IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 4, April 2025
Impact Factor: 7.67

Machine Learning Based Waste Sorting for A Sustainable Environment

Dr. M. Sayeekumar[1], S. P. Dhanasri[2], Attikapalli Krishna Priya[3], S. Devadharshini[4]
[1]Head of Department, Department of Computer Science and Technology
[2,3,4]Student(UG), Department of Computer Science and Technology
Vivekananda College of Engineering for Women (Autonomous), Tiruchengode, India
sayee.academic@gmail.com[1], dhanasrisivakumar245@gmail.com[2],attikapallikrishna2003@gmail.com[3],
dharshinisakthivel520@gmail.com[4]

Abstract: *The fast pace of urbanization and consumption has made effective waste management a key challenge. This study presents a smart waste monitoring and management system designed to enhance waste segregation, improve operational efficiency, and promote sustainability.With the use of IoT-enabled sensors, I-based classification, and real-time monitoring, the system facilitates automated waste identification and also disposal with minimal manual intervention. The advanced sensors allow real-time evaluation of waste types, while automated systems ensure correct segregation. Intelligent monitoring elements offer round-the-clock that updates the bin status, avoids overflow and simplifies collection operations. Remote communication modules provide real-time alerts by allowing for prompt intervention and optimal resource deployment. This flexible and scalable solution is well suited to different environments, including cities, institutions, and business premises. By employing data-driven decision-making, predictive analysis, and automation, the system lends support to a more efficient and environmentally friendly waste management solution, in accordance with global sustainability endeavours*

Keywords: smart waste management, smart garbage bin

DOI: 10.48175/IJARSCT-25111