

Smart Waste Management System

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Problem Statement

The Smart Waste Management System for metropolitan cities will simply this problem by implementing an efficient way to identify the waste collection, following a fixed routine for waste collection and assuring there no missed pickup.

Existing Solutions

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- ❖ Chen, Whai-En; Wang, Yu-Huei; Huang, Po-Chuan; Huang, Yu-Yun; Tsai, Min-Yan (2018). *[IEEE 2018 1st International Cognitive Cities Conference (IC3) - Okinawa, Japan (2018.8.7-2018.8.9)] 2018 1st International Cognitive Cities Conference (IC3) - A Smart IoT System for Waste Management.* , (), 202–203. doi:10.1109/IC3.2018.00-24
- ❖ K. N. Fallavi, V. R. Kumar and B. M. Chaithra, "Smart waste management using Internet of Things: A survey," 2017 International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), 2017, pp. 60-64, doi: 10.1109/I-SMAC.2017.8058247.
- ❖ R. Elhassan, M. A. Ahmed and R. AbdAlhalem, "Smart Waste Management System for Crowded area : Makkah and Holy Sites as a Model," 2019 4th MEC International Conference on Big Data and Smart City (ICBDSC), 2019, pp. 1-5, doi: 10.1109/ICBDSC.2019.8645576.S.
- ❖ R., R. P., V. S., K. R. and G. M., "Deep Learning based Smart Garbage Classifier for Effective Waste Management," 2020 5th International Conference on Communication and Electronics Systems (ICCES), 2020, pp. 1086-1089, doi: 10.1109/ICCES48766.2020.9137938.

Inference From Existing Solutions

Here an intelligent waste collection system was developed. The system is based on IoT sensing prototype. It is responsible for measuring the waste level in the wastebins and later send this data (through Internet) to a server for storage and processing. This data helps to compute the optimized collection routes for the workers. In future the model will enhance the system for different kind of wastes, namely solid and liquid wastes, etc.

This model uses artificial intelligence, remote monitoring, autonomous systems and robotics is used for effective waste collection. Methods and algorithms combine sensors, sensor networks, wireless access networks, actuators, and IoT platforms. IoT security technologies are used to provide a secure environment for further waste processing. Inference models assist stakeholders and third parties for efficient dynamic scheduling and routing to support waste disposal and further recycling of organic waste. Sustainable waste management solutions are a prerequisite for a green ecosystem within Smart Cities.