ABSTRACT

Garbage is a problem for many people, the increasing amount of garbage creates an unpleasant odor and affects the performance of garbage officers. Bogor Botanical Gardens, as a plant conservation area and also known as a tourist destination in Bogor City, cannot be separated from the problem of waste management. Currently, waste management is carried out internally within the Bogor Botanical Gardens area. but in terms of the garbage disposal system, there are still shortcomings, namely the absence of information to the cleaners when the trash can is full so that the garbage accumulates, in this case still using conventional methods in terms of transferring waste to the shelter. With this research, a waste bin monitoring tool was designed using NodeMcu in the area of the Research Center for Plant Conservation and Botanical Gardens - LIPI. The tools to be made consist of ultrasonic sensors, weight sensors / Load Cells and NodeMcu. Where the ultrasonic sensor and Load Cell will provide information on the state of the trash bin in the form of capacity and weight of the garbage to the NodeMcu connected to Firebase, then Firebase will send the data to an application that has been created using MIT App Inventor. Using an application on an android Smartphone, janitors don't need to patrol around to pick up trash. From the results of testing the design of this system, the average error value on the distance sensor of the trash can 1 is 8.95% with an accuracy rate of 91.05% and in the trash can 2 with an error of 10.66% and an accuracy rate of 89.34% as well as on the Load Cell where waste 1 obtained an error value of 3.98% with a sensor accuracy rate of 96.02%, and trash 2 obtained an error value of 4.56% with a sensor accuracy rate of 95.44%.

Keywords:ESP8266, Botanical Garden, NodeMcu, Trash