**Automated Waste Segregation System**

*A Technical Abstract*

**Abstract**

Efficient waste management remains a critical challenge in urban environments due to the growing volume and complexity of solid waste Traditional manual segregation methods are labor-intensive, time-consuming, and often prone to error. This paper presents the design and development of an Automated Waste Segregation System capable of classifying waste into three primary categories: dry, metal, and wet. The system employs a combination of sensors-including moisture sensors, Inductive proximity sensors, and optical sensors-to identify and sort waste materials automatically, Dry waste is detected by the absence of moisture, metal waste is identified based on conductive properties, and wet waste is recognized through high moisture content. A microcontroller processes sensor data and controls actuators to direct waste into the appropriate bins. This automated solution enhances the efficiency and accuracy of waste segregation, minimizes human exposure to potentially hazardous materials, and promotes recycling and sustainable waste management practices.

KARTHIK J S

GOURI KRISHNA A G

SAJINA SANTHOSH R

ADITHYA LEKSHIMI A V