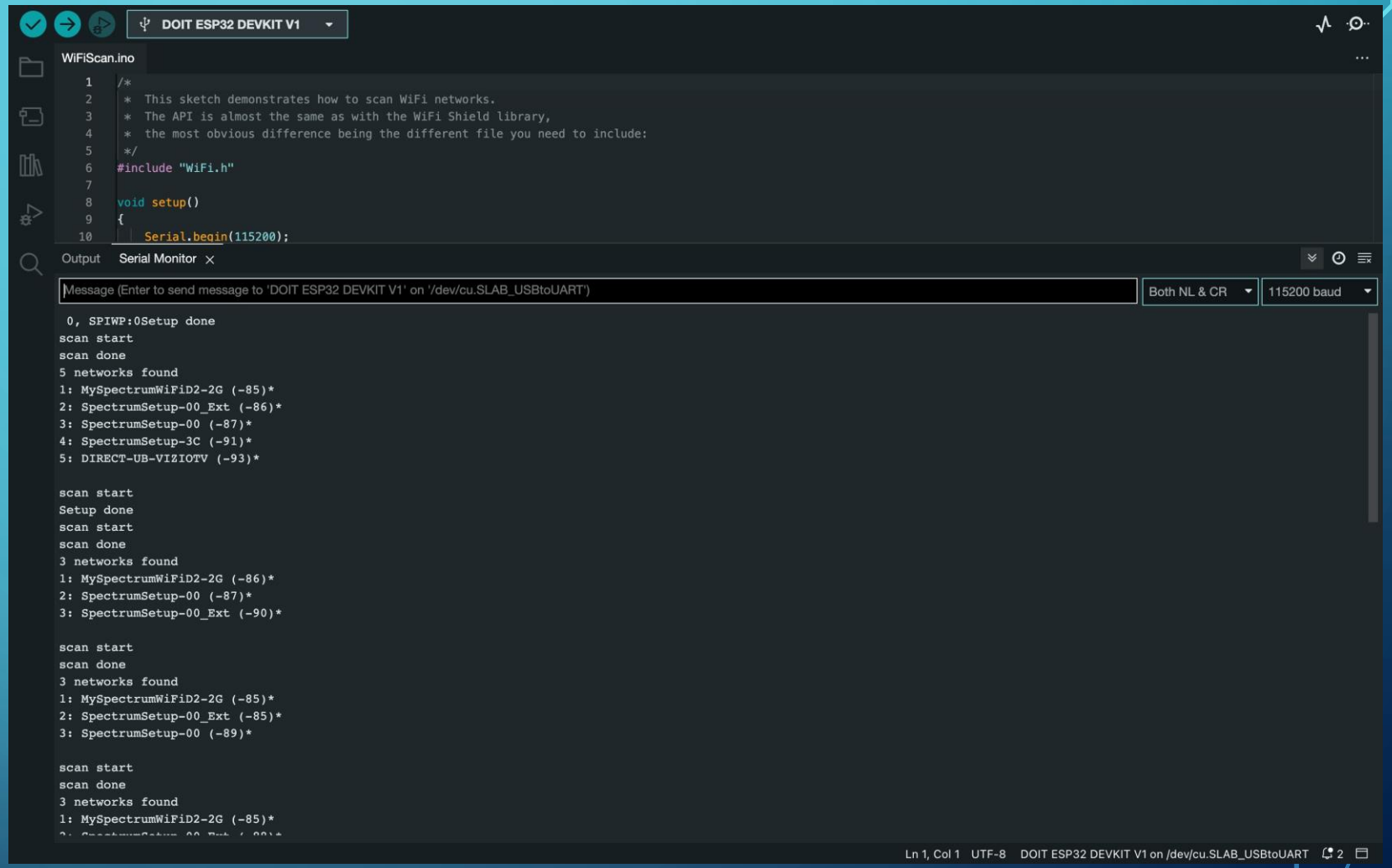
INSTALLATION OF ARDUINO IDE

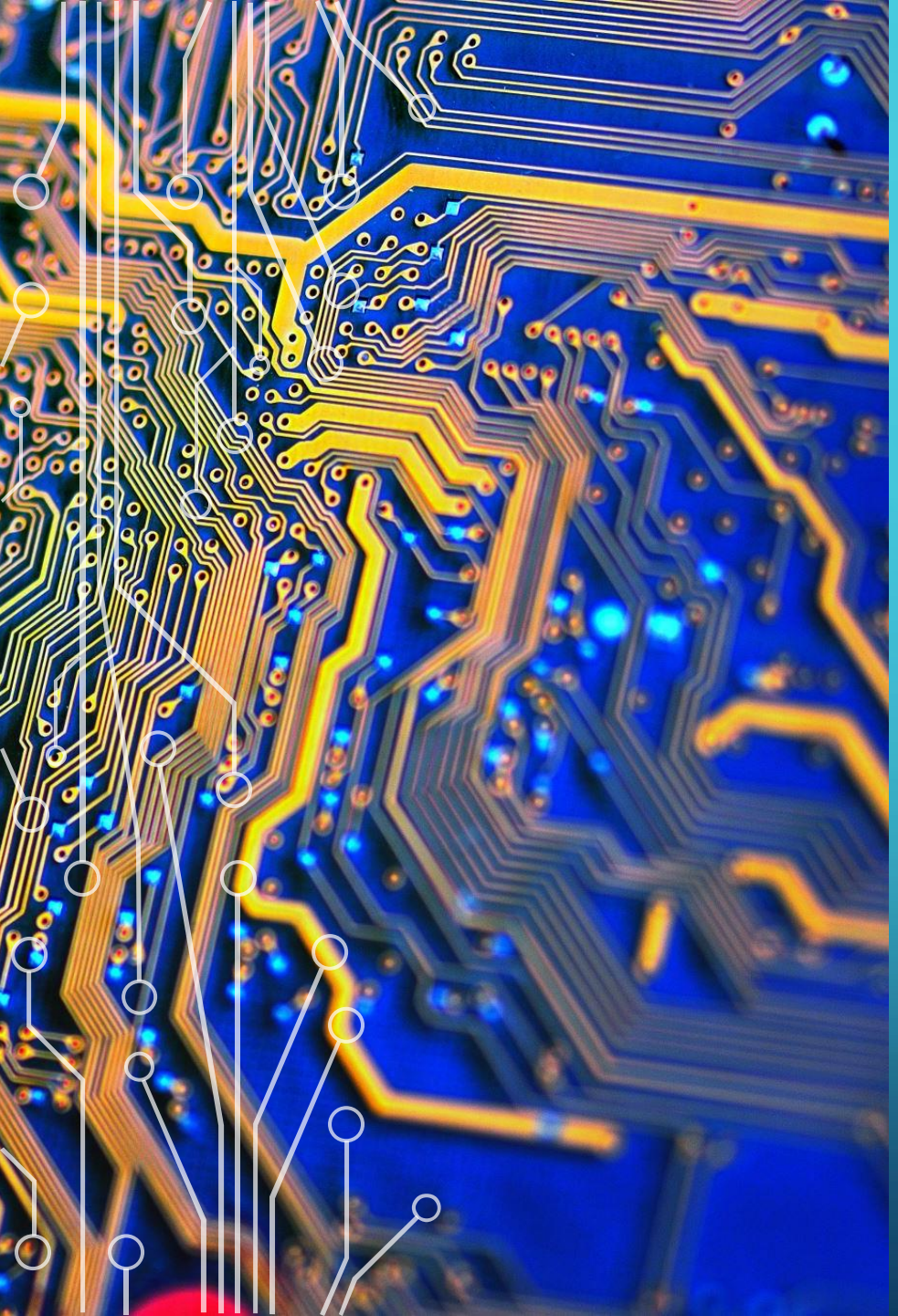
SCREENSHOT OF ARDUINO IDE WITH **PORT** SELECTED FROM TOOLS MENU.



