ABSTRACT

Garlic is an important food commodity for the community. However, national garlic always has a deficit. The high consumption followed by low production makes the government have to import garlic to meet domestic needs every year.

To help increase garlic yields, a system designed to facilitate the process of measuring Nitrogen (N), Phosphorus (P), Potassium (K) content on plantation land in realtime using NPK and NodeMCU sensors as microcontrollers and the connectivity of realtime information using mesh topology. This system is an Internet of Things (IoT) based network, where internet connectivity is used to exchange information with each other with the objects around it.

The result of the design of this system is a device to measure each element of N, P, and K as well as fertility status based on NPK values that have been obtained. And, with the IoT feature and mesh topology built in this device, the measurement data and whether or not the device works can be monitored easily through an android application that has been made on a smartphone.

Keywords: Nitrogen, Phosphorus, Potassium, NPK Sensor, NodeMCU, Internet of Things, Realtime-monitoring, Mesh Topology.