

ABSTRACT

Garbage which is a product of human activities, can exist in various forms, such as solid, liquid, and gas. As the population grows, the volume of waste generated also increases, leading to waste management issues in many areas. In Karangpring Village, Jember, the community relies on the illegal practice of waste burning due to limited waste collection services and available disposal land. This practice results in negative impacts, such as air pollution and the potential for flooding due to waste obstructing river flow. Waste burning generates harmful gases such as CO₂, CH₄, CO, and NO_x, which can contribute to global warming and environmental degradation. This study aims to design a garbage disposal stove detector system to control and monitor toxic gas emissions at Pondok Pesantren Ar-Raudlah, Karangpring Village. The system is equipped with an ESP32 microcontroller, which can control a water pump and blower, as well as display gas emission data through MQ-7 and MQ-135 sensors. The test results show that the system can effectively monitor gas emissions and help reduce the harmful impacts of waste burning.