

Low-Cost Portable IoT Based Air Purifying Ventilation System Operated by PPM Value Present in Environment

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Abstract Document Sections I. Introduction II. Methods and Procedures Used To Establish the Device III. Results and Experimental Analysis IV. Future Prospect V. Conclusion Authors Figures References Keywords Metrics More Like This	Abstract: The significant impacts of Indoor Air Quality (IAQ) on occupant health and well-being led to the development of an innovative ventilation and air quality control system. This system combines temperature and humidity sensors with gas sensors like MQ-135, MQ-7, MQ5, and MQ-2 to constantly monitor carbon dioxide, volatile organic compounds, and carbon monoxide concentrations. It is specifically operated based on Parts-Per-Million (PPM) levels of pollutants in the environment. Through the use of intelligent algorithms and a microcontroller-based control unit, dynamic ventilation changes and filter activation are made possible by real-time data on PPM levels. Through the removal of airborne particles, the reduction of respiratory hazards, and the improvement of interior comfort and productivity, High Efficiency Particulate Air (HEPA) filtration technology further improves air quality. To simulate real-world interior environments, experimental testing was carried out in a 140 -square-foot conference room with ten to twelve participants. Findings show that our system is successful in keeping indoor air quality within established parameters and norms, underscoring the system's potential for broad use in a variety of indoor contexts. Published in: 2024 IEEE Calcutta Conference (CALCON) Date of Conference: 14-15 December 2024 DOI: 10.1109/CALCON63337.2024.10914180 Date Added to IEEE Xplore: 13 March 2025 Publisher: IEEE ► ISBN Information: Conference Location: Kolkata, India
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