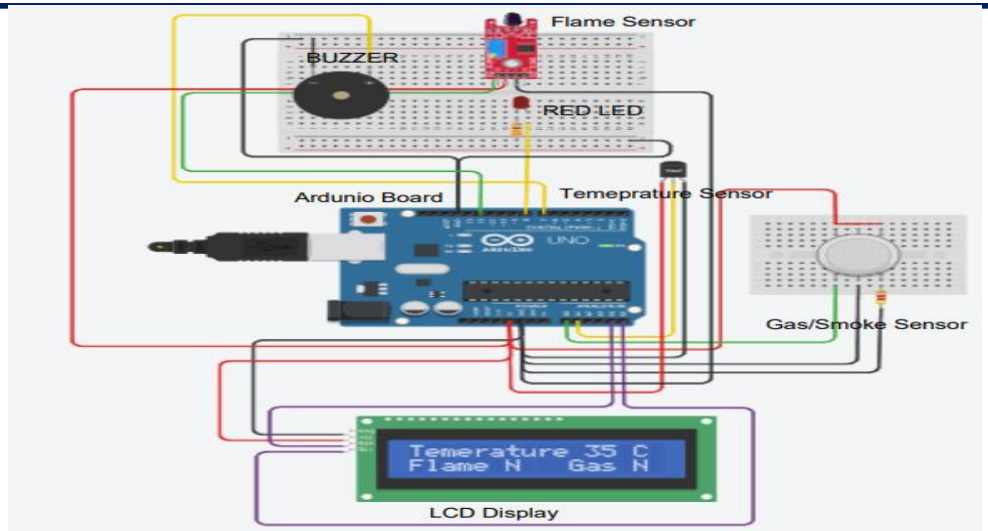
UE23CS251B: MPCA 4th Semester

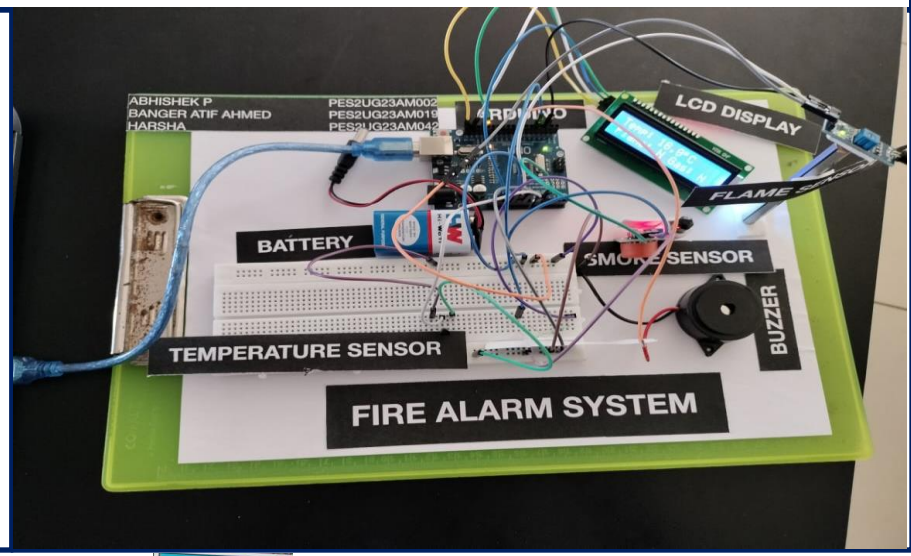
Fire Alarm System

Fire hazards pose a serious threat to life and property, making early detection and rapid response essential. This project presents a smart Fire Alarm System that integrates multiple sensors to detect potential fire risks in real time. The system utilizes a Gas/Smoke Sensor (MQ-2), Temperature Sensor (LM35CAZ) and Flame Sensor to monitor environmental conditions and identify fire-related anomalies. When a fire hazard is detected, the system triggers an alarm(buzzer and LED light indication) and sends instant alerts to the system with a UI website which will display all the real time values that the system measures and cautions the user in case of a Fire. Additionally real-time Temperature value(in °C) and flame/gas indication(Boolean) will be displayed on an inbuilt LCD display. It can be run on a 9V battery(can also be powered by the system when connected).

We have also incorporated detailed analysis using multiple graphs(temperature and gas values plotted against time-utilizes latest 100 data points) based on various data points collected during fires which helps in prediction and analysis of potential fire risks which can be avoided in the future. We have developed an eco-friendly, lightweight, highly durable and cost-efficient model with a minimalistic design. This model is tested multiple times under all possible circumstances with an excellent accuracy and precision.

