

## ABSTRACT

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“AIR QUALITY INDEX (AQI) MEASUREMENT TOOL WITH IOT-BASED ESP32”

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(xiii+41+appendices)

Living in urban areas is indeed convenient and easy, but population density and transportation are factors that cannot be ignored for inhabitants of developed urban areas, such as those in Jakarta. Due to population density and transportation activities, air quality is also polluted by various pollutants. The risk of increasing pollution can be mitigated by knowing the level of pollution. This research aims to create an Air Quality Index (AQI) Measurement Tool with ESP32 based on the Internet of Things (IoT), which can be used to detect the level of particulate matter pollutant density in the air to obtain an air quality index. Some components used in this project include the ESP32 Microcontroller, SDS011 sensor, DHT-11 sensor, and MQ-7 sensor. The involved sensors will read the density of air pollutant particles, and the data will be processed by the Microcontroller, which will upload the data to the Adafruit IO cloud platform, and the data can be visualized. The tool's results have been tested by comparing the reading data with data taken by official institutions, resulting in similar outcomes, indicating the tool's successful accurate data acquisition.

Bibliography (2010 - 2022)