DESIGN AND CONSTRUCTION OF A WEATHER MONITORING STATION BASED ON THE INTERNET OF THINGS (IOT) IN THE ELECTRICAL BUILDING ENVIRONMENT OF THE STATE POLYTECHNIC OF BENGKALIS

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ABSTRACT

Weather information is a crucial element for humans because it affects various aspects of daily life, from everyday activities to professional work. Therefore, this research aims to design and develop an Internet of Things (IoT)-based weather monitoring station that can provide real-time and accurate weather information. This weather station uses the Arduino Mega 2560, connected to a DHT22 sensor for temperature and humidity measurement, a BMP180 for air pressure, a BH1750 for light intensity, as well as an anemometer, wind direction sensor, and tipping bucket for measuring wind speed, wind direction, and rainfall intensity. Based on tests conducted, this device showed satisfactory performance, with an average temperature reading of 25,53 ℃ and an average humidity reading of 84,67 %. Additionally, the average air pressure reading was 101338,30 hPa, and the average light intensity reading was 2105,83 lux. The average wind speed reading was 0,34 m/s, and the rainfall intensity was 0 mm/h. The wind direction sensor consistently indicated the Northeast. These results demonstrate that the weather station successfully reads environmental conditions 100 % of the time and displays the data in real-time within the application.

Keywords : Weather, Internet of Things (IoT), real time.