

# **SMART ENVIRONMENT MONITORING SYSTEM**

**SDG goal-3,9,11**

**SAP Indicators - (SAP0309)**

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## **Abstract**

Smart Environment Monitoring is an advanced system for monitoring air quality in real time to provide safer environments of homes and industries incentives. It utilises the ESP32 microcontroller with sensors MQ7 and MQ136 to recognize hazardous gases i.e CO (carbon monoxide) & H<sub>2</sub>S (Hydrogen sulfide). The data of these gases, which all fell within or exceeded health and industrial hazard levels such as SO<sub>2</sub> (up to 20cm/sec) will be continuously monitored with results displayed on an LCD Screen for Local Access. In addition to this, the information that is gathered through the system transmits all of it on Arduino IoT platform from where users can use an IoT application for checking air quality remotely thus providing accessibility and effectiveness in immediate and remote environment. As soon as measured values reached or exceeded the pre-defined thresholds defined for toxic gas concentration, an audible alert in form of an integrated buzzer would have immediately alerted me. This way you will be alerted instantly and can act quickly to prevent anything harmful from happening. The project has been made versatile and is ready to be implemented in smart homes, factories as well as public places where air quality monitoring matters the most. With the added benefit of IoT connectivity, and real-time monitoring accompanied by robust alert mechanism makes it not just more safe for life around but also helps in building an adaptable solution set to cater various emerging air quality challenges.

**Keywords:** Air quality, Real-Time monitoring, ESP32 Microcontroller, MQ7/MQ136 Sensors, Hazardous gases(CO&H<sub>2</sub>S)