This model is highly scalable and IoT-enabled solution for fire detection, improving response times and minimizing potential damage in residential and commercial spaces. This model breaks the barriers and drawbacks of traditional Fire Alarm Systems through modern technological integrations. This model can also be used to alert remote users through a Wi-Fi module(ESP8266/ESP32) or a GSM module making it highly flexible.



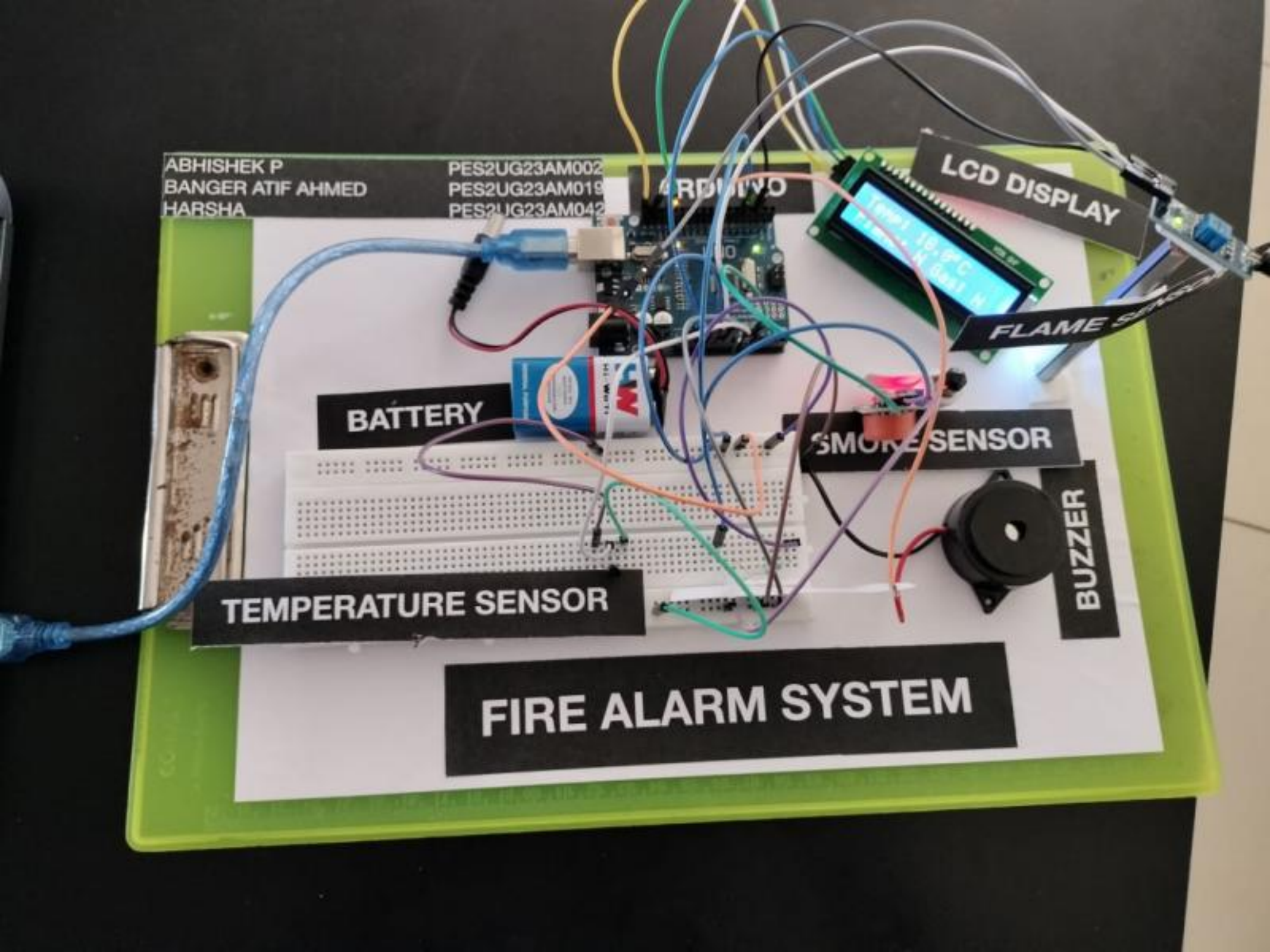


Abhishek P
PES2UG23AM002

Harsha
PES2UG23AM042

Banger Atif Ahmed
PES2UG23AM019

Prof. Deepti C


ABHISHEK P PES2UG23AM002
BANGER ATIF AHMED PES2UG23AM019
HARSHA PES2UG23AM042
ARDUINO
LCD DISPLAY
FLAME SENSOR
BATTERY
SMOKE SENSOR
BUZZER
TEMPERATURE SENSOR
FIRE ALARM SYSTEM

