

ABSTRACT

Cleanliness of the cat's litter box is important when keeping cats at home to maintain the health of their owners. The activity of cleaning cat waste poses a risk to the owner's health due to exposure to ammonia gas. The solution to overcome this problem, the research aims to design an automatic cat litter box system using an ESP32 microcontroller, MQ135 sensor, ultrasonic sensor and stepper motor. The method used is waterfall with design, implementation and testing stages. The results show that the system can identify cats from 5 months to 3 years old. Stepper motors are capable of cleaning dirt weighing ≤ 50 grams, but experience resistance when dirt weighing $\Rightarrow 100$ grams. The MQ135 sensor successfully detected ammonia gas with an ADC value that increased as the weight of the dirt increased with an ADC value of 1900 with a weight of 22 grams to 174 grams with an ADC value of 2480.

Keywords: esp32, mq135, ultrasonic, stepper motor, litter box