ESP32 WiFi Scan

Screenshot of **Serial Monitor** in Arduino IDE showing the available networks





MODULE 3

- WIRING LED’S
- WIRING 2 BREADBOARDS TO FUNCTION TOGETHER

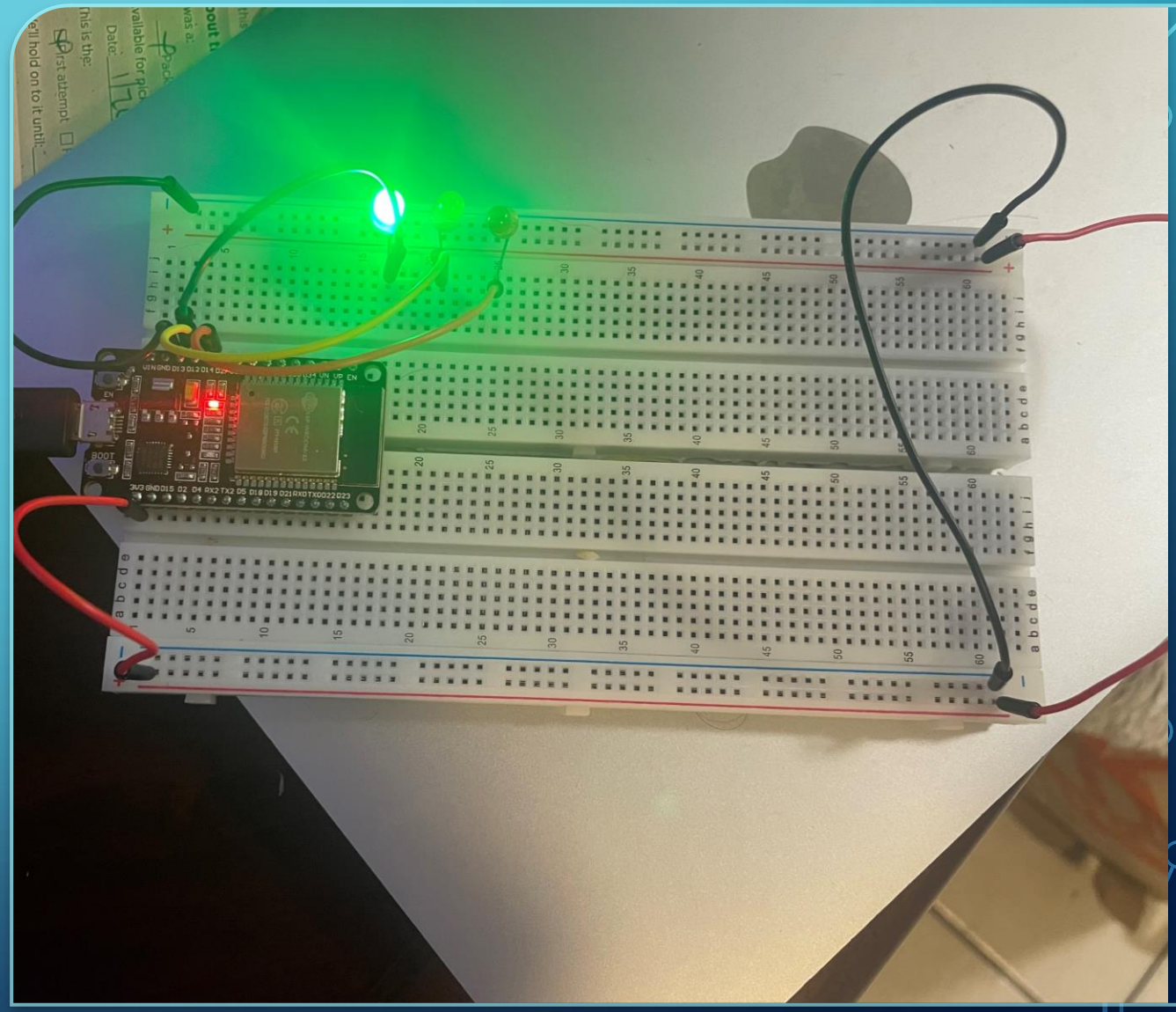
PICTURE OF CIRCUIT WITH WORKING LEDS

ESP 32 Board

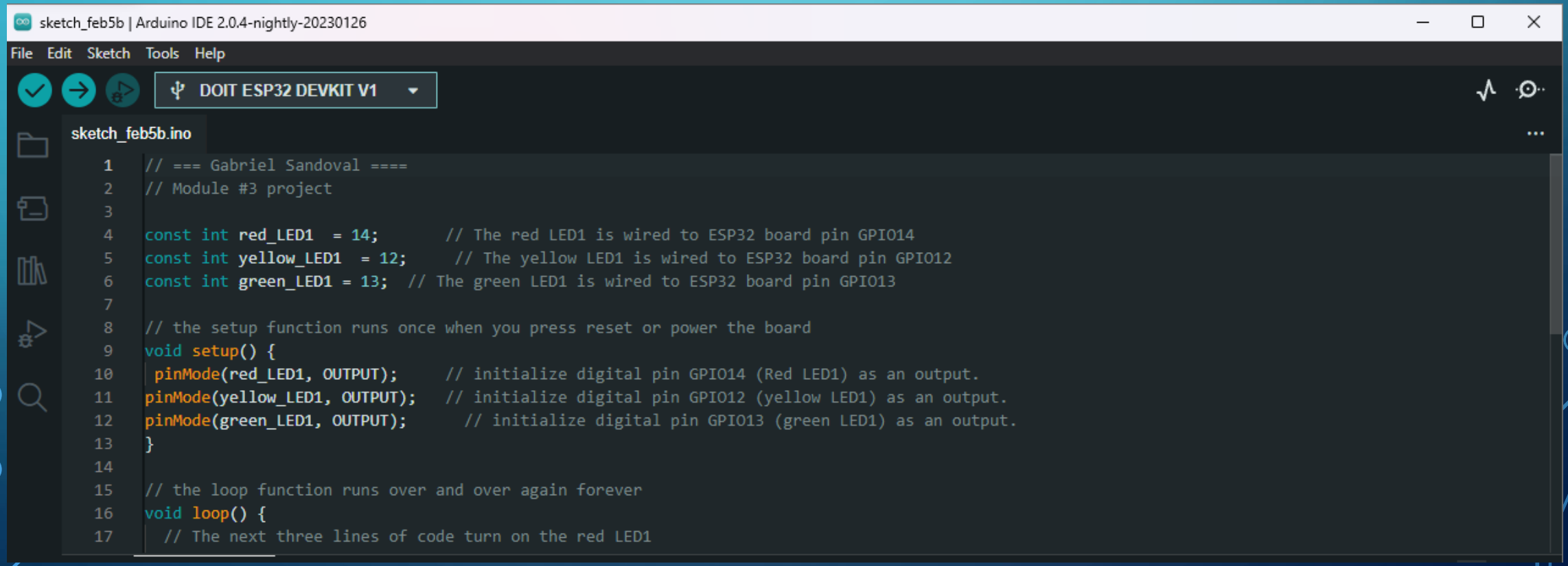
Colored LEDs: Red, Yellow and Green