Arduino Sensor Monitoring
FIRE ALARM SYSTEM
Gas: 322
Flame: Not Detected
Temp: 19.99 °C
Buzzer: OFF
LED: OFF
System Normal
Show Analysis

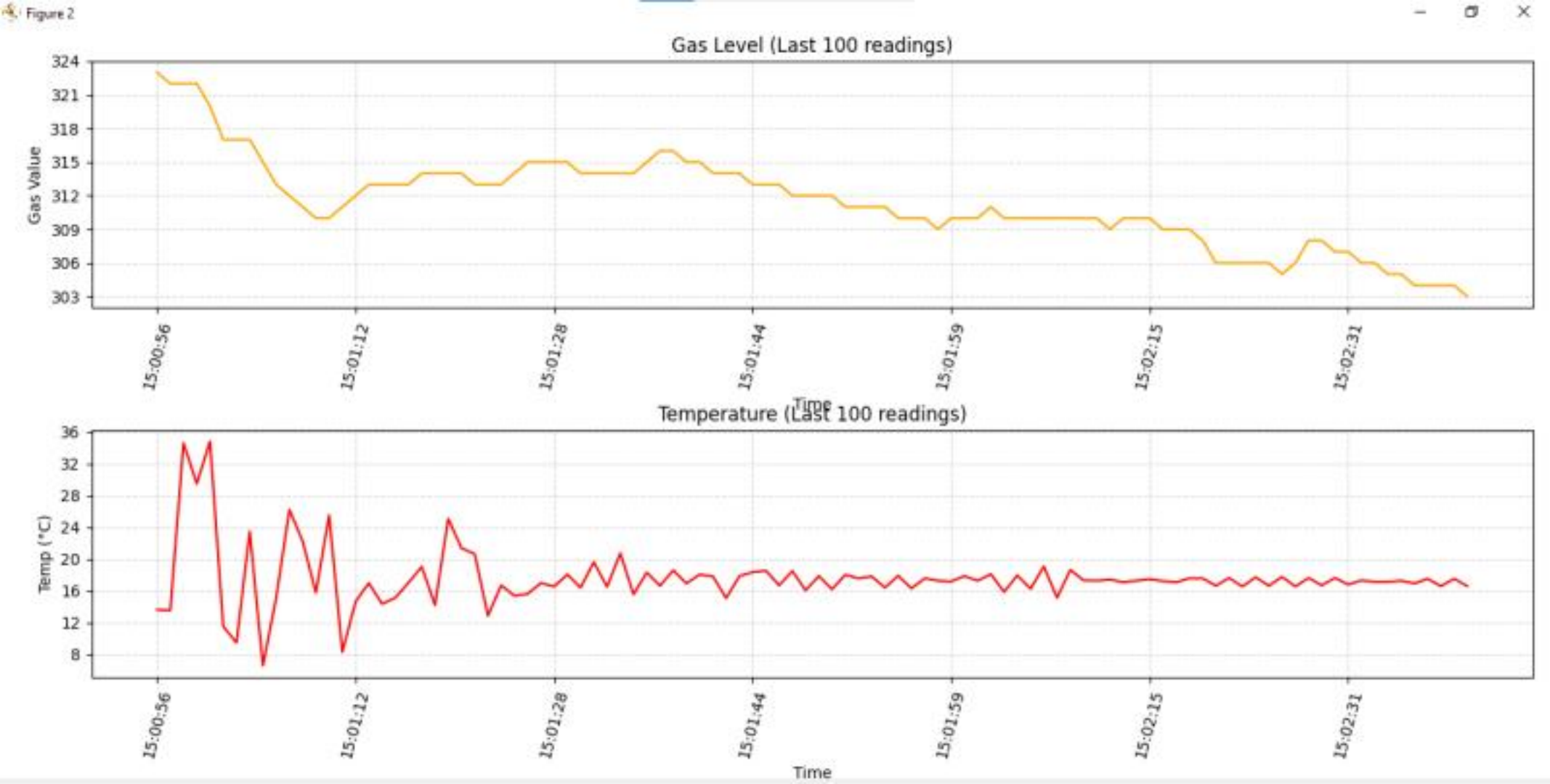


Figure 2
Gas Level (Last 100 readings)
Gas Value
324
321
318
315
312
309
306
303
15:00:56
15:01:12
15:01:28
15:01:44
15:01:59
15:02:15
15:02:31
Time
Temperature (Last 100 readings)
Temp (°C)
36
32
28
24
20
16
12
8
15:00:56
15:01:12
15:01:28
15:01:44
15:01:59
15:02:15
15:02:31
Time