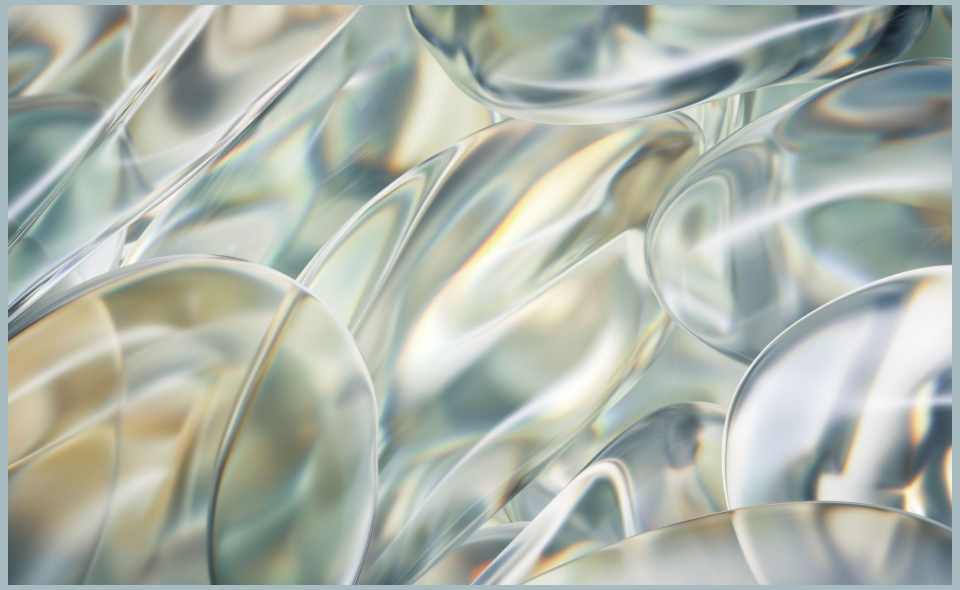
Air Pollutant Alert System



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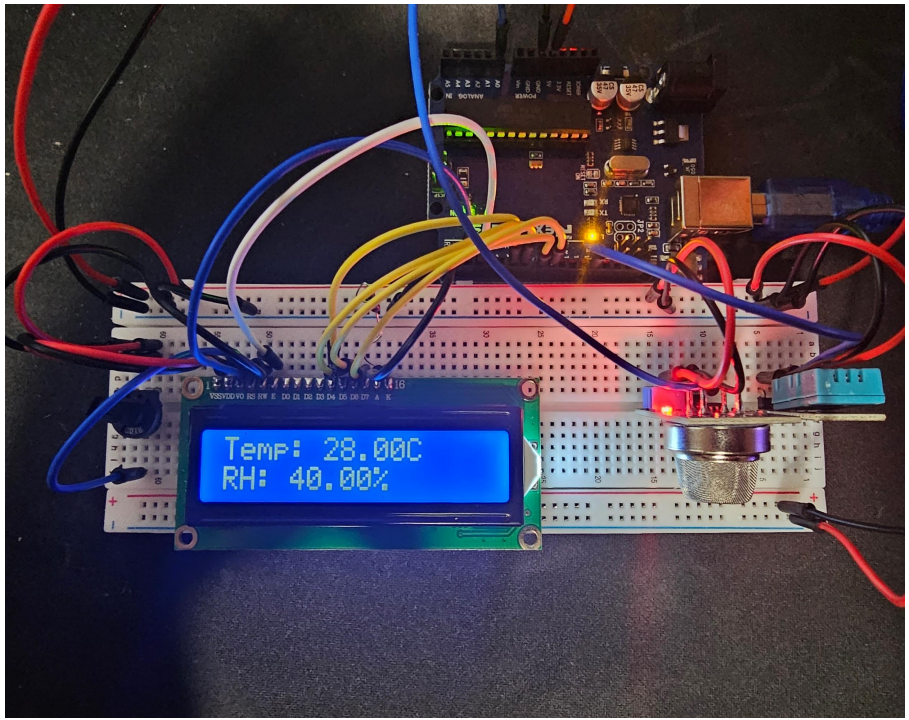
Introduction