Wires

Breadboard



SCREENSHOT OF CODE IN ARDUINO IDE



MODULE 4

- TESTING AND RUNNING CODE
- INSERTING 3 MORE LEDS
- WIRING NEW LED SET

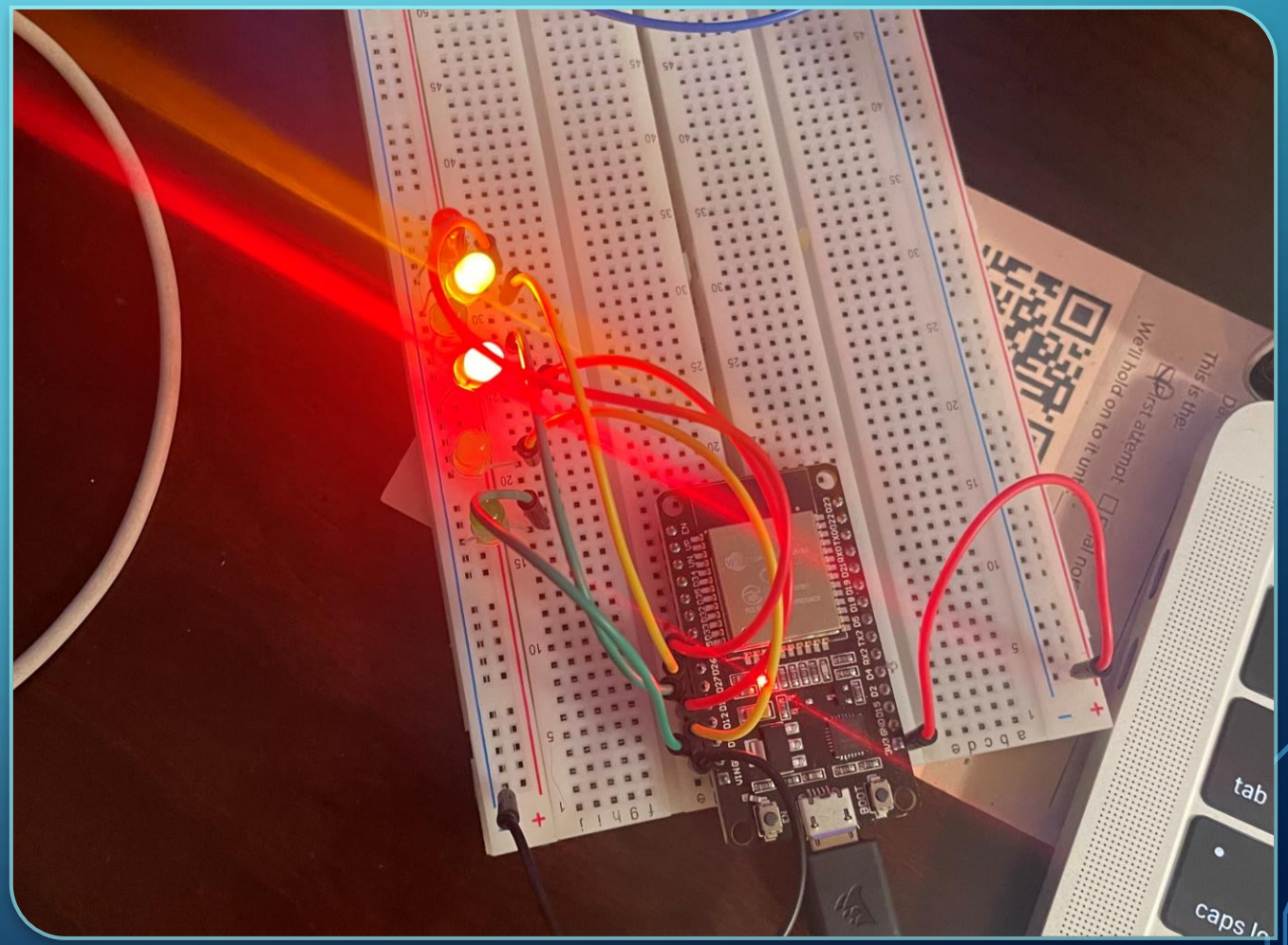
PICTURE OF CIRCUIT WITH WORKING LEDS

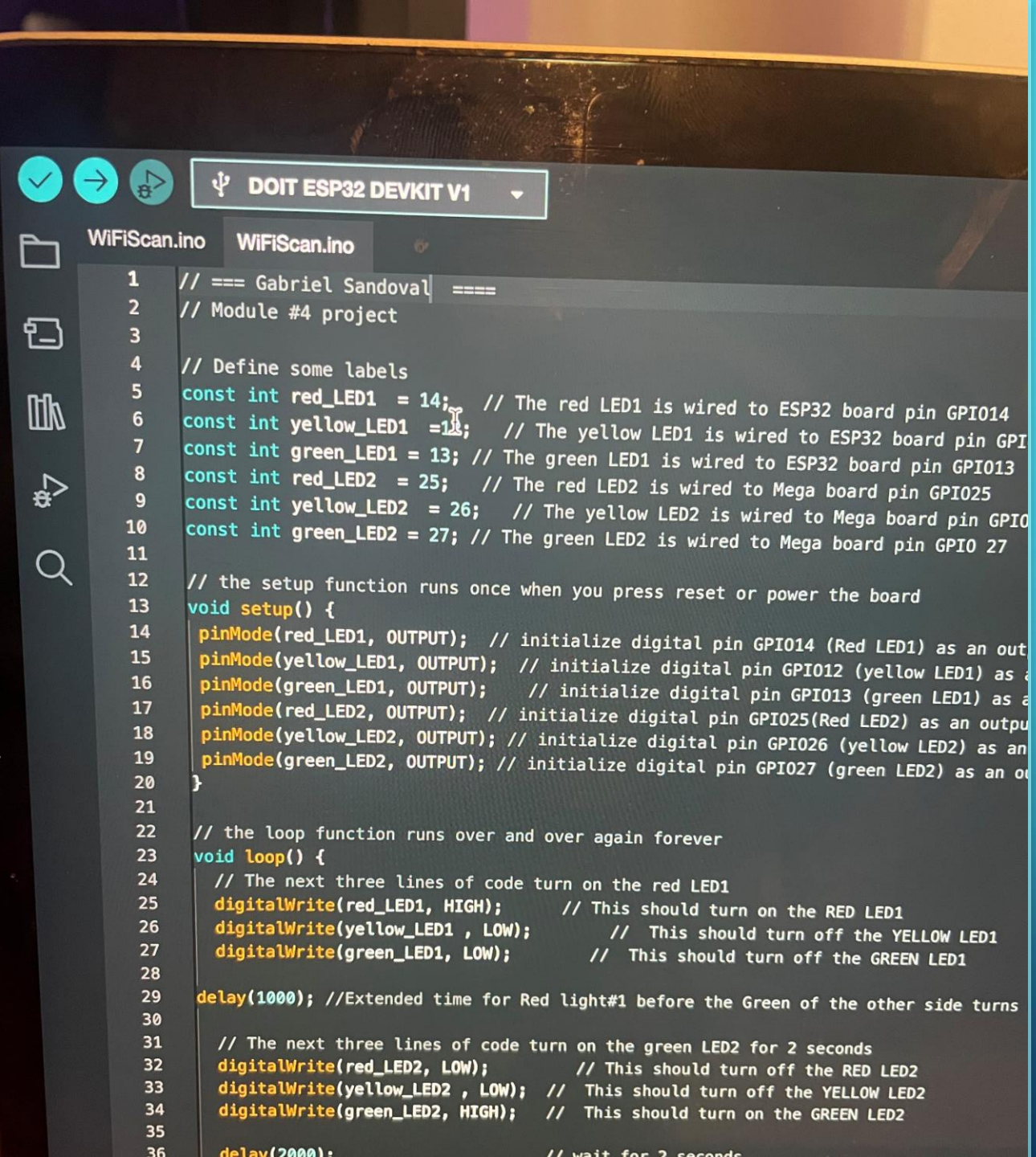
ESP 32 Board

Colored LEDs: Red, Yellow and Green (two sets)

