ABSTRACT

Vertical garden or upright garden is a garden that is built on a field that is perpendicular to the ground, limited land conditions and unhealthy air pollution makes the vertical garden technique a solution, to overcome the limited green open space, especially in large cities. Bromelia ornamental plants with vertical garden planting techniques can reduce the heat in urban air temperatures and reduce noise pollution or noise. Bromelia is an ornamental plant that can adapt to both highlands and lowlands which has an optimal temperature of 15 ° C - 30 ° C and the humidity of bromelia ornamental plants is 60%. With monitoring and control is one way that can be used so that plants remain in good condition.

In the system of monitoring and controlling temperature and soil moisture in a multi vertical garden with bromelia plants to be made, with vertical garden planting techniques, especially those used on the sidewalk. In this system consists of various sensors that are interconnected with a microcontroller and a website for monitoring and controlling. NodeMcu ESP8266 as a microcontroller is connected with a temperature sensor that is DS18B20 and a soil moisture moisture sensor. The sensor will send data to firebase which acts as a database. In a separate place a website has been prepared to be able to carry out monitoring and control to complete the system being built.

In the scenario of distance parameter testing is done to determine the performance of the system designed. In testing, measurements are taken to test the quality of the network with different scenarios. The distance parameter of the test affects the delay and throughput, the smallest firebase delay is 0,1403 seconds with a throughput value of 802,466 bytes / s at the closest distance of 5 meters. Then obtain the optimal distance for this system at a distance of 5 meters - 25 meters for non-LOS conditions and 5 meters - 30 meters in LOS conditions

***Keywords**: Vertical garden, Bromelia Plants,* IoT, NodeMcu ESP8266.