

Ultrasonic Smart Dustbin

Prof. Y. S. Kolhe¹, Gayatri Jadhav², Yogita Sonawane³, Kirti Gaikwad⁴

Professor, Department of Information Technology¹
Students, Department of Information Technology^{2,3,4}
Mahavir Polytechnic, Nashik, Maharashtra, India

Abstract: *This project presents an innovative IoT-based smart dustbin system equipped with an ultrasonic sensor for efficient overflow detection. Traditional waste management systems often suffer from inefficient monitoring, leading to overflowing bins and environmental hazards. To address this challenge, our proposed system integrates IoT technology with an ultrasonic sensor to detect trash thrown outside the dustbin and determine when the bin reaches its capacity. The key features of our smart dustbin include real-time monitoring of waste levels using ultrasonic sensors, wireless communication capabilities for data transmission, and intelligent algorithms for overflow detection. When the ultrasonic sensor detects trash outside the designated area, it triggers an alert to notify the authorities or users, preventing littering and ensuring timely waste collection.*

Moreover, the system employs advanced algorithms to analyze the collected data and predict when the dustbin is nearing full capacity. This proactive approach helps in optimizing waste management operations by scheduling timely collections, reducing overflow incidents, and minimizing environmental pollution.

Keywords: Ultrasonic Sensor, Overflow Detection, Object Detection, Waste Management, Real-time Monitoring

REFERENCES

- [1]. ChinmayKolhatkar, Bhavesh Joshi,PrachiChoudhari,DhruvinBhuva,“Smart E-dustbin” International Conference on Smart City and Emerging Technology (ICSCET)2018.
- [2]. C. Manjula Devi , K. G.Preethi Mai , J. H. Vaishnavi, D. K. Pradeepa“Garbage Monitoring System using IoT”, International Journal of Research in Engineering, Science and Management Volume-2, Issue-3, March-2019.
- [3]. G Sai Rohit; M Bharat Chandra, “Smart Dual Dustbin Model for Waste Management in Smart Cities” 2018 3rd International Conference for Convergence in Technology (I2CT),06-08 April 2018 10.1109/I2CT.2018.8529600
- [4]. Murugaanandam. S, Ganapathy. V and Balaji. R , “Efficient IOT Based Smart Bin for Clean Environment” International Conference on Communication and signal processing (ICCSP)3 April 2018.
- [5]. Bharadwaj B, M. Kumudha, Gowri Chandra N, Chaithra G, “Automation of Smart waste management using IoT to support Swachh Bharat Abhiyan”- A practical approach, ICCCT, Feb. 2017