SMART WAY OF GARBAGE COLLECTION

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Abstract -*Solid waste is one of the major problem in Indian cities. Most of the time as we see that the garbage bins being overfull and it creates unhygienic condition in the nearby surrounding area. This creates pollution and spread diseases. There are number of techniques which are purposefully used for collection and management of garbage. This paper deals with development work for continuously monitoring and management of solid waste. By using proposed system, we will be able to monitor the solid waste collection, manage the transportation system and we can control the overall process automatically. Solid waste management is comprises in only four activities: waste generation, collection, transportation and disposal. We have focus on collection and transportation solid waste. This proposed system is an integration of ARM7, with various wireless communication technologies. When garbage reaches at a particular level of garbage bin, sensor gives indication to ARM7 controller. Controller will send message to nearest truck driver through GSM. This location information continuously transfer to central database through GSM. According to information available on central database, controller will decide the nearest truck driver, and send message to respective truck simultaneously.*

Key Words: GSM Module , Sensor , Controller , Garbage bin.

1.INTRODUCTION

A significant amount of solid waste generated in country are not collected and managed properly. Wastes are either burned openly in the streets or end up with empty land, rivers and thereby creating a serious health issue to public. Today, Solid waste management has changed a long way from the old days when garbage was collected by horse and disposed outside of town today, it is almost hard to manage waste collection process and management without high technology to pinpoint the locations of vehicles and recycling bins.

Waste management practices can differ for developed and developing nations, for urban and rural areas, and for residential and industrial producers. Management of non-hazardous waste, residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management for non-hazardous commercial and industrial waste is usually the responsibility of the generator subject to local, national or international authorities.

1.1. PROBLEM STATEMENT

To design a solid waste monitoring and management system using GSM, GPS associate with intelligent systems.

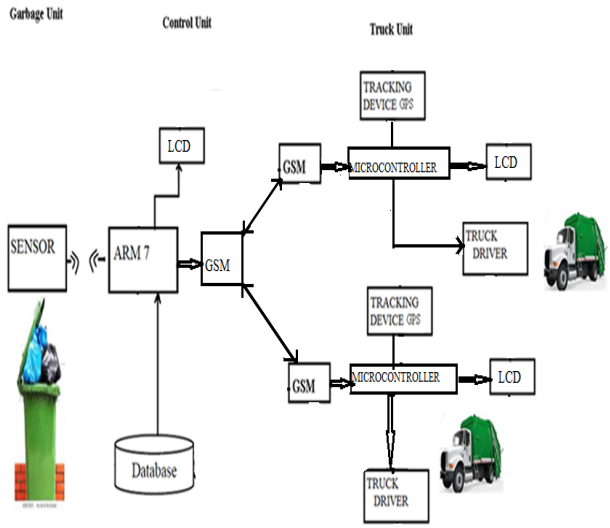
1.2. OBJECTIVES

- Proper solid waste management is required for green and healthy environment. Proposed system will avoid disadvantages of existing system such as wastage of fuel manual controlled of SWM system.
- Conduct household hazardous waste collection activities for residence.
- Conduct clean waste collection activities so that Conditionally Exempt Small Quantity Generation (CESQG) have a low cost , safe disposal option for hazardous waste generated in qualifying quantities by business And commercial enterprises.

2. METHODOLOGY

- The trucks and bins monitoring and locating system based on GSM is a computer network system which will be developed for real-time truck surveillance.
- The GPS receiver will receive the positioning data from the GPS. The coordinate data which include the position and the state of the truck are sent to GSM network in form of short message by GSM module.
- The received information would be transferred via GSM network to the communication gateway of the control station.
- Through control station the information of nearest truck is estimated through GPS.
- The message is sent to the truck driver to collect the garbage which is at the nearest location.

2.1.BLOCK DIAGRAM



3. EXPERIMENTAL RESULT

The research is expected to be able to develop the prototype of the solid waste monitoring and management system using GPS and GSM. This will provide a novel effective solid waste monitoring and management system for real time tracking purpose. The proposed system will provide the location of trucks and solid waste collection of the recycl1ing bins in real time application, monitoring and management.

4. APPLICATIONS

- Industrial automation
- In smart city application

4.1. ADVANTAGES

- It is an effective and robust system.
- Maximize the waste management efficiency through the monitoring of bin status content.
- Avoid over flowing of garbage from the container in residential area.

4.2. SPECIFICATIONS

HARDWARE SPECIFICATIONS

- IR SENSOR –TSOP1738
- GSM -SIM900
- GPS
- CONTROLLER -ARM7

SOFTWARE SPECIFICATIONS

- KEIL SOFTWARE

5. CONCLUSION

The smart trash receptacle, gives a solution for unsanitary environmental condition in a city. This prevents many diseases caused due the toxic gases emanating from the overflowing trash can. Thus this project holds the belief that overflows of the trash can on the streets could be avoided. It helps to maintain a clean and healthy environment throughout the country. Database of every trash bin can be maintained in municipality. The communication between trash bin, municipality and truck member is also easily maintained. The smart trash receptacle finds to be cost effective. This concept can be extended to maintained sewage level, corporation water tank overflowing maintenance, road traffic maintenance.

6. REFERENCES

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