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Detection and Mitigation of Hazards Using Advanced Sensor Technology with Decision Making System

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INTRODUCTION & AIM

Concern about air pollution is developing worldwide, as dangerous gases pose major concerns to human health and the environment. To reduce these dangers, air quality monitoring must be done continuously. The objective of this project is to create a smart air quality monitoring system that uses IoT, AI, and sophisticated sensors to enable automatic safety responses, precise data analysis, and real-time detection. The objective of this work is to create a smart system that can identify dangerous gases, increase data accuracy using artificial intelligence, and automatically initiate safety precautions, all of which will contribute to better air quality management and environmental and public health protection. The suggested system provides precise, real-time monitoring of hazardous gases by fusing cutting-edge sensor technology, AI and IoT capabilities. This provides a complete solution to control air quality by combining an automatic safety mechanism with cloud connectivity.

METHOD

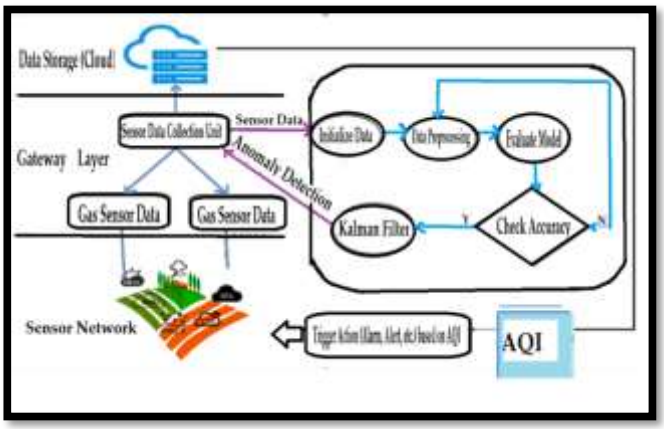

Fig. 1. Block for Hazard Detection

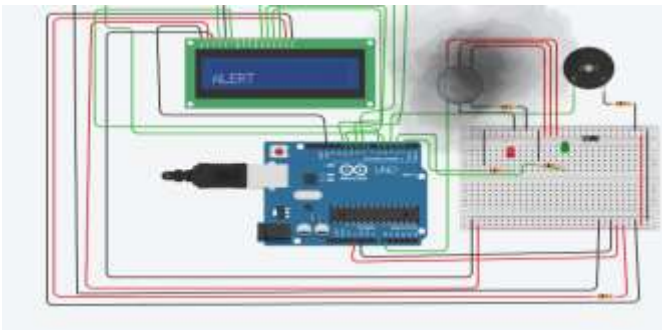

Fig. 2. Simulation System

RESULTS & DISCUSSION

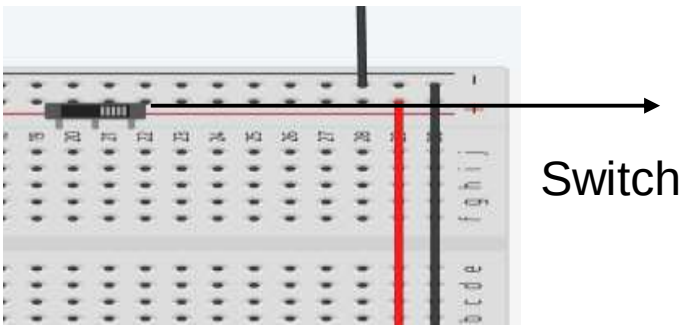

Fig. 3. Switch for Ventilation

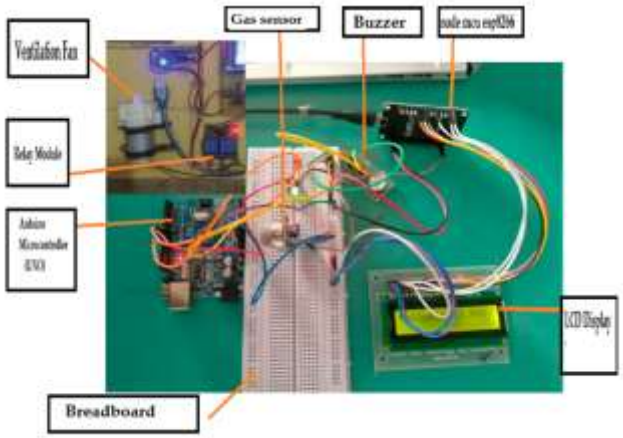

Fig. 4. Hardware System

CONCLUSION

Field results demonstrate the system's efficiency in categorizing air quality and issuing timely alerts, supporting proactive measures to combat air pollution. This innovative approach not only improves public health and safety but also aligns with global sustainability goals, paving the way for scalable and reliable solutions to address air quality challenges effectively.

FUTURE WORK / REFERENCES

Expanding pollutant detection, enhancing AI for more accurate forecasts, maximizing energy consumption, and scaling the system for wider applications in public areas, hospitals, and industry will be the main goals of future research.