Smart Waste Management System For Metropolitan Cities

ABSTRACT:

Waste management is one of the primary problem that the world faces irrespective of the case of developed or developing country. The key issue in the waste management is that the garbage bin at public places gets overflowed well in advance before the commencement of the next cleaning process. Rapid increase in population, has led to the improper waste management in cities resulting in increased pests and spreading of diseases. Nowadays, the Garbage Collecting Vehicle (GCV) collects the waste twice or thrice in a week. So, the problem is over flowing of wastages on the roads. It in turn leads to various hazards such as bad odor & ugliness to that place which may be the root cause for spread of various diseases. To avoid all such hazardous scenario and maintain public cleanliness and health this work is mounted on a smart garbage system. The main theme of the work is to develop a smart intelligent garbage alert system for a proper garbage management.

PROJECT DESCRIPTION:

The main aim of the project is to building a model for smart intelligent garbage alert system for a proper garbage management. Garbage level detection in bins is done to Alerts the authorized person to empty the bin whenever the bins are full. Garbage level of the bins can be monitored through a web Application. We can view the location of every bin in the web application by sending GPS location from the device.

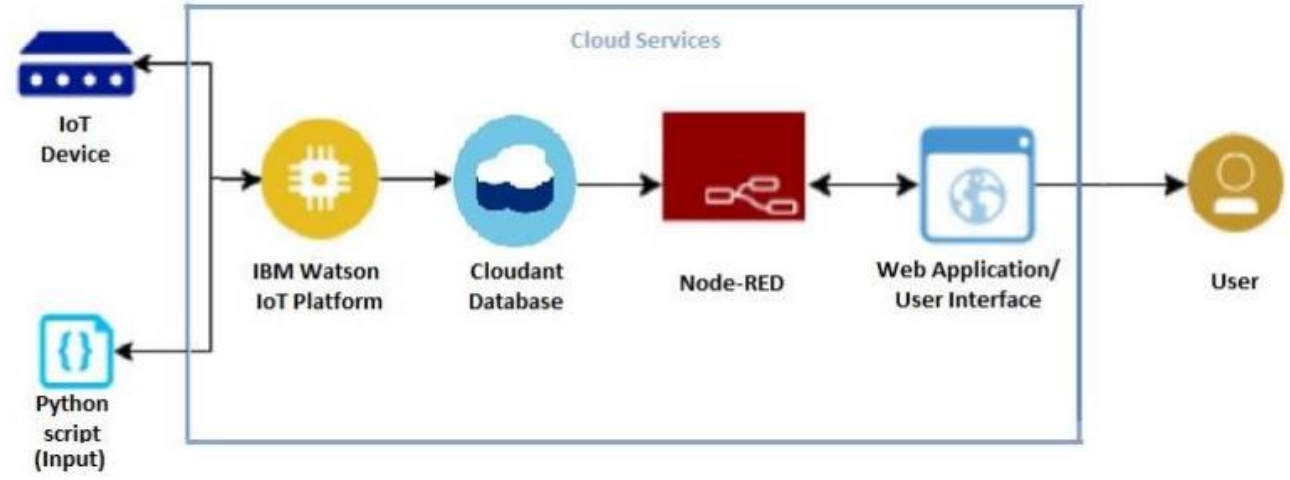
TECHNOLOGIES USED:

Python, IBM Cloudant Database, IBM Watson IoT Platform, Node-RED Service, IBM Cloud

PROJECT FLOW:

- The status of the bins are constantly monitored, along with their location remotely via a Web Application and the data is collected and stored on a cloud platform.
- The GPS coordinates and the garbage level of the garbage bin will be sent to the IBM IoT platform by developing a python script.
- The location of the bins along with bin status can be viewed in the Web Application created using Node-RED service.
- This data is stored in Cloudant Database.
- It alerts the admin if the bin value crosses the threshold value, i.e., when the bins are full.
- It alerts the admins to empty the bin when they are full.

PROJECT ARCHITECTURE:



LITERATURE SURVEY:

- SURVEY PAPER ON MUNICIPAL SOLID LIQUID BASED SMART WASTE MANAGEMENT SYSTEM- ZERO WASTE USING INTERNET OF THING

  Pranay Mahajan, Avani Jain

  in this paper a scheme on smart waste management using Wireless Sensor Networks (WSN) and IoT is proposed. The garbage bins are deployed with sensors and are networked together using WSN. The sensors deployed in the garbage bins collect the data for every determined interval. Once the threshold is reached, it raises a request to the GCA (Garbage Collector Agent). This agent collects the requests of all the filled vehicles and communicate using IoT framework.

- IOT based smart garbage alert system using Arduino UNO

  N. Sathish Kumar; B. Vuayalakshmi; R. Jenifer Prarthana; A. Shankar

  This paper proposes a smart alert system for garbage clearance by giving an alert signal to the municipal web server for instant cleaning of dustbin with proper verification based on level of garbage filling. This process is aided by the ultrasonic sensor which is interfaced with Arduino UNO to check the level of garbage filled in the dustbin and sends the alert to the municipal web server once if garbage is filled. It also enhances the smart garbage alert system by providing automatic identification of garbage filled in the dustbin and sends the status of clean-up to the server affirming that the work is done. The whole process is upheld by an embedded module and IOT Facilitation. The real time status of how waste collection is being done could be monitored and followed up by the municipality authority with the aid of this system.

RESULT AND DISCUSSION:

- This model will be useful for implementing a simple and easy waste management system.
- The system will be remote.
- Workload of garbage workers will be reduced.
- The land pollution is reduced.

REFERENCE:

- Survey Paper on Municipal Solid Liquid based smart waste management system – Zero waste using Internet of Things
  IJESRT Journal
  Pranay Mahajan, Avani Jain
  (PDF) SURVEY PAPER ON MUNICIPAL SOLID LIQUID BASED SMART WASTE MANAGEMENT SYSTEM-ZERO WASTE USING INTERNET OF THING | IJESRT Journal - Academia.edu

- IOT based smart garbage alert system using Arduino UNO
  IEEE Xplore
  N. Sathish Kumar; B. Vuayalakshmi; R. Jenifer Prarthana; A. Shankar
  IOT based smart garbage alert system using Arduino UNO | IEEE Conference Publication | IEEE Xplore