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## Project-Progress Report

### Carbon Monoxide Monitoring and 7-Day Data Recording System

**Course Title:** Electrical Circuits Lab

**Course Code:** CSE122

**Submitted to:**

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# **Carbon Monoxide Monitoring and 7-Day Data Recording System**

## **1. Introduction:**

This report presents the progress summary for the Carbon Monoxide (CO) Monitoring Project completed in the Electric Circuit Lab (CSE122). The system uses an MQ7 CO sensor with an ESP32 microcontroller to detect and interpret CO concentration levels.

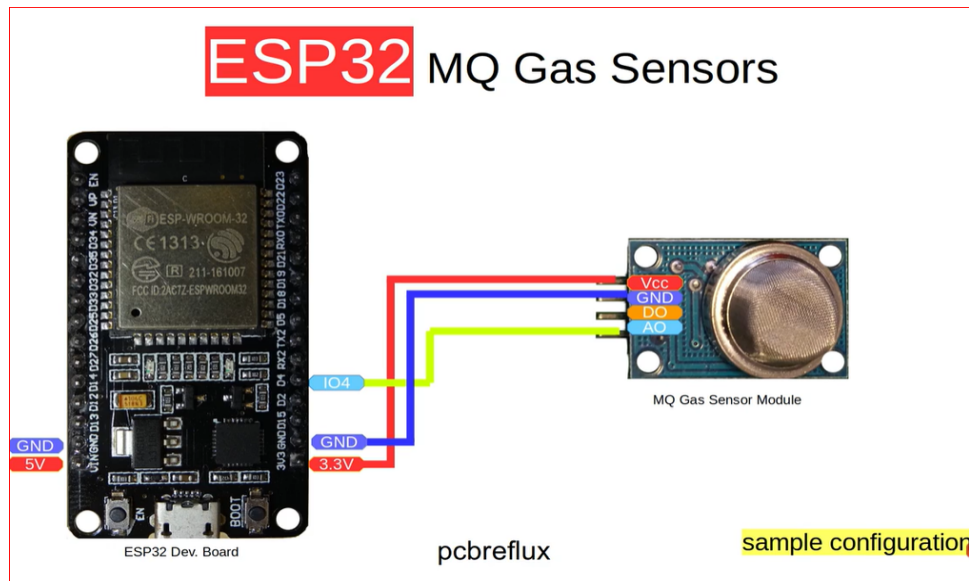
## **2. Initial Research and Planning:**

- Reviewed the physical properties, harmful effects, and environmental presence of Carbon Monoxide (CO).
- Studied the MQ7 gas sensor's working principle and calibration requirements.
- Created a structured project workflow, including component selection and testing phases.

## **3. Components Purchased:**

- MQ7 CO Gas Sensor Module
- ESP32 microcontroller
- Breadboard
- Jump Wires
- LED Indicators

## 4. Circuit Design and Workflow:



The MQ7 sensor outputs an analog voltage based on CO concentration. The ESP32 reads this signal through its ADC input and converts it into ppm values.

### Connection Details:

- MQ7 VCC → ESP32 5V
- MQ7 GND → ESP32 GND
- MQ7 AO → ESP32 GPIO34 (ADC Input)

## 5. Code Development and Troubleshooting:

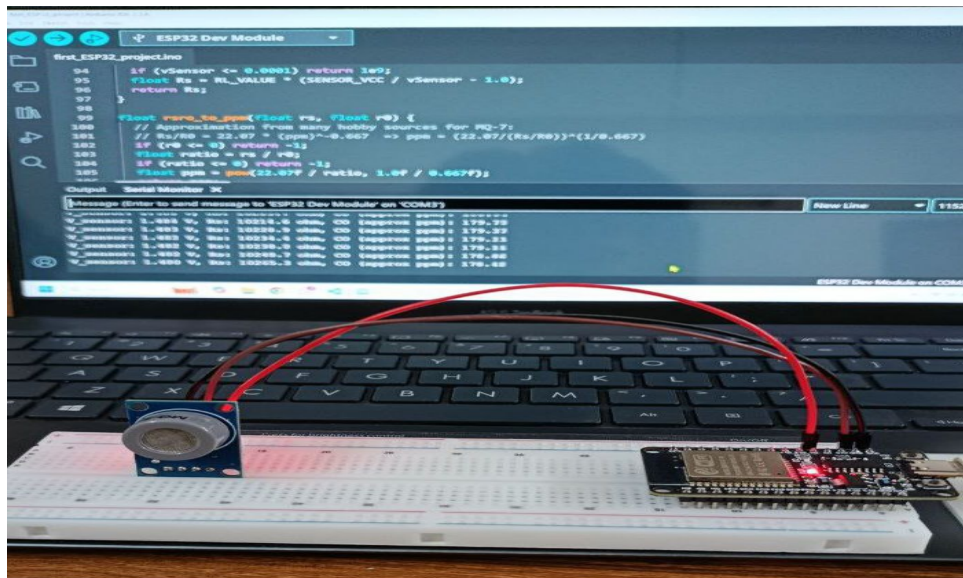
- Initial readings appeared in voltage instead of ppm.
- Consulted with instructor Mr. Anup Kumar for correction.
- Updated conversion formula to compute ppm correctly.
- Incorrect high ppm values were due to powering the MQ7 with 3.3V instead of 5V.
- After switching to 5V, stable ppm readings between 4–6 ppm were achieved.

## 6. Final Performance and Results:

Once powered with the recommended 5V supply, the MQ7 sensor produced stable CO readings between 4–6 ppm. This aligns closely with Savar's average CO concentration of approximately 4.4 ppm.

## 7. Project Status:

- The CO monitoring prototype is fully implemented, calibrated, and functioning accurately.
- The remaining task is to record CO data continuously for 7 days to support environmental analysis.



**Conclusion:** The system is fully prepared for extended CO monitoring and long term data analysis.

**The End**