Wires

Breadboard





SCREENSHOT OF CODE IN ARDUINO IDE

MODULE 5

- INCERTING BOTTON SIMULATING CROSSWALK BUTTON
- WRITING CODE TO INITIATE CROSSWALK COUNT DOWN

PICTURE OF THE CIRCUIT WITH WORKING LEDS

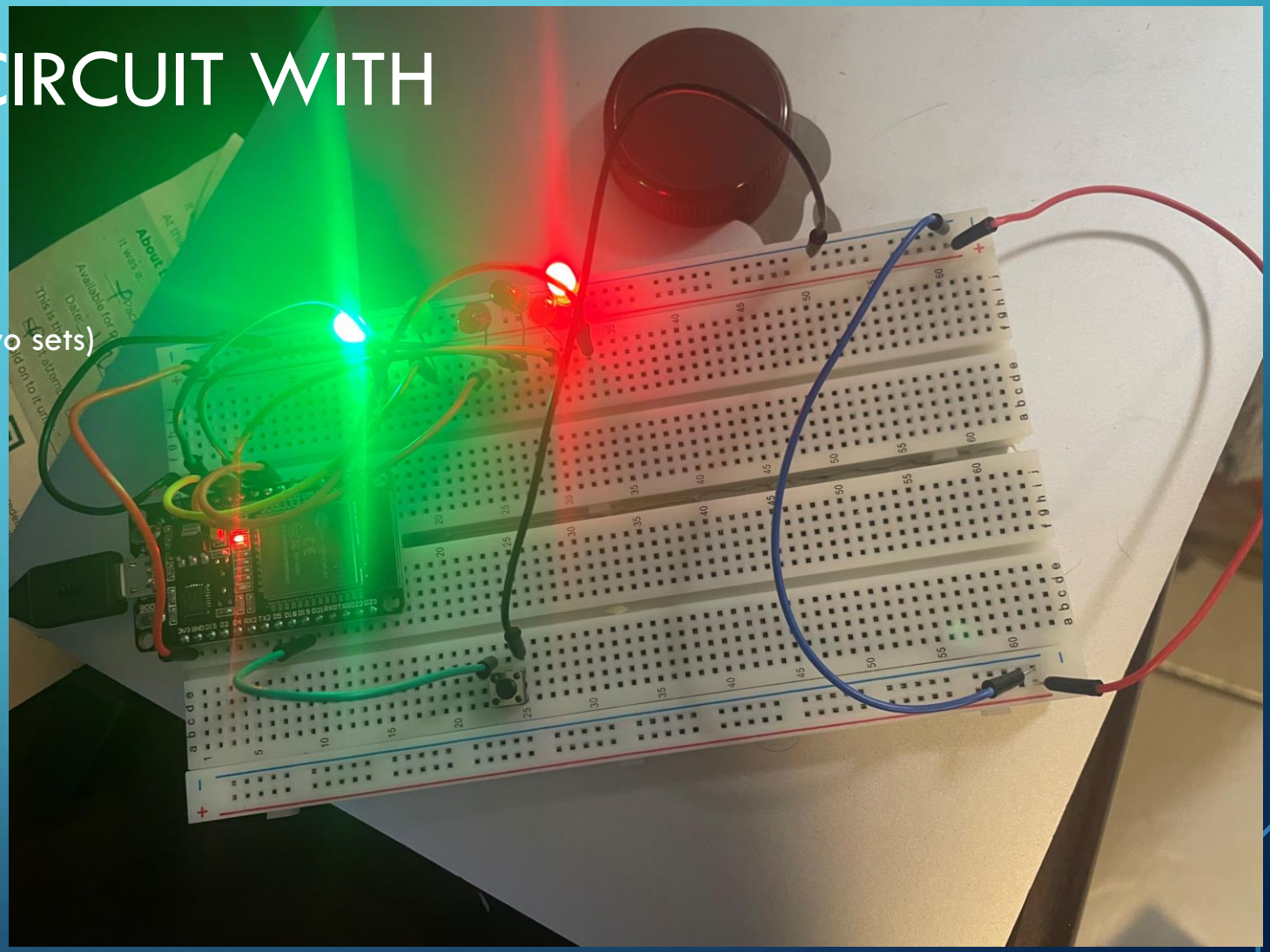
ESP 32 Board

Colored LEDs: Red, Yellow, and Green (two sets)

