International Journal of Research in Engineering, Science and Management
Volume-3, Issue-2, February-2020
www.ijresm.com | ISSN (Online): 2581-5792

Wet Waste Crusher

Deepti M. Honguthi[1], K. M. Mouna[2], S. Vidya Shri[3], C. Nataraja[4]
[1,2,3]*Student, Dept. of Electrical & Electronics Engineering, Sri Siddhartha Institute of Technology, Tumkur, India*
[4]*Assistant Professor, Dept. of Electrical & Electronics Engg., Sri Siddhartha Inst. of Technology, Tumkur, India*

***Abstract*: Rapid increase in population has led to improper waste management in metro cities and urban areas which has resulted in spreading of diseases. It is estimated that 2.02 billion tons of municipal solid waste was generated universally in 2006. The segregation, transport, handling and disposal of waste must be managed properly to minimize the risks to the public, and the environment. An efficient method to dispose the waste has been designed in our project, "wet waste crusher". This project proposes an automatic waste crusher which is a cheap, easy to use solution for a wet waste system at households, so that the wastes can be sent directly for processing. Automatic waste crusher is designed to crush the wet waste.**

***Keywords*: Ultrasonic sensor, Odour sensor, servo motor, BLDC motor, Atmega328 controller, Buzzer, Liquid crystal display.**

1. Introduction

Wet Waste generated all over the world is 683 million tones. In India about 62 million tons of waste is generated every year.11 million tones in metropolitan cities. The landfills of most of these cities are overflowing with no space for fresh garbage waste. The philosophy of "Waste Management Hierarchy" has been adopted. According to sanitation survey called "Swacch Survekshan-2016" conducted by the development under the Swacch Bharath mission it was found that about 50% people in India face the problem of improper waste collection and management. Thus we have proposed a cost effective "Wet Waste Crusher" for proper management of waste.

2. Objective

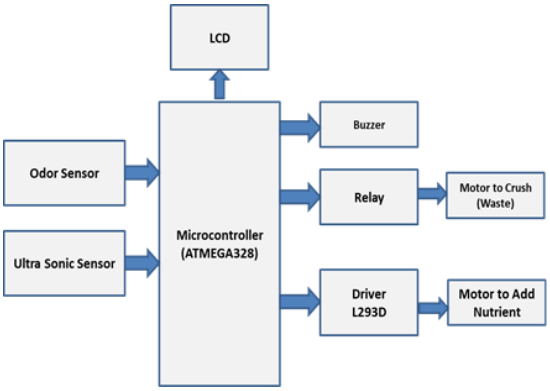
The main task of this proposed system is to provide the automatic waste crusher with the help of manual support. And that crushed wet waste is used as minerals for the plant growth. Ideology survey: urban solid waste management in India-sensor based smart dustbin for waste segregation. Waste material segregation using Atmega328-collection, transportation and disposal of material segregation waste.

3. Block diagram

Figure shows the block diagram of the proposed system. It consists of two sensors namely odor sensor and ultra-sonic sensor. Odor sensor is used to detect the smell of the waste and respective percentage of that odor. The ultrasonic sensor which is used to prevent the overflow of the waste, these sensors work at 5V DC supply. the microcontroller used is Atmega328 which has inbuilt ADC converter, and it has internal EEPROM. L293D motor driver is an IC which allows the DC motor to drive in any direction. The motors used are servo motor and BLDC motors with rating 1000rpm. The servomotor used to control nutrients and BLDC motor used for crushing the waste. These motors have 12V DC supply. LCD to display the percentage of the odor and the distance between the sensor and the waste. Relay is used as electrochemical switch for controlling the motor which is used for crushing and to turn on and turn off the motor. Buzzer is used to give the information about the dustbin being full.

Possible output:

1. Eco friendly.
2. Crushed material can be used as a fertilizer.
3. Avoiding dumping of wet waste materials.



4. Conclusion

Used where the damping of wet waste is high and can be easy collected so that it must not cause any health issues to mankind. No difficulty in separation between dries waste and wet waste because it is crushed at the source itself. The wet waste crushed outcome can be used as fertilizer for plant growth by adding necessary nutrients to it. Instead of damping wet waste in to a public bin from which these wet waste is further separated and used as a productive material, we can make use of these wet waste by using this wet waste crusher in every home.

References

[1] Bajaj J. S. "Urban Solid Waste Management in India." New Delhi: Planning Commission Government of India; 1995.

[2] Daniel Hoornweg, et al. What a Waste: A Global Review of Solid Waste Management. Washington, DC: Urban Development and Local Government Unit World Bank, No. 15, March 2012.
[3] Shuchi Gupta, Krishna Mohan, Raj Kumar Prasad, et al. Solid Waste Management in India: Options and Opportunities. in Resources, Conservation and Opportunities. Nov. 1996; 24(2):137.