

SIDDAGANGA INSTITUTE OF TECHNOLOGY, TUMAKURU

Ambient Air Quality Monitoring and Purification by Solar power

INTRODUCTION

- This project monitors air quality using a gas sensor and automatically activates an air purifier when pollution levels rise.
- Powered by solar energy, the system uses an ESP8266 microcontroller and relay control, with an LCD displaying real-time air quality.

OBJECTIVE

To monitor air quality and automatically purify the air when pollution levels rise.

METHODOLOGY

- The gas sensor measures real-time air quality, and the ESP8266 processes the data to check pollution levels.
- When the threshold is crossed, the relay automatically activates the air purifier. The entire system runs on solar power, and the LCD displays the current AQI.

UNDER THE GUIDANCE:

Mr. Ramesha. K. S, Assistant Professor

PRESENTED BY:

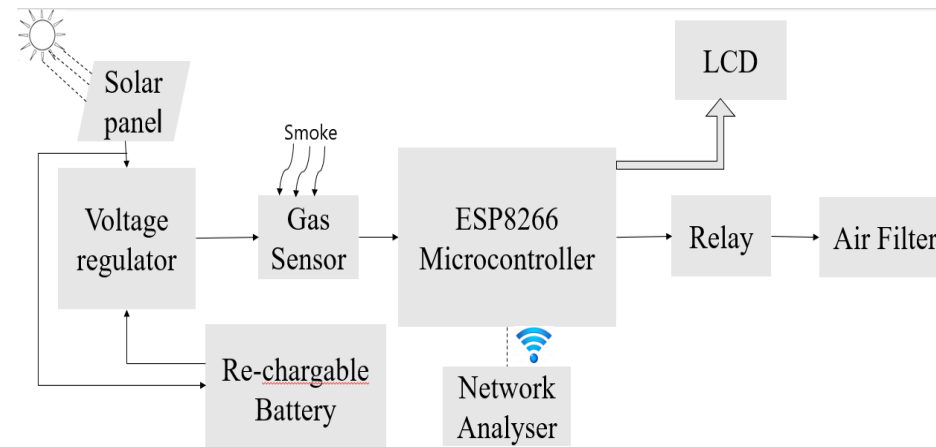
Amrutha Sharma-1SI23EI003

Ankitha G-1SI23EI004

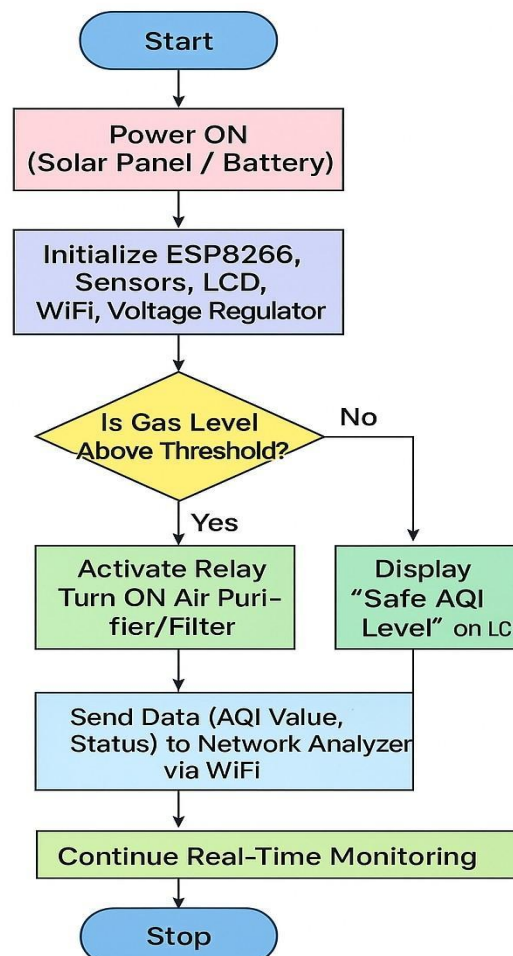
Hamsa M-1SI23EI017

Mehar-1SI24EI403

BLOCK DIAGRAM



FLOW CHART



EXPERIMENTAL RESULTS

For Case 1: Air quality ≤ 200 ppm.



For Case 2: Air quality ≥ 200 ppm.



- The system effectively monitored real-time air quality, detected harmful gases accurately, and activated the air purifier automatically when threshold levels were crossed, with clear AQI display on the LCD.
- Solar power ensured stable, energy-efficient operation, and the overall system performance was reliable, consistent, and highly responsive.

APPLICATIONS

- Homes, classrooms, and offices for clean indoor air
- Hospitals and labs requiring controlled air quality
- Industrial areas to monitor harmful gas levels