

## ABSTRAK

Ketidak pedulian terhadap manajemen sampah dapat menyebabkan dampak *negatif*, termasuk polusi lingkungan. Sampah *non-organik* seperti kaleng, botol plastik, dan *aluminium* memerlukan waktu lama untuk terurai di tanah. Pemerintah telah mengatur manajemen sampah melalui peraturan, seperti PP Nomor 81 Tahun 2012 dan UU Nomor 18 Tahun 2008. Langkah-langkah pengelolaan sampah melibatkan pemilahan, pengelompokan, dan pemisahan berdasarkan jenis, jumlah, dan sifat sampah. Limbah padat seperti limbah logam memerlukan perlakuan khusus. Pemisahan sampah, terutama *logam* dan *non-logam*, dapat ditingkatkan melalui fasilitas pemilahan yang mudah diakses. Penerapan sistem otomatis pemilahan sampah *logam* dan *non-logam* diperlukan untuk pengelompokan sampah. Penelitian difokuskan pada perancangan tempat sampah otomatis dengan pemisah logam dan non-logam yang dapat dimonitor secara waktu-nyata melalui aplikasi berbasis IoT. Rumusan masalah penelitian mencakup pembangunan sistem deteksi sampah logam dan non-logam, penghitungan berat sampah, dan monitoring jarak jauh dengan waktu nyata. Tujuan penelitian meliputi merancang dan membangun sistem deteksi dan *konversi* berat sampah menjadi nilai rupiah, serta monitoring jarak jauh. Manfaat penelitian termasuk membantu petugas kebersihan dalam pemilahan sampah, perhitungan harga, dan monitoring berat sampah dari jarak jauh.

Kata Kunci: Sampah, *Organik*, *logam*, *non-logam* IoT, *NodeMCU*, Sensor.

## **ABSTRACT**

Indifference towards waste management can lead to negative impacts, including environmental pollution. Non-organic waste such as cans, plastic bottles, and aluminum takes a long time to decompose in the soil. The government has regulated waste management through regulations such as Government Regulation Number 81 of 2012 and Law Number 18 of 2008. Waste management involves sorting, grouping, and separating based on the type, quantity, and nature of the waste. Solid waste like metal waste requires special treatment. Separation of waste, especially between metals and non-metals, can be enhanced through easily accessible sorting facilities. The implementation of an automated system for sorting metal and non-metal waste is necessary for waste classification. The research focuses on designing an automatic waste bin with metal and non-metal separators that can be monitored in real-time through an IoT-based application. The research problem formulation includes the development of a system for detecting metal and non-metal waste, calculating waste weight, and real-time remote monitoring. The research aims to design and build a system for detecting and converting waste weight into currency values, as well as remote monitoring. The benefits of the research include assisting sanitation workers in waste sorting, price calculation, and remote weight monitoring.

**Keywords:** Waste, Organic, Metal, Non-metal, IoT, NodeMCU, Sensor.