ABSTRACT

The final project of an Arduino microcontroller-based automatic trash can using an ultrasonic sensor and integrated telegram is designed with the aim of overcoming the problem of garbage that is still scattered due to the lack of public awareness of the importance of health by disposing of garbage in its place. Therefore, this study aims to realize the design of the smart trash can. The research method used in this design consists of several stages, namely Specifications, Scheduling, Design, Tool Testing, Analysis, and Conclusions. This tool is divided into two parts, namely hardware and software. Hardware consists of Arduino Uno, WiFi Module ESP8266, Ultrasonic Sensor HC-SR04, Servo, Jumper Cable, and Adapter. While the software is made using the Arduino IDE program. In the measurement results of the ultrasonic sensor distance reading data obtained with the lowest error percentage of 1.96%, the ability of the servo movement angle for the automatic opening and closing mechanism of the trash can is 150 degrees for 5 seconds. Sensor distance reading to open the automatic trash can for 5 seconds, which is less than 15 cm, sealing will be automatic if goods or garbage are detected less than 7 cm with an angle of 90 degrees open for 3 seconds and sending telegram notifications only when the garbage condition is full or the sensor detects waste surface height. The system that has been created is expected to help people dispose of waste in its place.

Keywords: Arduino Uno, Ultrasonic Sensor HC-SR04, ESP8266, Servo, Telegram