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Utilization of smart RFID systems for optimal management of collection and transport of domestic waste

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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.



Recent Publication:

1. Vafaei F, Harati A N and Sabbaghian H (2012) Investigation of coastal inundation due to a rise in sea level (temporary and permanent)-case study: Iran, Bandar Abbas. Polish Journal of Environmental Studies 21(1):209-217.
2. Vafaei F and Harati A N (2010) Using strategic management in decision support system for coastal flood management. IJER 4(1):169-176

Biography

Seyed Amir Naser Harati has completed his PhD in Civil Engineering Environment from K N Toosi University of Technology in Tehran-Iran. He has served as the Operation Manager and Director of Technical and Engineering Office in the Waste Management Department at Tehran Municipality. He is currently the Deputy Director of Urban Services and Urban Environment at Tehran Municipality.