- Creating a simple and effective air quality monitoring device that uses the MQ-2 sensor to detect harmful gases.
- Pollutants include: Methane (CH_4), propane, hydrogen (H_2), carbon monoxide (CO), smoke, and other flammable or hazardous gases.
- Incorporate a DHT11 sensor to measure temperature and humidity, which play a big role in air quality and the accuracy of gas detection.
- System is designed as an air pollution alert device, providing real-time warnings when pollutant levels rise to unsafe levels.

Description of the Product



- Uses DHT11 Temperature and Humidity Sensor and MQ-2 Air Quality Sensor
- Uses LCD1602 Liquid Crystal Display to output readings and environment pollutant status.
- Uses Potentiometer to control display contrast on LCD 1602 display.

Air Pollutant Alert System

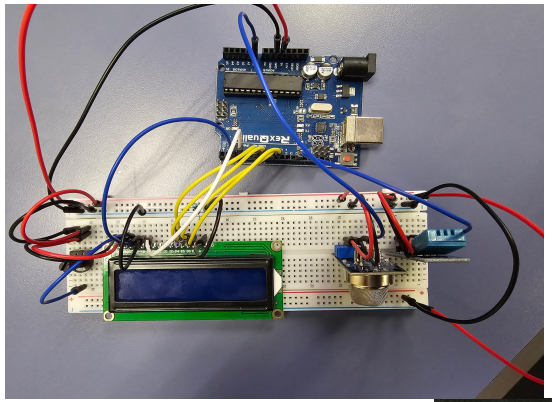
Operation Of The Product

- Takes in data on humidity (%RH), temperature(C), and gas levels (PPM)
- Processes this data and uses it to detect possible unsafe pollutant environments.
- Displays this data on a liquid crystal display warning of unsafe or hazardous pollutant environments.

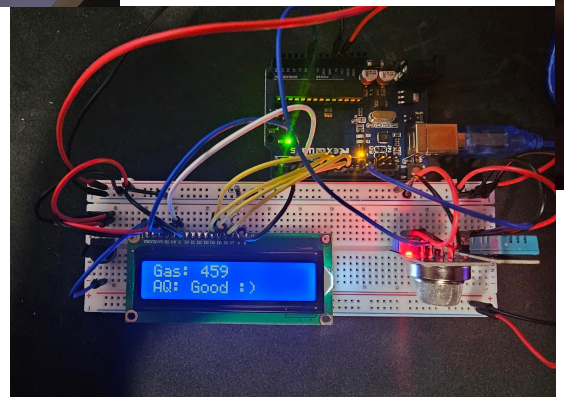
PPM Range	Air Quality Level	Description
0–400 ppm	**Excellent :D**	**Clean air; typical outdoor environment.**
400–1000 ppm	**Good :)**	**Normal indoor air with people present; well-ventilated spaces.**
1000–2000 ppm	**Moderate :|**	**Poor ventilation; may cause mild discomfort (e.g., drowsiness, stale air).**
2000–5000 ppm	**Unhealthy :(**	**High pollution; can lead to headaches, dizziness, and reduced cognitive ability.**
5000+ ppm	**Hazardous :0**	**Severe pollution; prolonged exposure can cause health risks or poisoning.**

