

Green Energy 2019: Utilization of smart RFID systems for optimal management of collection and transport of domestic waste, Iran- Rasoul Keshtpour- Mayor of District 2 of Tehran

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Introduction

Statement of the Problem: Due to the progress of urbanization and complications in management in this regard, as well as the necessity of controlling pollution stemming from waste production, traditional methods no longer answer the management requirements in this field. Therefore, because of the multi-faceted nature of waste management in large cities, on the one hand, and the necessity of management of financial and human resources, on the other, utilizing methods and features associated with smart cities is of high importance.

Methodology & Theoretical Orientation: In this study, by using radio frequency identification (RFID) systems and reading and processing of the data, in addition to reduction of human resources and current costs, the goal was to determine planning details of the city. The other advantages of this method include reduced pollution associated with collection trucks and lower emission of greenhouse gases due to the shorter staying duration of waste in the bins. Findings: The results indicated that 12.7% of bins existing in the initial data were identified after the implementation of the current method, resulting in savings in the number of bins, optimal navigation of waste collection trucks, and division of collection. By using smart methods, coding the waste bins and installing reader on trucks, in addition to facilitating instantaneous transparency, all the waste collection elements were analyzed in the electronic panel to allow future planning.

RFID is a conventional term for innovations which utilize radio waves to naturally distinguish individuals, creatures or objects. A RFID framework is made out of three components: (a) one or a few RFID labels (likewise called "transponders" or "RFID marks"), (b) one or a few RFID perusers (or "questioners") and (c) a PC framework (equipment and programming). A RFID label comprises of a microchip and a receiving wire. It very well may be stuck on, imprinted on or fused into an item, a creature or an individual, giving an

exceptional identifier to each. It comes in various shapes and sizes as little as 2 mm. The labels are characterized dependent on, Frequency, Power and application. High recurrence frameworks has since quite a while ago read extend, high information move speeds and are utilized for quick moving articles. Detached labels work without its very own force wellspring they get working force from peruser's receiving wire. Latent labels are lighter, more affordable and offer an essentially boundless operational lifetime yet have shorter perused ranges than dynamic labels and require a more powerful peruser. Latent labels contain information generally 32-188 bits in length. Dynamic label memory differs from barely any bytes to 1 MB and can have 10 years of life. Speed of the item and read separation decides the sort of tag to be utilized.

The RFID peruser is made out of an electronic card and a reception apparatus. The RFID labels speak with one or a few RFID perusers over a radio channel. This correspondence can be made by different frequencies. The peruser changes the information transmitted by the RFID labels into advanced information and moves them to a PC. The PC may essentially store them or look into the label ID in a database to coordinate further activity, and may likewise guide the peruser to compose extra data to the tag. The peruser and the PC are associated by radio or by links. As per the statistical surveying expert IDTechEx, the total deals of RFID labels have indicated an energizing increment since most recent couple of years. RFID research has prompted the rise of another scholarly examination region that expands on existing exploration in a large group of controls, for example, electronic designing, data frameworks, software engineering, and business system]. RFID is a developing innovation, and it has a wide assortment of utilizations in numerous fields. Some of them are National ID ventures, Money falsifying, Automatic vehicle Identification in Parking, RFID Passports and Traveler Tracking, Disaster Management, RFID to Track Wagons, Vehicle Tracking on

interstates, Dairy cultivating, Mail Tracking and Security, Hazardous Materials Management, Automatic Toll Collection, Supply chain the board, Warehousing and stock administration.

The conservancy division is answerable for road clearing, entryway to-entryway assortment, cleaning open places and open dump places. The Solid waste administration office is liable for auxiliary stockpiling, assortment, and transportation, handling and last removal of metropolitan strong waste. AMC has recognized 1089 areas as waste assortment focuses and 704 shut body M.S. public containers are put at 584 destinations. 1200 completely motorized 7.0 CMT vehicles are conveyed for transportation. The vehicle framework has been privatized guarantee opportune and productive removal of waste. 30 ton weighbridge have been introduced at SWM workshop. About 12.7 million rupees are spent yearly for whole removal process.

Image:

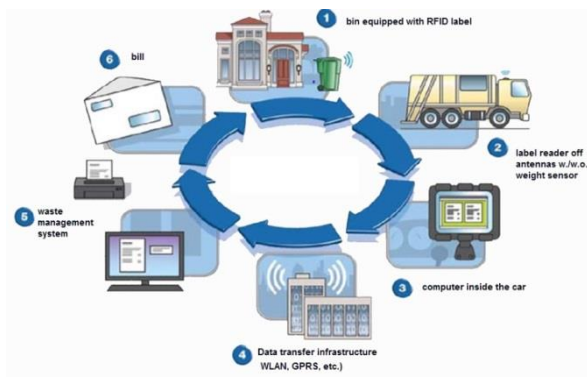


Figure1: waste management cycle based on RFID

Keywords: Agriculture, land, Towns, Gelan and Dukem, Urbanization

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