

ABSTRACT

Indoor air quality is a primary concern due to its significant impact on human health. One crucial factor in maintaining a healthy environment is good air quality, as air contains essential oxygen needed for survival. In Bekasi, most air pollution originates from vehicle emissions, factory smoke, and household industrial activities. Indoor air quality issues require serious attention. Therefore, this research designs a system that can monitor air quality levels. Air quality is measured using the MQ135 sensor to detect gases, the PM2.5 sensor to measure air particles, and the DHT11 sensor to measure temperature and humidity. This study focuses on monitoring air quality in rooms, especially baby rooms, using an Internet of Things (IoT)-based system that offers higher efficiency, ease of use, and IoT technology integration. The device is expected to provide comprehensive and accurate data by integrating sensors capable of measuring gas levels, temperature, humidity, and air quality. Testing was conducted to ensure that the MQ135 sensor detects gas concentrations, the DHT11 sensor measures temperature and humidity, and the PM2.5 sensor measures air quality in the baby room. Additionally, an ESP32 microcontroller is used to process data received from the sensors and transmit it to the Telegram application as an IoT platform via Wi-Fi, supported by an LCD screen for real-time monitoring.

Keywords : *Air Quality, Air Pollution, Humidity , IoT, PM2.5.*