Development

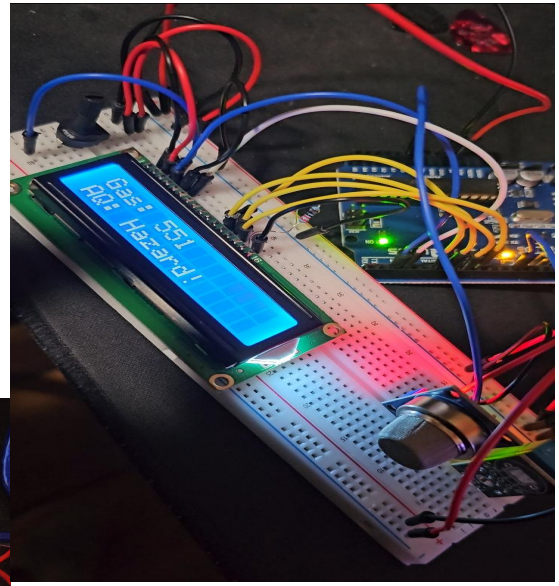
- Constructed the first circuit using an Arduino and a breadboard, using a laptop for power.
- Using an MQ-2 Sensor, DHT11 Sensor, and LCD 1602 Module, we constructed our basic Air Pollutant Alert System, we would revise this design twice due to incorrect connections and faulty code.
- Main issues faced included connecting the LCD 1602 display, bad connections, and code issues (libraries).



First Prototype



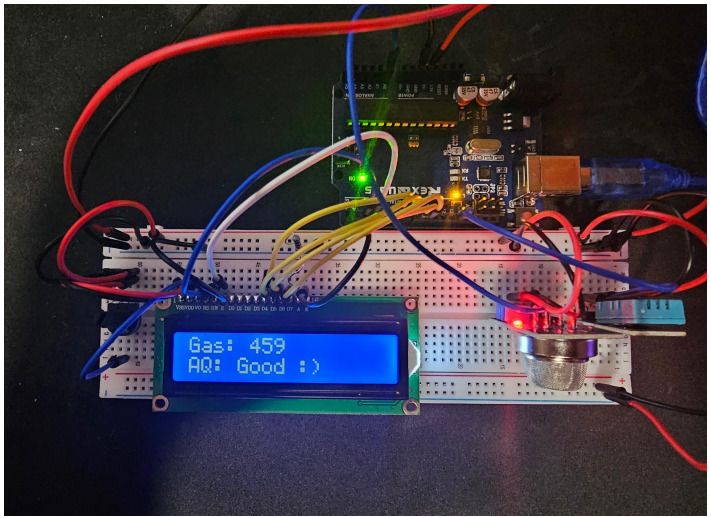
Third Prototype (Final)

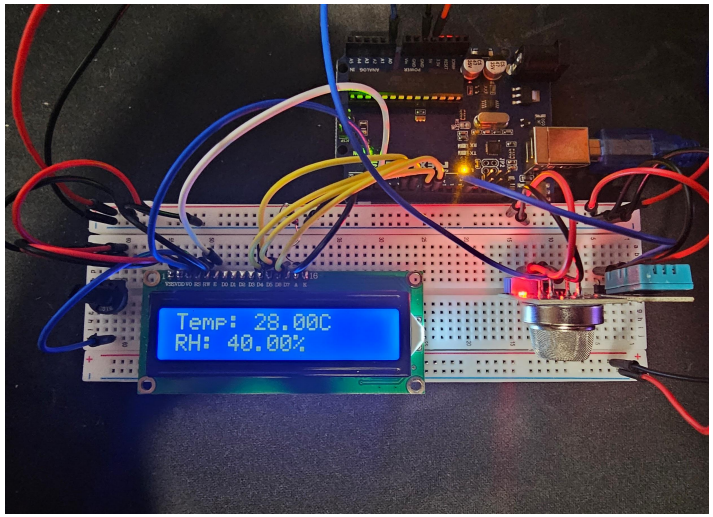


Second Prototype

Results

- The project was a success as our product was able to detect the pollutant conditions of any indoor or outdoor space.
- Replacing faulty DHT11 sensor proved to produce much more accurate readings.
- More tests need to be ran to see the full effectiveness of our air sensor, and it’s reliability.





Questions?