Air Purifier with IoT Monitoring using Renewable Energy

Dr. Veeraprathap V[1], N Manish[2], Padmavathi S[3], Rida Shazmeen[4], Sagar B S[5]

Associate Professor, Department of Electronics and Communication Engineering[1]

Students, Department of Electronics and Communication Engineering[2-5]

ATME College of Engineering, Mysore

veeraprathap2001@gmail.com, manishminku8310@gmail.com, padmavathi241202@gmail.com,
ridashaz2004@gmail.com, sagarbs229@gmail.com

Abstract: *This project integrates advanced air purification with sustainable energy generation to address environmental pollution and promote renewable energy solutions. It utilizes dual power sources solar panels and piezoelectric harvesting to ensure a continuous power supply. An MQ135 air quality sensor detects pollutants, triggering a HEPA filtration system powered by a DC fan to effectively purify the air. Additionally, a DHT11 sensor monitors temperature and humidity, providing comprehensive environmental data. A NodeMCU microcontroller facilitates real-time data transmission to the Blynk cloud, enabling remote monitoring via a user-friendly interface, while an LCD display ensures on-site visibility. This system offers a dual advantage: improving air quality while promoting renewable energy adoption, making it ideal for urban, industrial, and public spaces to contribute to a cleaner, greener future.*

Keywords: Air purification, renewable energy, environmental pollution, solar power, piezoelectric harvesting, HEPA filtration, air quality monitoring, MQ135 sensor, DHT11 sensor, NodeMCU, real-time monitoring, Blynk cloud, sustainable energy, smart air filtration, urban air quality

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