

KCG COLLEGE OF TECHNOLOGY

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# SMART WASTE MANAGEMENT SYSTEM

# Literature Survey

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1. **Smart Garbage Management System**

**Author:** [Akshata Mishra](https://ieeexplore.ieee.org/author/37086520137); [Sushmit Mehta](https://ieeexplore.ieee.org/author/37086518008); [Vivek Solvande](https://ieeexplore.ieee.org/author/37086518203)

**Published Month & Year :**05-05 January 2018

## Project Description:

All Citizens of India are aware about the process followed to collect the garbage in the society. The Brihan Mumbai Municipal Corporation (BMC) sometimes fails to collect the garbage in some area. It may cause pollution which leads to sanitary issues and disease. Therefore, some of the major steps have to be carried out to solve the management of waste. The existing system is collection of garbage arbitrarily. So, some of the areas get left sometimes which may lead to smell and hence public health gets affected. The smell of the garbage can also be fatal to some of the little ones in some areas. The proposed system describes the solution to the existing drawback.

The proposed system monitors the garbage bin. While monitoring the garbage bin it sends the notification to the authority about the level of garbage filled. If the lower authority ignores the notification, the next notification goes to the higher authority. The proposed system will help them to actually know that where and when to go to collect the garbage. The proposed system manages the effort to check the area by visiting there. The proposed project is quite helpful for both the Brihan Mumbai Municipal Corporation (BMC) and the citizens in that area by time to time interaction between Brihan Mumbai Municipal Corporation (BMC) and the proposed system. Hence the proposed system makes a better way to manage garbage.

# Smart City Waste Management through ICT and IOT driven

**Authors**: [GDipak](https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=4493631" \o "View other papers by this author" \t "https://papers.ssrn.com/sol3/_blank) ; [P. S. Aithal](https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=2519140" \o "View other papers by this author" \t "https://papers.ssrn.com/sol3/_blank)

**Published Month & Year** : May 6, 2021

## Project Description:

The growing population and mass relocation of citizens from urban and semi-urban areas to Smart Cities have resulted in exponential growth in Smart Cities and thereby certain challenges. One of the major challenges Smart Cities are facing is to control, manage and process waste generation on a daily basis. Waste collection and processing at a wider scale is not an easy job. The growing population and resource constraints in waste management activities are the primary reasons, which have made waste management a tough job. To deal with this challenging process, Smart Cities use Smart Waste Management System.

This paper has provided an overview of a typical Smart Waste Management system and a review of selected research papers on Smart Waste Management. We tried to identify areas of improvement with existing Smart Waste Management Solutions and proposed an innovative solution called "iSmartWMS" for carrying out waste management specifically for Smart Cities. The paper has discussed in detail the architecture and building blocks of the proposed Smart Waste Management System, along with the details of software tools, sensors, and technologies proposed in iSmartWMS. The Paper has finally discussed results with respect to the prototype implementation of iSmartWMS and also future plans to further improve the iSmartWMS smart waste management system.

# Smart Waste Collection System

**Authors :**Muhammad Javed Ramzan ; Muhammad Wasif Nisar

**Published Month & Year** : 10 June 2018

## Project Description

This project named smart waste collection is need of today as there is no efficient waste collection system installed in the earth these days this system is to revolve the waste collection method of the advancing technological 21st century. This system is supported by an android app named “SWC” and firebase real-time data for more efficient user-friendly usage. where’s cloud storage also makes it easier for storage of collection records providing the authorized origination to control manage and audit performance data.

Modern generational garbage collectors look for garbage among the young objects, because they have high mortality; however, these objects include the very youngest objects, which clearly are still live. We introduce new garbage collection algorithms, called age-based, some of which postpone consideration of the youngest objects. Collecting less than the whole heap requires write barrier mechanisms to track pointers into the collected region. We describe here a new, efficient write barrier implementation that works for age-based and traditional generational collectors. To compare several collectors, their configurations, and program behavior, we use an accurate simulator that models all heap objects and the pointers among them, but does not model cache or other memory effects. For object-oriented languages, our results demonstrate that an older-first collector, which collects older objects before the youngest ones, copies on average much less data than generational collectors. Our results also show that an older-first collector does track more pointers, but the combined cost of copying and pointer tracking still favors an older-first over a generational collector in many cases. More importantly, we reopen for consideration the question where in the heap and with which policies copying collectors will achieve their best performance.

# 4.Household Waste Management System Using IoT

**Authors** : [SonaliDubey;](https://www.sciencedirect.com/science/article/pii/S1877050920306876" \l "!)[PushpaSingh;](https://www.sciencedirect.com/science/article/pii/S1877050920306876" \l "!)[PiyushYadav;](https://www.sciencedirect.com/science/article/pii/S1877050920306876" \l "!)[Krishna KantSingh](https://www.sciencedirect.com/science/article/pii/S1877050920306876" \l "!)

**Published Year & Month :** 16 April 2020

## Project Description:

IOT and machine learning based household waste management system for Green smart society are aimed to make management of waste from the every apartment of the society more efficient using the most upcoming technology IOT. This paper discusses the collection and decomposition of waste in the smart way so that benefit from the waste is maximized and the actual waste is minimized efficiently. This paper focus on the segregation of the waste at two levels: the first level of segregation is on the individual house of the society and the second level of segregation is at the society. Author, discuss the recycling of the biodegradable waste for making compost.

The machine learning technique such as KNN is used to generate an alert message for various combinations of three sensor values like level of bio and non biodegradable waste,concentration of poisonous gas. The overall impact of this research is in the upliftment of the green technologies by reducing pollutants, conserving, resourcing and reusing the energy through the use of technology

# 5.An IoT-based bin level monitoring system for solid waste management

# **Authors** : [S. R. Jino Ramson](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-S__R__Jino-Ramson),;[D. Jackuline Moni](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-D__Jackuline-Moni);[S. Vishnu](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-S_-Vishnu);[Theodoros Anagnostopoulos](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-Theodoros-Anagnostopoulos);[A. Alfred Kirubaraj](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-A__Alfred-Kirubaraj);[Xiaozhe Fan](https://link.springer.com/article/10.1007/s10163-020-01137-9" \l "auth-Xiaozhe-Fan)

# **Published Year & Month :** 22 NOVEMBER 2020

## Project Description:

Improper disposal of solid waste that impacts human health and pollutes the environment, arising a need for successful and necessary collection of waste materials. However, most trash bins placed in cities can be seen overflowing due to traditional or inefficient waste management approaches. Therefore, a real-time remote monitoring system is needed to alert the level of garbage in bins to the relevant authority for immediate waste clearance. This paper presents the development and validation of a self-powered, simple connect, IoT solution to monitor the unfilled level of trash bins from a central monitoring station. The end sensor nodes of the developed IoT system are called Bin Level Monitoring Unit (BLMU) which are installed in every trash bin where the unfilled level needs to be monitored. Every BLMU measures the unfilled level of the trash bins and transmits it to a wireless access point unit (WAPU). Each WAPU receives the unfilled level data from several BLMUs and uploads it to the central server for storage and analysis.

The waste collection authority can view and analyze the unfilled level of each bin using a smart graphical user interface. The following important experiments were carried out to validate the developed system: the developed bin level monitoring system was tested by filling a trash bin with solid waste at various levels, and the corresponding unfilled level of the trash bin was monitored using the smart graphical user interface. The life expectancy of the BLMU was evaluated as approximately 434 days. The maximum transmission distance between a BLMU and a WAPU is 119 m. The cost of a developed trash bin is 107 USD. Based on the results achieved, the developed trash bins can be suitable for smart cities.