**IDEATION PHASE**

**LITERATURE SURVEY**

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| **Team ID** | **PNT2022TMID13652** |
| **Project Name** | **Smart Waste Management System for Metropolitan Cities** |

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| **PAPER TITLE** | **AUTHOR** | **OUTCOME** |
| Smart waste management using IOT | 1.Gopal Krishnan Shyam  2.S.Mani | A smart city is nothing but a vision to integrate several information and communication technology (ICT) along with Internet-of -things (IOT) in a way so as to manage a city’s assets include, among others , the local departments , information systems, libraries , schools, hospitals, waste management system, transportation system etc. Currently, Indian cities accommodate nearly 31% of current population and contributes to 63% of GDP(Census 2014)[2]. Urban areas are expected to house 40% of Indians population and contribute 75% of Indians GDP by 2030.This requires comprehensive development of infrastructure pertaining to social, economic, physical, and institutions fields [3].All are important in improving the quality of life and attracting people and investment. |
| Arduino Microcontroller Based Smart Dustbins for Smart Cities | 1.K. Suresh  2.S.Bhuvanesh  3.B. Krishna Devan | In this paper, a method is presented to make our surrounding's and environment to be clean. Recently the Government of India has launched a smart city project and for these smart cities to be smarter, it is necessary that the garbage collection and disposal system has to be smarter than the existing systems. The idea of Self-Monitoring Automated Route Trash (SMART) dustbin is for the smart buildings, Colleges, Hospitals and bus stands, etc. In this paper, we have used the Ultrasonic sensor and PIR sensor to sense the human presence, Servomotor to open the dustbin top, Ultrasonic sensor to sense the garbage level. A communication module is used to communicate signals between two dustbins and GSM module to send the message to operator. As soon as the dustbin is full it moves in the predefined path to reach the unnoticed place with the help of the Line follower robot using Arduino Microcontroller. We have designed a simple model to test the effectiveness of the proposed method. This paper gives an idea to be implemented in Swach Bharat dustbin in a real time model of various loads like full load, half load and empty load and for different weights. |
| Design and Development of Smart Waste Management System: A Mobile App for Connecting and Monitoring Dustbin Using IoT | 1.Na Jong Shen  2.Azham Hussain  3.Yuhanis Yusof | The Smart Waste Management System is a very innovative system which will contribute to the path towards Smart City. In our city, we usually observe that the trash bins put at open spots are always over-burden. It forms unsanitary conditions to the city and it is not optimize to solve the problem by currently existing waste management in Malaysia. Also, the traditional way of manually monitoring the wastes in dustbins is a complicated process and excessive more human effort with expenses. To avoid all such situations, a project called Smart Waste Management System is implemented. This system is developed to perform the connectivity of mobile application with Internet of Things (IoT) based dustbins. These dustbins are developed using IoT. IoT is the system of physical devices implanted with software, sensors and network connectivity which empowers these items to gather and trade information. The status of dustbins will be determined using ultrasonic sensor and collected data send through network to the database. The mobile application is used to monitor dustbins and perform route direction to the dustbins. The methodology which applies in developing this project is Adaptive Software Development (ASD). The benefits of this scheme are to reduce used of human resources and efforts together with the enhancement of Smart City. The prototype of this project is evaluated by some users before published to ensure the system can be enhanced in future works. |
| IoT-Enabled Solid Waste Management in Smart Cities | 1.S.Vishnu  2.S.R.Jino Ramson  3.Samson  4. Adnan M. Abu-Mahfouz 5.S.Srinivasan  6. Theodoros Anagnostopoulos 7.Xiaozhe Fan  8.A.Alfred | The Internet of Things (IoT) paradigm plays a vital role for improving smart city applications by tracking and managing city processes in real-time. One of the most significant issues associated with smart city applications is solid waste management, which has a negative impact on our society’s health and the environment. The traditional waste management process begins with waste created by city residents and disposed of in garbage bins at the source. Municipal department trucks collect garbage and move it to recycling centers on a fixed schedule. Municipalities and waste management companies fail to keep up with outdoor containers, making it impossible to determine when to clean them or when they are full. This work proposes an IoT-enabled solid waste management system for smart cities to overcome the limitations of the traditional waste management systems. The proposed architecture consists of two types of end sensor nodes: PBLMU (Public Bin Level Monitoring Unit) and HBLMU (Home Bin Level Monitoring Unit), which are used to track bins in public and residential areas, respectively. The PBLMUs and HBLMUs measure the unfilled level of the trash bin and its location data, process it, and transmit it to a central monitoring station for storage and analysis. An intelligent Graphical User Interface (GUI) enables the waste collection authority to view and evaluate the unfilled status of each trash bin. |
| Smart City Waste Management System using IoT and Cloud Computing. | 1.Aderemi A. Atayero  2.Segun I. Popoola  3.Rotimi Williams  4.Joke A.Badejo  5.Sanjay Misra | Indiscriminate disposal of solid waste is a major issue in urban centers of most developing countries and it poses a serious threat to healthy living of the citizens. Access to reliable data on the state of solid waste at different locations within the city will help both the local authorities and the citizens to effectively manage the menace. In this paper, an intelligent solid waste monitoring system is developed using Internet of Things (IoT) and cloud computing technologies. The fill level of solid waste in each of the containers, which are strategically situated across the communities, is detected using ultrasonic sensors. A Wireless Fidelity (Wi-Fi) communication link is used to transmit the sensor data to an IoT cloud platform known as Thing Speak. Depending on the fill level, the system sends appropriate notification message (in form of tweet) to alert relevant authorities and concerned citizen(s) for necessary action. Also, the fill level is monitored on Thing Speak in real-time. The system performance shows that the proposed solution may be found useful for efficient waste management in smart and connected communities. |