ABSTRACT

Household trash can not be separated from daily life in residential areas, a thing that should be underlined by the housing manager is the handling of the trash contained in each trash can in the housing, for sure this is the responsibility of the janitor in the housing. But based on daily routine, there is often trash dumping in one corner of the housing causing unpleasant views and odors, it happens because the janitor comes late to pick up the trash. In addition, in other cases that may occur is when the janitor came to pick up the trash but the trash was not there because most of the occupants were not active in their house for a relatively long time, it would be detrimental for the janitor in terms of time efficient because they have to find which trash can is full.

Therefore, in this final project, it will be created a system of monitoring of trash based on Internet of Things (IoT) that serves to monitor in real time condition of trash height in existing trash can in a housing, so that janitor can know which trash has to be transported, so that it is expected that there are no accumulation of trash and more efficient work time for janitor.

To support those needs, NodeMCU is used as microcontroller, ultrasonic sensor, MQTT as IoT protocol, and also application of Android as its data viewer. After testing, we get the biggest end to end delay value that is 2,06875 seconds when using 1000 ms delivery break with 3 active nodes and the smallest node is 0.26055 seconds when using 100 ms delivery break with 1 active node. The largest throughput is 597.17 B / s when using 100 ms delivery pause with 1 active node and the smallest is 75, 86 B / s when using 1000 ms delivery break with 3 active nodes. The greatest availabilty and realibility value is 99.905% when using 1000 ms delivery break and the smallest is 99.833% when using 100 ms delivery break.

Keywords: Internet of Things, Ultrasonic Sensors, NodeMCU, MQTT