IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 1, May 2025
Impact Factor: 7.67

Design and Implementation of an IoT-Based Air Quality Monitoring System using ESP32

Mrs. Surabhi Pratick Relekar[1] and Dr. A. L. Renke[2]
Student, E&TC, KIT's College of Engineering, Kolhapur, India[1]
Associate Professor E&TC, KIT's College of Engineering, Kolhapur, India[2]

Abstract: *This paper presents a low-cost, portable air quality monitoring system designed using the ESP32 microcontroller. It integrates a DHT11 sensor for temperature and humidity measurements and an MQ-135 sensor to detect harmful gases. An I2C-based LCD display shows real-time data, enabling users to monitor environmental conditions effectively. The system is intended for smart home and indoor air quality applications, providing a scalable solution for real-time pollution tracking and awareness.*

Keywords: ESP32, MQ-135 Gas Sensor, DHT11 Sensor, I2C 16x2 LCD Display, Power Supply (5V, 2A), Cloud platform (BlynkIoT)

DOI: 10.48175/IJARSCT-26145