

# Smart Garbage Collector

Prof. Shwetha<sup>1</sup> Umanga Bhatta<sup>2</sup> Chandan Kumar Choudhary<sup>3</sup> Basant Kumar Singh<sup>4</sup>  
Rahul Yadav<sup>5</sup>

<sup>1</sup>Professor <sup>2,3,4,5</sup>Student

<sup>1,2,3,4,5</sup>Department of Electronics & Communication Engineering  
<sup>1,2,3,4,5</sup>Sambhram Institute of Technology, Bangalore-97, India

**Abstract**— This paper presents the development of a moving robotic model for detection of the type of waste scattered and lathered; after which depending upon its type it is dumped into the required bin.

**Key words:** Dual Tone Multiple Frequency (DTMF), Robotic Arm, Wet Waste and Metallic Waste

## I. INTRODUCTION

Proper disposal of waste and garbage is a major issue of today’s time. The scattering of waste is an easy job but its management and proper disposal is a duff one. In almost every area of human settlement the unmanaged garbage disposal has created huge problems. In addition to environmental and health hazards it also degrades the serenity of the place. Keeping in mind all these things a prototype model is presented in which after the moving robot has detected the type of waste mainly- wet, solid and metallic the next action that is that is proper disposal is focused on the bins. Such sort of segregated dumping and collection helps the required authority to deal with garbage in a better way and provide better measures.

## II. PROPOSED METHODOLOGY

The garbage collection model can be divided into three parts: a) voice announcement b) DTMA controlled motion, c) detection and dumping.

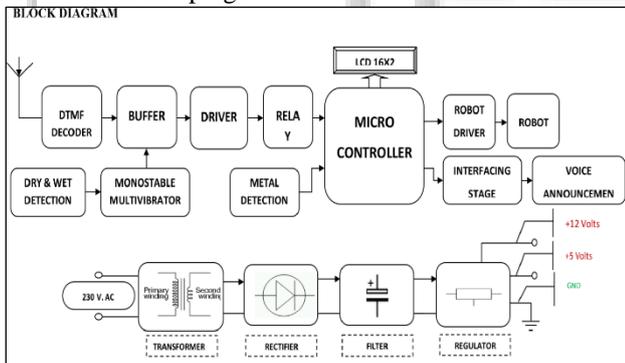


Fig 1: Components of Garbage Collector robotic model  
The power supply has got its own mechanism. Thus two main classifications: a) Hardware Description and b) Software Description are to be discussed.

### A. Hardware Description

For power supply using 230 volts(V) AC mains the battery of the robotic model can be charged which is used to drive the system. DTMF decoder decodes the Dual Tone Multiple Frequency signal DTMF allows the robotic model to be controlled from any place by just calling the required SIM and pressing required instructions. Here the required sim and attached keypad are attached to the model. There is a provision of speaker which announces the public the mechanism to collect waste has arrived. The buffer helps to

provide high current drive and the driver provides required current to drive the device.

Relay or electromagnetic switch controls the required drive to necessary component. Another important feature is the presence of detector. A probe detector is used to identify wet waste as it provides high conductivity. Dry waste has no conductivity while metallic waste generates magnetic induction. After which disposal is done.

### B. Software Description

The garbage collector after arriving in the site at first begins its work with voice announcement. Then the people or targets can directly dispose of the waste in front of model. This model segregates the type of waste and disposal in selected bin is done.

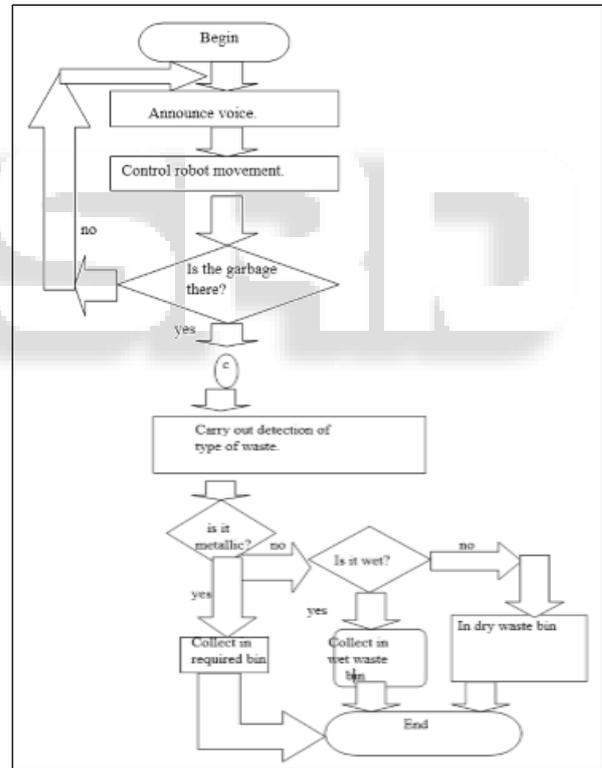


Fig. 2: Logical model of working  
The same working cycle is to be followed for collection of garbage in different areas.

## III. APPLICATION

In addition to being useful for collection garbage through proper segregation it can be particularly high use in radiation hit areas. Similarly, it is focuses the core idea of latest smart cities where through proper image processing this robotic model can be used to collect garbage from a centralized location. Using a separate collector for every ward of the municipality being controlled from it is a high possibility and a system to be used.

#### IV. CONCLUSION

Thus a robotic model based smart garbage collector highly suites relevance of present times and can play an integral part in maintaining environmental hygiene. The sensitivity of garbage collection application paves further prospects of research and development in the aspect of project.

#### ACKNOWLEDGMENT

Heartfelt gratitude is offered to our head of department Dr.Ravishankar, Dept. of ECE, for his support and encouragement that went a long way in the successful working of the project work. Then thanks to my project guide Prof. Shwetha for her integral support offered throughout the seminar work and for constant source of inspiration throughout the project activities. Lastly the words are spared for our project Coordinators-Dr. Veena and Prof.Padmashree for their wonderful guidance and support.

#### REFERENCES

- [1] S. N. Rudnick and D. K. Milton, "Risk of indoor infection transmission estimated from waste concentration," "Garbage Collection", vol. 13, no. 3, pp. 237-245, 2003.
- [2] W. R Borg and M. D. Gall, Educational Research: "An Introduction, Smart Bin Management", 4th edition; London: Longman Inc, 1983.
- [3] J. D. Spengler and K. Sexton, "Garbage Collection": a public health perspective," Science, vol. 221, no. 4605, pp.9-17, 1983.

#### V. BIOGRAPHIES

- 1) Umanga Bhatta is currently an undergraduate student currently studying Electronics and Communication Engineering in Sambhram Institute of Technology will complete his graduation in 2018. His strong field of interest includes Embedded System design.
- 2) Basant Kumar Singh is currently an undergraduate student currently studying Electronics and Communication Engineering in Sambhram Institute of Technology will complete his graduation in 2018. His strong field of interest includes Wireless Communication.
- 3) Chandan Kumar Choudhary is currently an undergraduate student currently studying Electronics and Communication Engineering in Sambhram Institute of Technology will complete his graduation in 2018. His strong field of interest include Digital Communication.
- 4) Rahul Yadav is currently an undergraduate student currently studying Electronics and Communication Engineering in Sambhram Institute of Technology will complete his graduation in 2018. His strong field of interest includes Control Systems.