Push Button

Wires

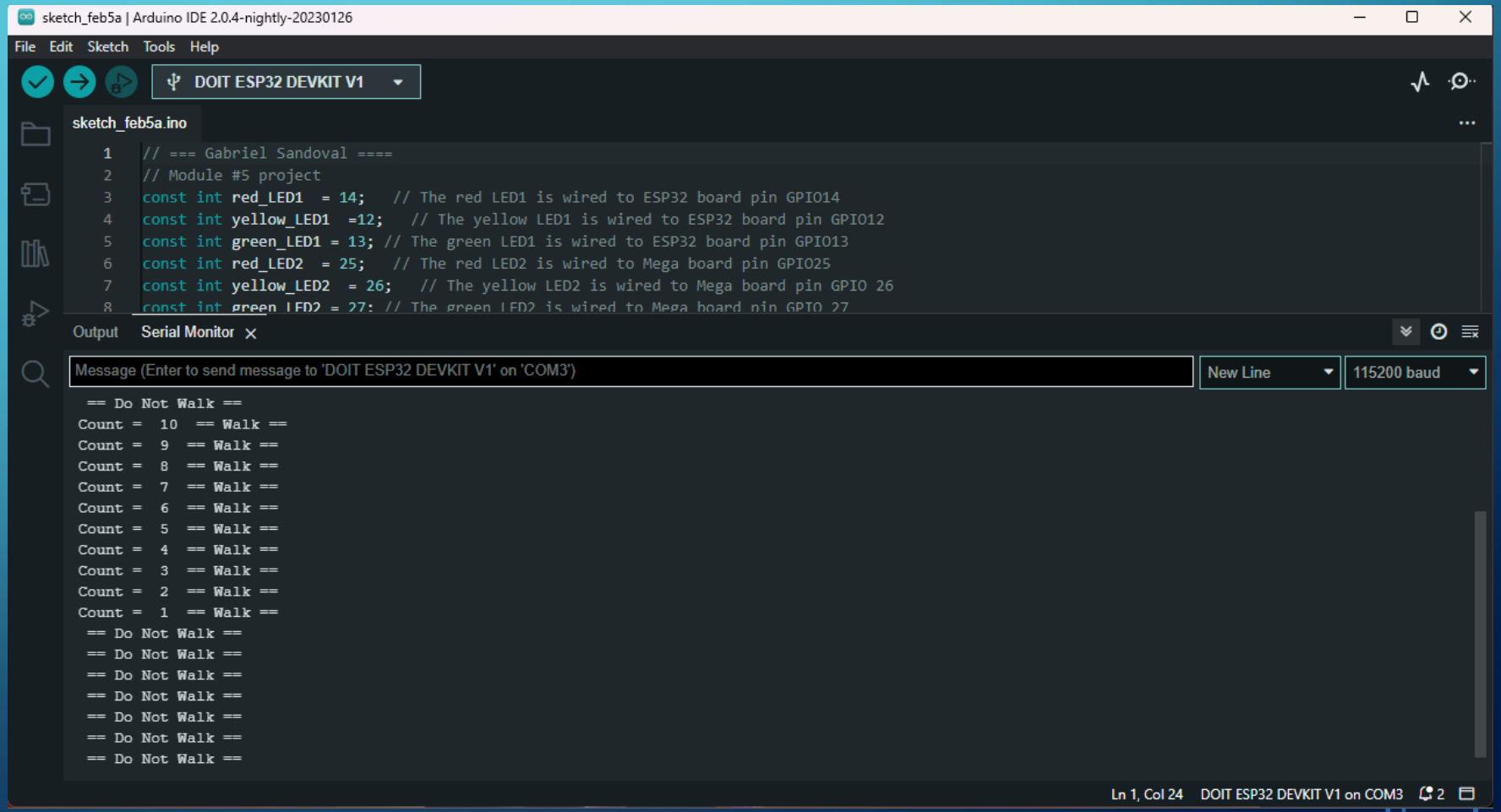
Breadboard



SCREENSHOT OF CODE IN ARDUINO IDE

SCREENSHOT OF CODE IN ARDUINO IDE

SCREENSHOT OF SERIAL MONITOR IN ARDUINO IDE



MODULE 6

- INSTALLING DRIVER FOR LCD SCREEN
- WIRING FOR LCD SCREEN
- BUZZER
