

ABSTRACT

Stroberi plants are subtropical plants that were first encountered in chilli. The Ciwidey area, Bandung Regency is an area that is very suitable for Stroberi cultivation. Every plant needs soil as a growing medium. In the soil there are nutrients that are very important for the growth of a plant. Soil that lacks nutrients can cause Stroberi plants, generally all plants become infertile, dry leaves, decrease fruit quality and can even cause crop failure.

Considering the things above, then a device is made for a monitoring system that can measure levels of Nitrogen, Phosphorus, Potassium, air temperature, air humidity, soil pH and soil moisture. The device is made using the ESP32 microcontroller. The data that has been processed by ESP32 will be sent to the firebase realtime database using the internet network. After the data is sent to the firebase the data will be displayed on the LCD16x2 and the mobile application.

The device that has been made is found to be able to detect the NPK nutrient content, soil pH, soil moisture, air temperature and air humidity that is running well. The accuracy for the NPK sensor is 98%, the P element is 98% and the K element is 93%, while for the pH sensor the reading accuracy is 99.06% for the calibrator. The soil moisture sensor has an accuracy of 97% and the DHT11 sensor for temperature produces an accuracy of 98%. The mobile application has also been able to display measurement data from the device hardware.

Keywords: *Air Temperature, ESP32, Monitoring System, NPK, pH, Humidity, Soil Moisture*