

LITERATURE SURVEY

Smart Waste Management System for Metroplotian cities

Di Bu` o, Mario Prist, Massimo Grisostomi and MatteoPirro[2] proposed, garbage collector supported by using sensor motes which is providing information and status about the bin and also sending the retrieved data through DTN (Data Transfer Nodes). This bin has a custom prototype instead of basic installation of sensor nodes. The whole system is designed for allowing heterogeneous sensor for communication. A wireless sensor network is helped for controlling bin by gathering data from motes. The limitation here is that the information about the bin is not directly transferred to the server or to the client; it needs to be sent through the Data Transfer Nodes [1].

ShubhamThakker, R.Narayanamoorthi, in this paper [3], using the Near Infrared Reflectance (NIR) spectroscopy we can identify the type of plastic. The alienated dissipate equipment from MSW (municipal solid waste) can be place in a needy area. By Using an dissenter materials which can be mix into a uniform material. The entire process is repeated every hour.. The fermentation mechanism took place in a sealed atmosphere, where bacteria converted into undividable enzymes which results in biogas [2]

A. G. Azwar [4] proposed a smart trash monitoring system design using NodeMCU. This system uses ultrasonic sensors, two LEDs and NodeMCU. The ultrasonic sensor is used to measure the distance and find the fill level of the bin. A red and a green LED is used to check whether bin is full or not. If bin is empty, green LED is turned on and if the bin is full then red LED is turned on. NodeMCU is used to interface all the LEDs and the ultrasonic sensor. It also connects to the WiFi network which is used to store data on server. The data from the sensors is published to the cloud server with the MQTT protocol. Using AJAX and PHP programming technologies, the web application's data subscription results are then stored in a database server. This data is then displayed on a dashboard which can be accessed using any browser.

J. Das [5] proposed a smart garbage monitoring and alert system using IoT. This system uses NodeMCU, DHT-11 sensor, HC-SR04 Ultrasonic sensor, and MQ4 sensor. The NodeMCU interfaces all the sensors and connects to the WiFi. The DHT-11 sensor measures the temperature and humidity which is used to segregate dry and wet waste based upon the output of the sensor. The ultrasonic sensor is used to calculate the fill level of the garbage in the bin. The MQ4 sensor measures methane and natural gas which is used to measure the odour of the garbage. The system also uses an android application which monitors the data in

real-time. One has to login with valid user id and password on the application so that only authorised person can access the data. IFTTT (If This Then That) service is used for the notification service. If the threshold is crossed then an SMS or email notification is received by the authorised person.

Shilan et al [9] from Iraq developed a smart solid waste monitoring and collection system. Ultrasonic Sensor Arduino Uno and Radio Frequency (RF) transmitter were installed on the top of the waste box for the monitoring task. A message (SMS) will be sent to the mobile phone of the truck driver about the location and ID of the dustbin whenever the waste box is full and needs for disposing the garbage.

A garbage segregator system was implemented by Balagugan et al [12] to classify the waste at household level. PIC16F877 microcontroller was used in this segregator to control the entire process. An IR (Infrared) sensor, a moisture sensor and a metal sensor were used to detect and identify various types of waste respectively. The authors used Proteus tool to simulate their research idea to categorize the metallic and non-metallic waste efficiently. There is no real garbage segregation in their work.

This paper [4] proposes an advanced mobile caution framework for trash cleaning by eventually providing for a caution indicator to the metropolitan web server for immediate cleaning of dustbin with proper confirmation of level of trash filling. This procedure is helped by ultrasonic sensor, which is connected with Arduino UNO to weigh the level of waste loaded in the dustbin then sends the caution of the level to metropolitan web server once waste is filled. Then after cleaning the dustbin, the driver confirms the assignment about discharging the waste with the help of RFID tag. RFID is a registering innovation organization that is utilized for confirmation methodology. Also in addition, it likewise enhances the trash caution framework by giving programmed ID number of waste filled in the dustbin and sends the status about clean-up to the server affirming that effort is finished.