ABSTRACT

Indonesia is a country that can be said to have a special and complicated weather and climate. Indonesia Indonesia is located on the equator, with two oceans namely the Indian Ocean and the Pacific Ocean. The uniqueness of this interesting weather and climate also causes weather conditions to greatly affect environmental conditions. Therefore, the weather is needed to be used as forecast material in the future. Weather data can also be used for institutions that require weather data, such as in agriculture and plantations.

To measure the weather with an automatic observation system, an Automatic Weather Station was made. The design of the Automatic Weather Station Node is to use temperature and humidity sensors, light sensors, air pressure sensors, wind direction sensors, wind speed sensors, rainfall sensors and Lora RFM95w as a Transceiver module to send sensor data to the Lora Receiver. Through the use of the Integrated Smart Farming System, it can provide added economic value and encourage economic growth at this time and can utilize a small number of certain devices.

The design of an Automatic Weather Station system using a wireless communication module to monitor the environment and modeling land uses two nodes. From the test results, this device is able to read the value of each sensor and can work well. From testing/calibrating the light sensor, the accuracy value inside the room got 89.2%, the accuracy value outside the room was 94.8%, the temperature and humidity sensor was 98.9%, the rainfall sensor was 97.9%, the wind direction sensor can be used with a speed of 1m/s for speeds below 1m/ s does not work well, the wind speed sensor is 84.2%, and the air pressure sensor gets an accuracy value of 99.96%.

Keywords: *Environment, Integrated Smart Farming, Automatic weather station.*