Abstract

Weather and climate are important factors in human life since it is one of the main deciding factors for their activities to run smoothly. Furthermore, recent extreme weather changes affected a person's physical and mental health, thus interfering community activities. Temperature, humidity, rainfall rate, wind speed, and direction are the essential elements of weather that could be measured using specific tools or sensors. Rapid development of android technology helps people to access any information through the grasp, including information about weather monitoring in a particular place that could be obtained through android application. This paper designed a real-time weather monitoring tool that could be accessed publicly through Android devices. It uses three sensors, which are wind vane sensor to calculate the wind direction and its velocity; raindrop sensor to detect if it is rain; and DHT11 sensor to monitor the temperature and humidity. All three sensors are integrated with Arduino Uno system that will translate sensors' data. These data then transmitted to server using ESP 8266.
On the other hand, android based application is made so that user could access data in the server easily. Besides testing the functionality of the application, testing step is used to calibrate each sensor with conventional measurement tool to get the precise data. Result shows that there is 0.223m/s difference of wind vane sensor and anemometer measurement, while there is insignificant measurement difference as 1ºC in testing DHT11 sensor.

References

4. D. Albert Sanada Yapri, 2017 "Rancang Bangun Aplikasi Mobile IniAtaultu sebagai Media Tanya Jawab Berbasis Komunitas," vol. 03, no. 02, pp. 47-56,

Index Terms

Computer Science Information Systems

Keywords

Monitoring, Wind vane, Anemometer, DHT11, Raindrop, Arduino Uno, Android