- WIRING FOR THE BUZZER

PICTURE OF CIRCUIT WITH WORKING LEDS AND LCD DISPLAY

ESP 32 Board

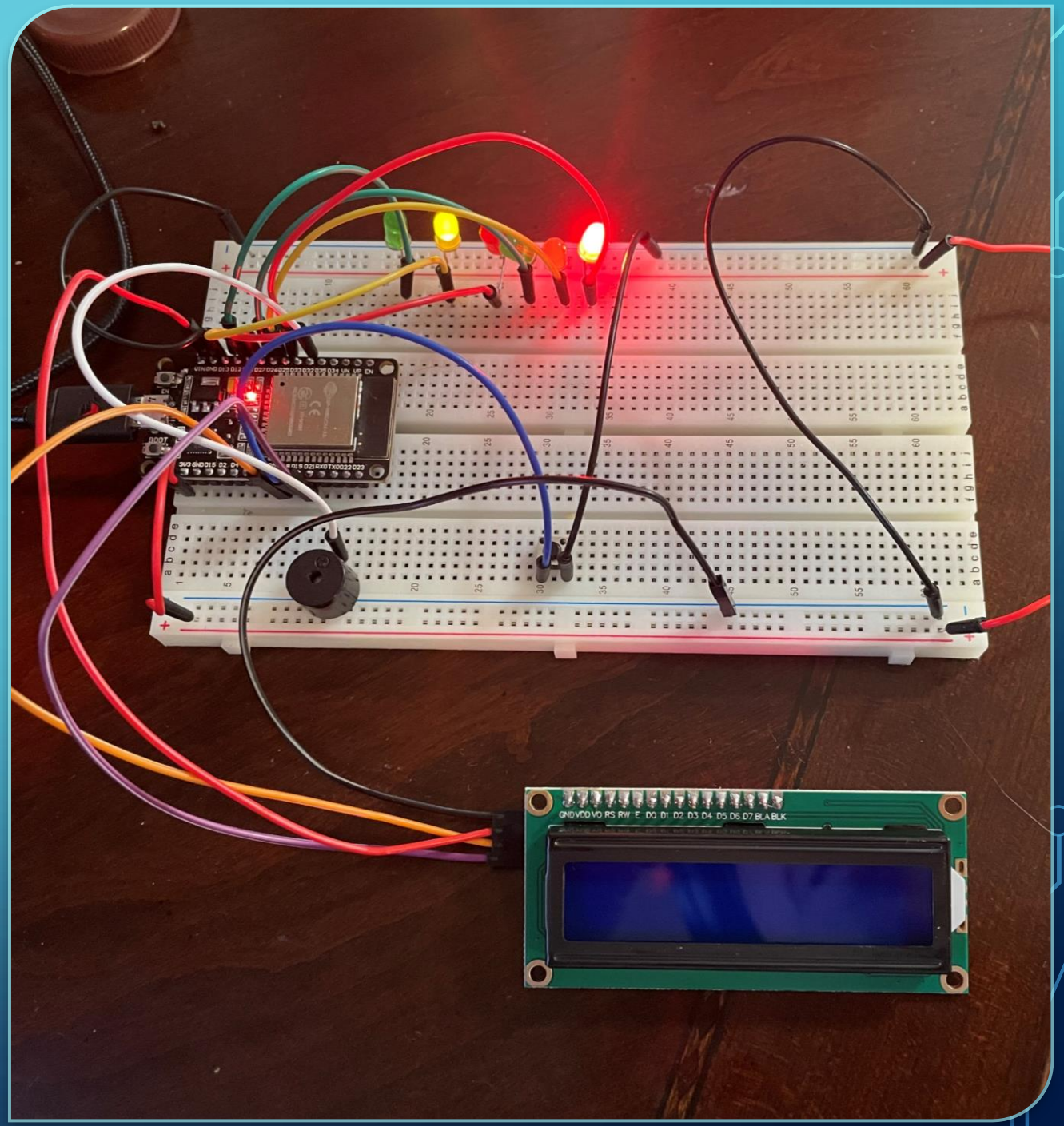
Colored LEDs: Red, Yellow and Green (two sets)

Push Button

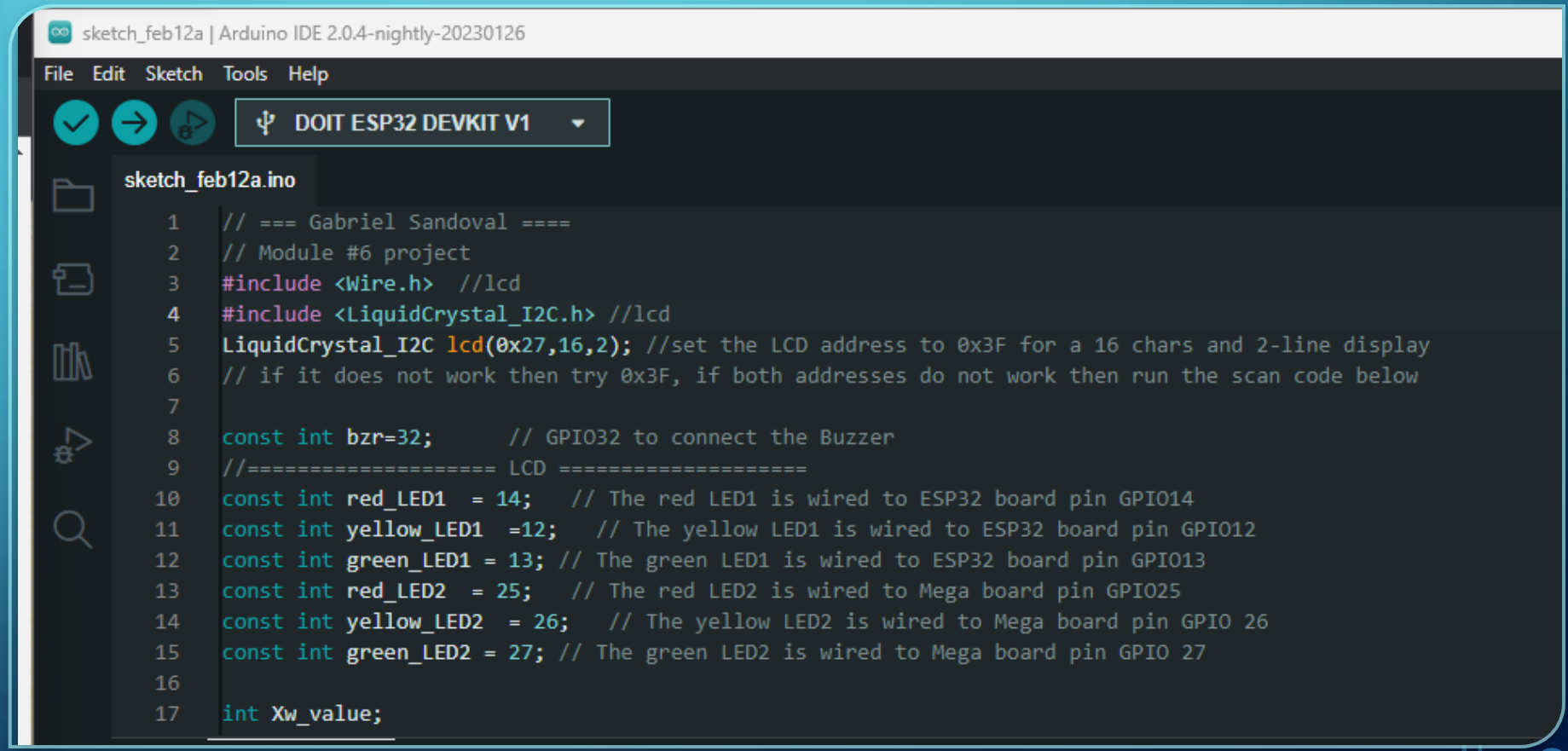
LCD Unit with Message Display (Defective)

