ABSTRACT

The life of urban society now is synonymous with busy work and other activities that require being outdoors so they have limited time and have narrow land for farming activities. Urban Agriculture is a solution for urban communities to have planting vegetables, fruits with food production in urban areas with narrow land. One alternative method is to plant the plants using pots. However, farming pots still require regular maintenance.

In this final project built a smart pot as a tool for monitoring and care of automatic plants integrated with the cloud that will facilitate the plant owner to monitor the plant with android-based applications, this system is called "ePot". This system uses ZigBee as a data communication standard and will use the IoT Cloud concept so users can access anywhere and anytime.

Data communication on this system occurs between the sensor node with the hosting server and the hosting server with actuator nodes.This zigbee will transmit the microcontroller processed data to the gateway. Data that has been received by the gateway will be processed by doing the data sorting is the process of selecting data to be sent or stored to the hosting server through the HTTP protocol. The stored data is then displayed on android based applications. The defuzzyfication result data will be sent to the actuator node to perform the watering command.

After 21 days of testing, a system that can implement the Zigbee network and communication protocols with the response time of data delivery from the gateway to hosting server of 0.64 seconds, the average time of data transmission from hosting server to actuator of 4.10 seconds and the average delivery time Data from the sensor node to the actuator of 4.63 seconds. Can run on Android devices and take advantage of the Internet of Things Cloud.

Keywords: Urban Agriculture, Monitoring, ZigBee, HTTP, Internet of Things.