LITRATURE SURVEY

1. **B. Fataniya, A. Sood, D. Poddar, and D. Shah, ‘‘Implementation of IoT based waste segregation and collection system,’’ Int. J. Electron. Telecommun., vol. 65, pp. 1–6, May 2019**

   In this paper, the Smart Bin model has been designed for solid waste management with automatic waste segregation at the initial stage for smart cities. It helps in reducing human interaction and pollution. The Smart Bin also performs accurate cloud-based level sensing notifying the administrator about the amount the dustbin is filled. It fulfils the requirement of Smart City by providing real-time data stored in the cloud for 30 days. This reduces transport cost and pollution caused during the collection process to a great extent. The impact and cost analysis of the proposed model for a ward of AMC of Ahmedabad city have been carried out. This analysis shows that the deployment of the proposed model in that ward will save about 25000 INR per annum. This also indicates that deployment of this model at a large scale will provide cost effective solution for any city. Predictive and statistical analysis can be performed using real time data that provided by this model which will help the municipal corporation to take further steps for the betterment of the city.

2. **INNA SOSUNOVA, AND JARI PORRAS**

   In this paper, they conducted a systematic analysis of the published research in the field of systems, applications, and approaches vis-à-vis SWM systems. This study resulted in 173 primary studies selected for analysis and data extraction from the 3,732 articles that were initially retrieved. The following research directions were considered during the research: 1) city-level SWM systems, 2) SGBs and SWM systems with SGB-related services, 3) stakeholders in SWM systems, and 4) information shared between SWM systems and stakeholders. Additionally, they studied the physical infrastructure of SWM systems and SWM system implementations.

3. **K. Subbulakshmi1 , Balaji S2 , John Paul Praveen A3 , G. Angelo Virgin4**

   Waste management has turned into a challenge that is faced by the developing, developed and precocious countries. The three main entities that are involved from the overall waste management are users who generate waste, who collects the waste& city administration, stakeholders. The main aim is to set up an intelligent system to control the waste management that helps to notify the waste

status in-time to collect the waste. At the same time the stakeholders knows about the type of waste in what quantity is coming up at what particular time in a timely fashion. We see it many times in our city trash cans or garbage cans placed in the public places are always overloaded. This results in unhealthiest environment for people as well as leave the place dirty. These situations can be avoided by implementing a project called smart waste and IoT waste Collection containers. These holders are interfaced with Microcontroller based framework with remote IR frameworks with focal framework that indicates current condition of waste using Wi-Fi. So the state will be refreshed on the html page. The majority of our own the task relies upon the activity of Wi-Fi module; fundamental for its usage. The primary target of this venture is to diminish assets and endeavours with progress of a savvy city vision.

4. **P. S. A. Mahajan, A. Kokane, A. Shewale, M. Shinde, and S. Ingale, ‘‘Smart waste management system using IoT,’’ Int. J. Adv. Eng. Res. Sci., vol. 4, no. 4, pp. 93–95, 2017**

This paper shows how the smart waste management using IoT can be implemented. This proposed system assures the collection of garbage soon when the garbage level reaches its maximum level. The system will thus provide accurate reports, increasing the efficiency of the system. The real-time monitoring of the garbage level with the help of sensors and wireless communication will reduce the total number of trips required of GCV and thus, will reduce the total expenditure associated with the garbage collection. Thus, the dustbins will be cleared as and when filled, giving way to cleaner city, better infrastructure and increased hygiene.

5. **Á. Lozano, J. Caridad, J. De Paz, G. Villarrubia González, and J. Bajo, ‘‘Smart waste collection system with low consumption LoRaWAN nodes and route optimization,’’ Sensors, vol. 18, no. 5, p. 1465, May 2018**

This paper introduces a waste monitoring and management platform used in rural environments. A prototype of a low consumption wireless node is developed to obtain measurements of the weight, filling volume and temperature of a waste container. This monitoring allows the progressive filling data of every town container to be gathered and analysed as well as creating alerts in case of incidence. The platform features a module for optimising waste collection routes. This module dynamically generates routes from data obtained through the deployed nodes to save energy, time and consequently, costs. It also features a mobile application for the collection fleet which guides every driver through the best route—previously calculated for each journey.

6. **M. Cerchecci, F. Luti, A. Mecocci, S. Parrino, G. Peruzzi, and A. Pozzebon, ‘‘A low power IoT sensor node architecture for waste management within smart cities context,’’ Sensors, vol. 18, no. 4, p. 1282, Apr. 2018**

This paper focuses on the realization of an Internet of Things (IoT) architecture to optimize waste management in the context of Smart Cities. In particular, a novel typology of sensor node based on the use of low cost and low power components is described. This node is provided with a single-chip microcontroller, a sensor able to measure the filling level of trash bins using ultrasounds and a data transmission module based on the LoRa LPWAN (Low Power Wide Area Network) technology. Together with the node, a minimal network architecture was designed, based on a LoRa gateway, with the purpose of testing the IoT node performances. Especially, the paper analyzes in detail the node architecture, focusing on the energy saving technologies and policies, with the purpose of extending the batteries lifetime by reducing power consumption, through hardware and software optimization. Tests on sensor and radio module effectiveness are also presented.