

DESIGN AND CONSTRUCTION OF ALARM INDICATORS FOR METAL AND NON-METAL WASTE SORTING PROTOTYPES BASED ON ANDROID APPLICATIONS

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ABSTRACT

Garbage is a fairly big and endless problem. Waste production that continues to increase along with population growth, changes in consumption patterns, and people's lifestyles has increased the number of types of waste generation, and the diversity of waste characteristics. With this problem, the waste that is disposed of will be mixed and difficult to decipher. Different types of waste also affect the period of decomposition. The 3R (reuse, reduce, and recycle) program is one of the supporting actions for the waste management program. By running the program, it is hoped that the waste generated will decrease so that the environmental balance can be maintained for the survival of future generations. This automatic waste sorting device uses a proximity sensor that functions to sort out the types of waste. If the waste has been selected according to the type, the tool will run an ultrasonic sensor to detect the level of the waste and the MQ-4 sensor will detect the methane gas contained in the waste. Then, if the waste level has been detected and waste decay is detected, the tool will be connected to the IoT system to notify the garbage officer that the garbage is ready to be disposed of. Testing the inductive proximity sensor obtained a precision value of 42% and an accuracy value of 73.3%. Waste level testing using ultrasonic sensors on organic waste obtained an error value of 2.5% and in inorganic waste of 2.5%. Methane gas level testing using the MQ-4 sensor is able to detect gas levels starting with the duration of methane gas release at 4s. Then at a duration of 20s the level of methane levels that can be measured reaches the limit of 100%.

Keywords: *Blynk, Garbage, MQ-4 Sensor, Proximity sensor, NodeMCU ESP8266*