

Automatic Waste Sorting Machine Using Radio Frequency Identification

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Abstract: Radio Frequency Identification (RFID) is a pervasive computing technology that can be used to improve waste management by providing early automatic identification of waste at bin level. The wastes are tracked by smart bins using a RFID- based system without requiring the support of an external information system. First, the user is helped in the application of selective sorting. Second, the smart bin knows its content up to the precision of composed materials by types and percentage.

Keywords: Rfid, Smart Bin

INTRODUCTION

For waste management solutions providers and system integrators, focus on efficiency, economy, and traceability is critical and the very important factor to look forward to it.

Radio frequency identification (RFID) is a powerful tool for waste collection, disposal, and management, delivering unique and compelling benefits to city governments, waste removal contractors, and their residential and commercial customers.



PROBLEM DEFINITION

- Not every successful reading of a tag (an observation) is useful for business purposes. A large amount of data may be generated that is not useful for managing inventory or other applications.
- Event filtering is required to reduce this data inflow to a meaningful depiction of moving goods passing a threshold.

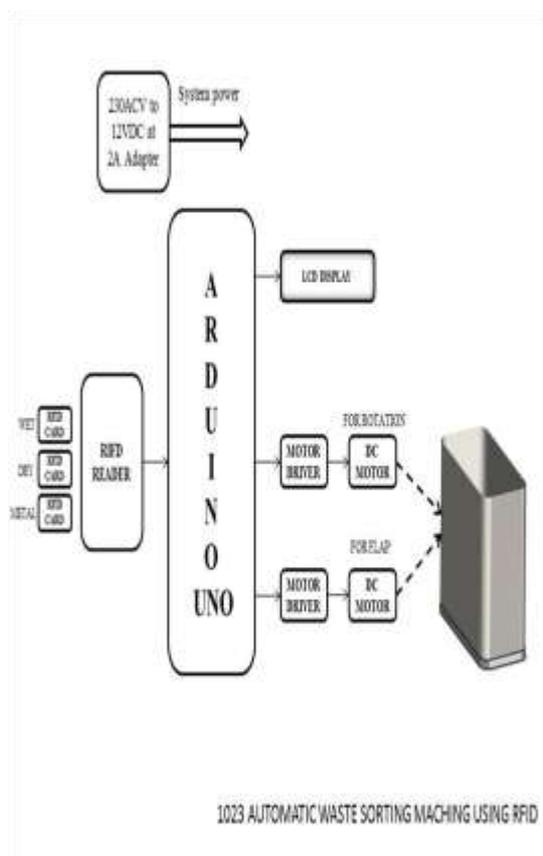


Fig. Block Diagram

II. LITERATURE REVIEW

1. A Smart Waste Management with self describing object.

(September 2014)

Radio Frequency Identification (RFID) is a pervasive computing technology that can be used to improve waste management by providing early automatic identification of waste at bin level. In this paper, we propose a smart bin application based on information self-contained in tags associated to each waste item. The wastes are tracked by smart bins using a RFID-based system without requiring the support of an external information system.

Selective sorting is another approach, which is often implemented to improve recycling and reduce the environment impact. The importance of resources and energy saving is another argument to manufacture recyclable materials.

2. The EUs approach to Waste Management (April 2012)

EU waste management policies aim to reduce the environmental and health impacts of waste and improve Europe's resource efficiency. The long-term goal is to turn Europe into a recycling society, avoiding waste and using unavoidable waste as a resource wherever possible. The aim is to achieve much higher levels of recycling and to minimize the extraction of additional natural resources. Proper waste management is a key element in ensuring resource efficiency and the sustainable growth of European economies.

3. Comparing household waste treatment. (June 2006)

One important aspect of a smart city is systems that are sustainable and environment friendly. This paper reviews smart solid waste management system being put in place using Swiss technology at smart city where garbage will be disposed of with minimum human interference giving a strong independent system. Not only that, the waste will be recycled and recovered to make organic manure and generate power that will be consumed in smart tech city itself. The paper also revises the past experiences with disposal practices and highlights their instability.

4. Rfid application in municipal solid waste management system. (July 2009)

Processing and recovery is a key functional element in municipal solid waste management system (MSWMS). Reuse, recycle and recovery of valuable components of waste stream are given much attention in MSWMS in both developed and developing countries. The main concern of municipalities is the sound management of recyclable materials. Source separation as a best practice for management of trash and recyclable materials is known to every municipalities. Since 1980 many technologies are used in recycling industry.

5. Rfid application in municipal solid waste management system. (October 2010)

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III. CONCLUSION

With costs rising at all points in the waste management process, shrinking landfill space, and growing consumer interest in recycling, RFID is enabling cities and towns across the country to foster recycling while improving the efficiency of their waste operations.

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