Smart Garbage Van Tracking and Alert System

-Aditya Gourishetty, Subhash S, Madhu Sri CS, N Sushanth Reddy, Shaik Sohail, Premraj Reddy, Sai Akash, Dharani Krishna, Geethanjali

Abstract

Having a hygienic and healthy environment or surrounding is one of the minimum requirements for quality living. For the existence of such a state proper waste management is absolutely essential. With urbanization and increasing population in cities achieving this has become crucial and severe challenge. One major segment in waste management is efficient garbage collection and maintenance of the direct garbage collecting sources like household public trashcans, garbage from households etc. The many problems faced in regard to these sources are overfilling, decaying of garbage in these sources causing further problems like unpleasant smell and health hazards. To tackle this problem this methodology optimizes the process of garbage collection using IoT based systems.

In the system proposed the first segment is to grade the quality of the garbage present in the primary collection sources which will be connected to a network, based on various parameters like temperature, humidity, level of garbage present in the bin and the duration of time when the bin was last cleared. This data will be collected from the bins using various sensors like an ultrasonic sensor for the level of garbage filled, the temperature and humidity sensors for getting their respective data. Appropriate weights will be assigned to each parameter for grading and based on the grade of garbage, the collection priority will be set which will be accessible on the network. The second segment of the system consists of having the location data of the garbage vans which will be used along with the priority information of the garbage sources to optimize the routes for these vans to take in order to minimize fuel consumption.

The last segment of this proposed system involves rating the drivers based on their performance of garbage collection measured by the fuel consumed and the amount of garbage collected which will can improve competition and improve productivity. A similar rating can also be given to the consumers and special discounts can be created to encourage better management from the consumers' side too.

Keywords: IoT, Waste Management, Garbage, Ultrasonic Sensor, Temperature Sensor, Humidity Sensor