Wires

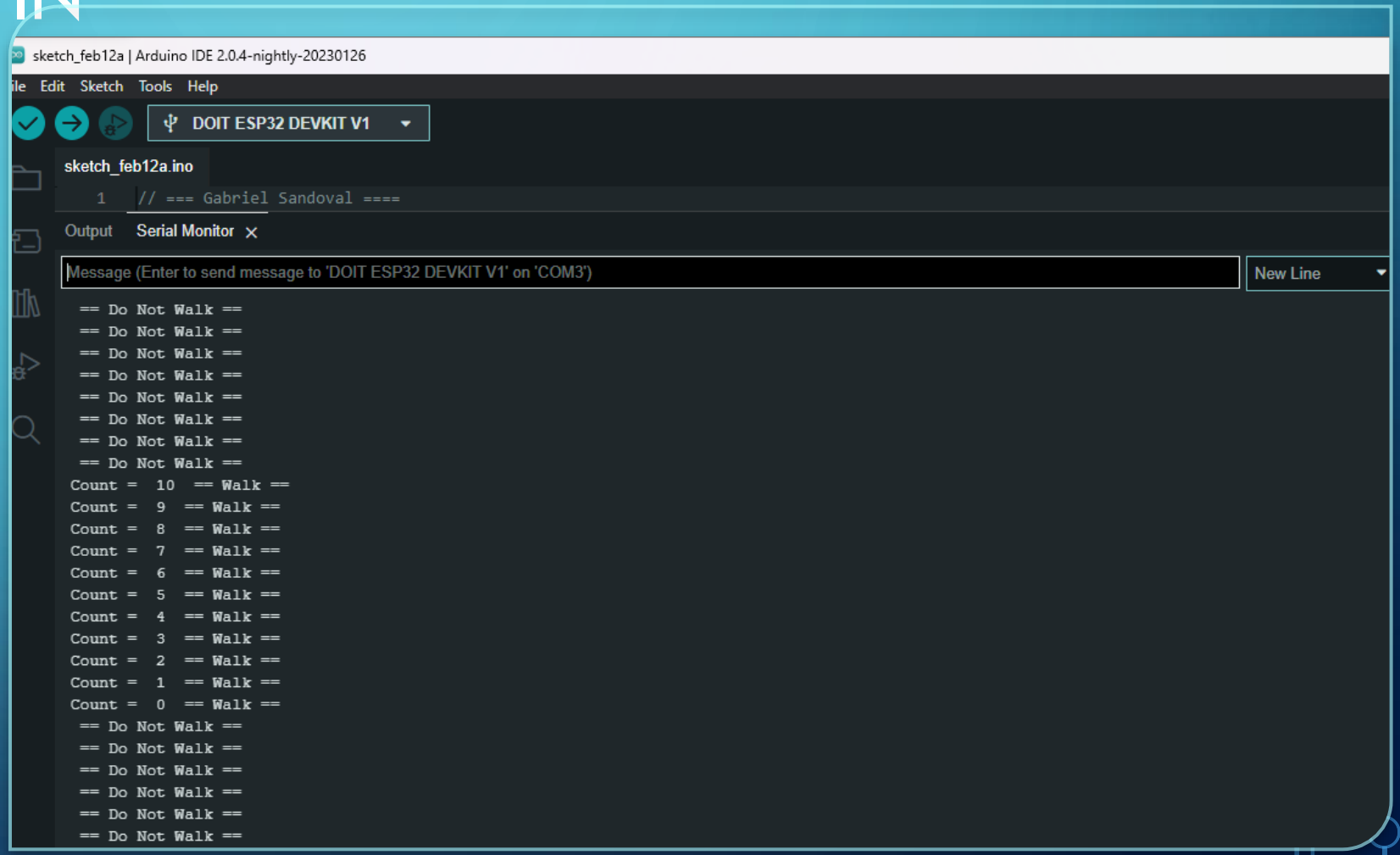
Breadboard



SCREENSHOT OF CODE IN ARDUINO IDE

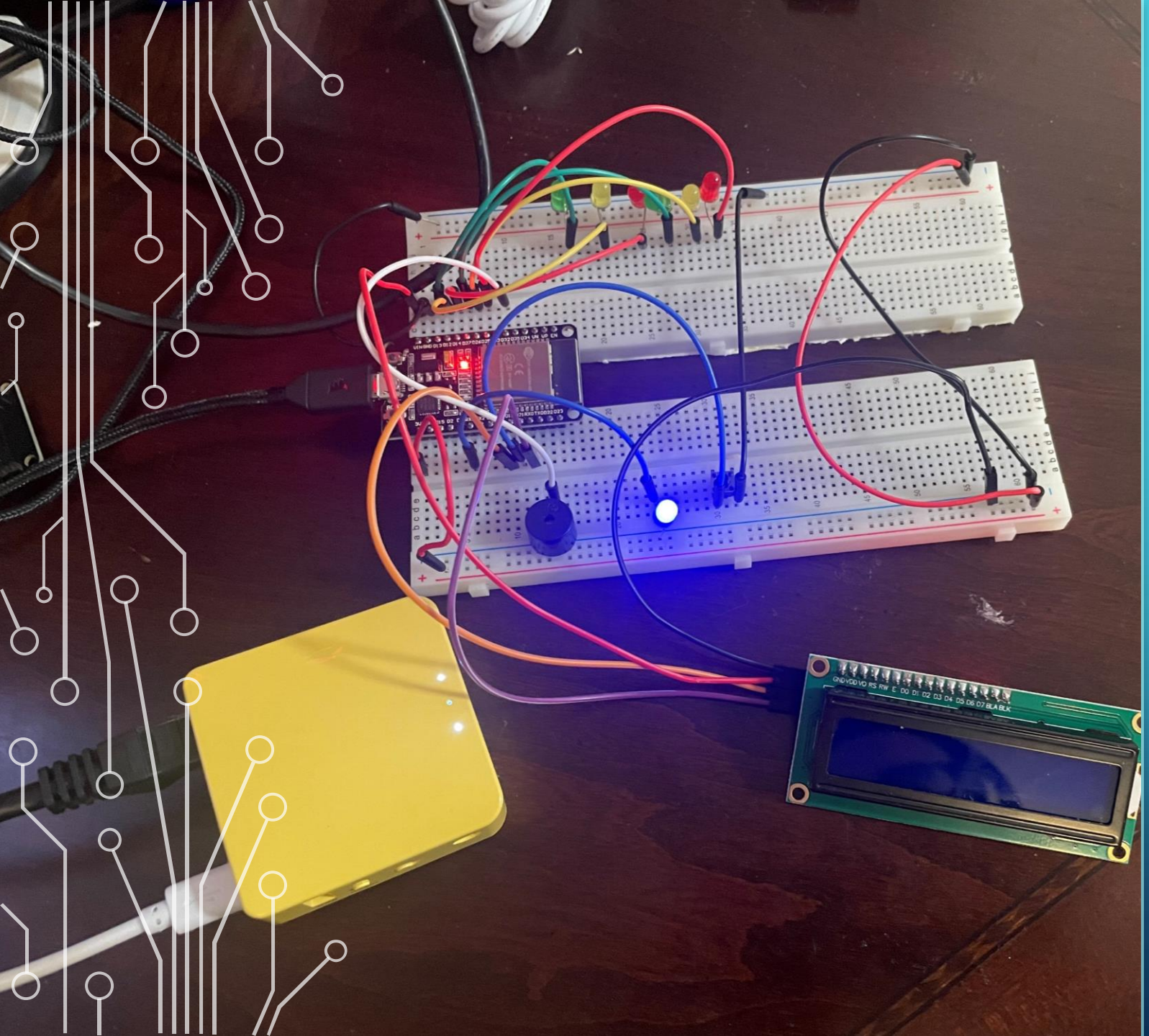


SCREENSHOT OF SERIAL MONITOR IN ARDUINO IDE



MODULE 7

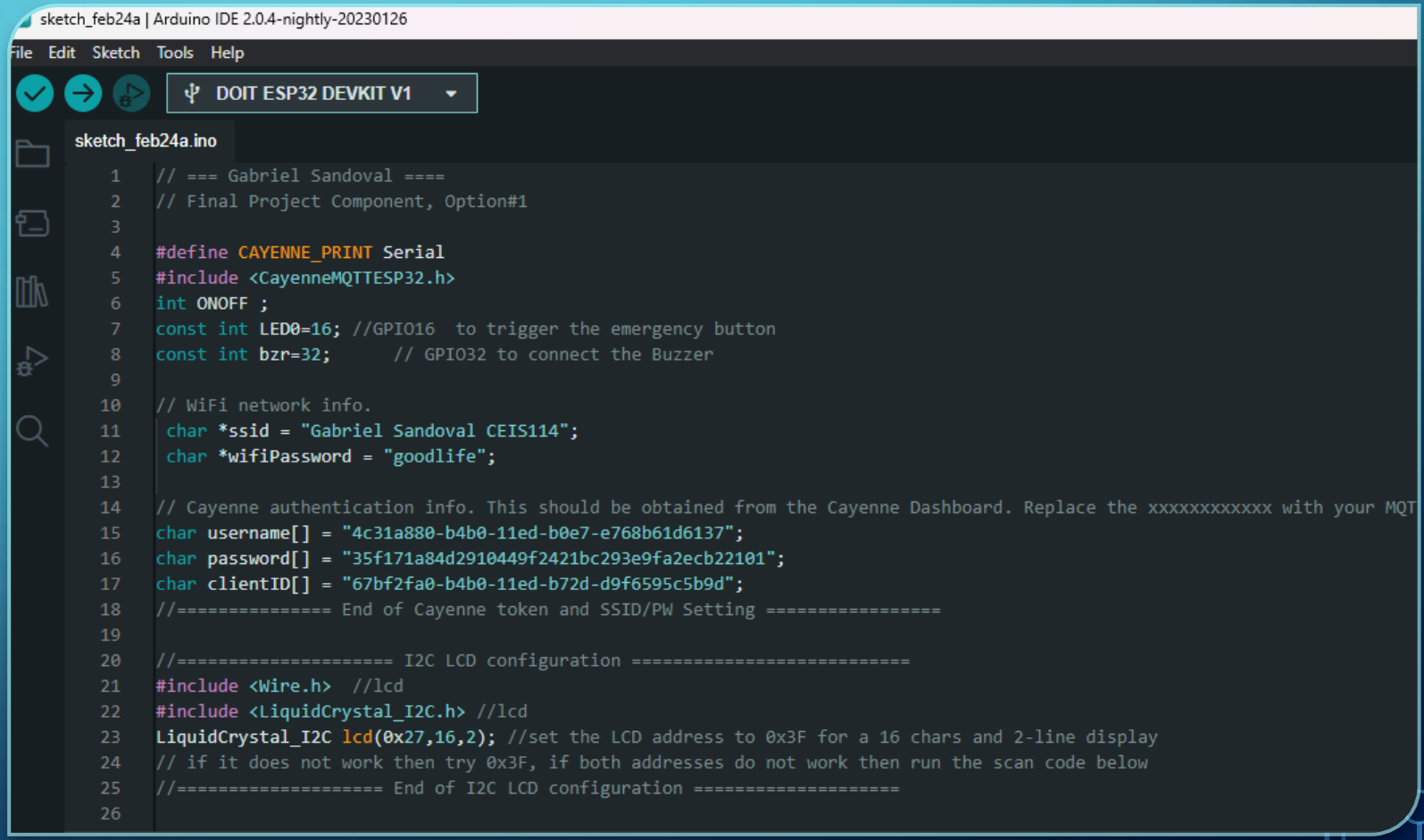
- SETTING UP WIRELESS ROUTER
- CONNECTING ESP32 TO WIFI ROUTER
- WRITING AND EXECUTING NEW CODE
- TRIGGERING EMERGENCY SINGAL

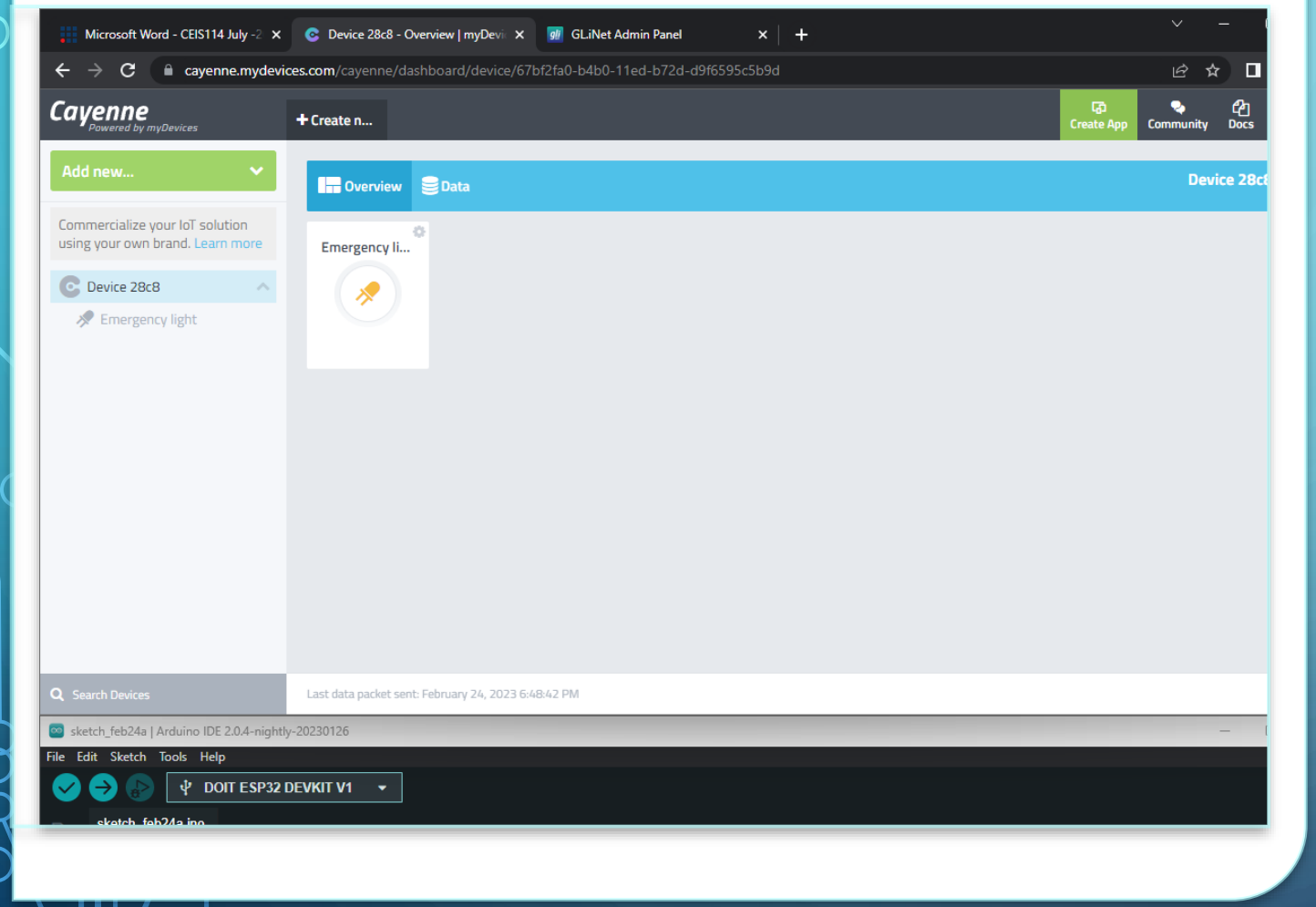


PICTURE OF CIRCUIT WITH WORKING LEDS AND LCD DISPLAY

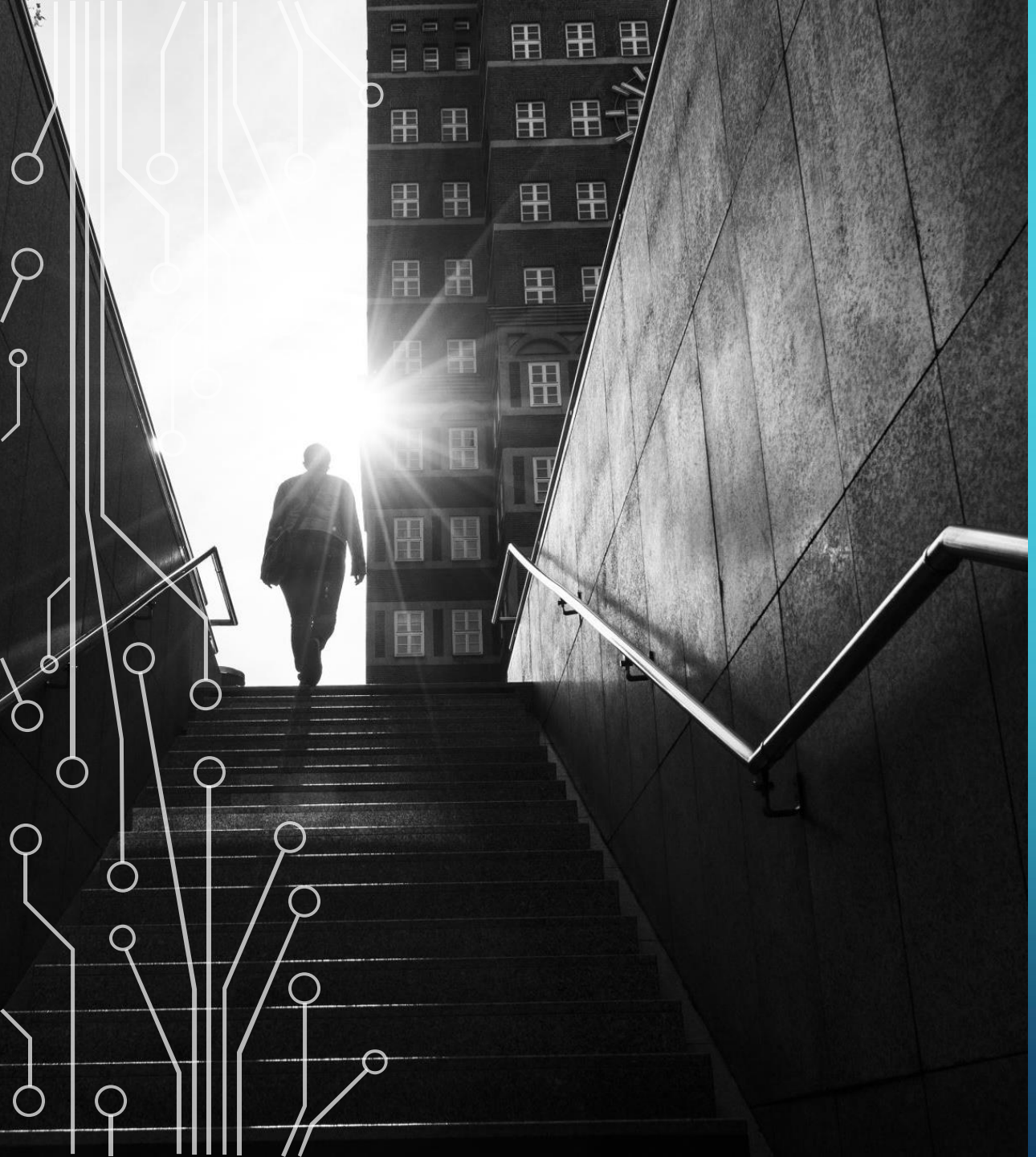
- ESP 32 Board
- Colored LEDs: Red, Yellow, and Green (two sets)
- One Blue LED – Emergency Light
- Push Button
- LCD Unit
- Buzzer
- Wires
- Breadboard

SCREENSHOT OF CODE IN ARDUINO IDE





SCREENSHOT OF SERIAL MONITOR IN ARDUINO IDE



CHALLENGES

- TRANSFERRING THE PROJECT ONTO A NEW COMPUTER
- WIRING NOT CONNECTING PROPERLY
- LCD SCREEN DEFECTIVE AND NOT ABLE TO WORK
- PROPERLY INPUTTING NEW CODES
- SETTING UP WI-FI ROUTER WITH HOME INTERNET

SKILLS OBTAINED

- System programming
- Networking
- Organization
- Coding
- Wiring
- Trouble shooting
- Time management

CONCLUSION

THIS PROJECT WAS A GREAT EXPERIENCE, AND I LEARNED A LOT THROUGHOUT THE PROCESS. THERE WERE CHALLENGES I FACE THROUGHOUT THE PROJECT HOWEVER AFTER TROUBLE SHOOTING M SYSTEMS AND REVISING CODES, I WAS ABLE TO GET IT TO PROPERLY FUNCTION. I ENJOYED THE COURSE PROJECT, COURSE, PROFESSOR, AND CLASSMATES.

REFERENCES

- COURSE VIDEOS GUIDES
- ARDUINO HELP FORUMS
- YOUTUBE