A Smart Waste Disposal System: To Encourage Proper Waste Disposal

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Abstract

Waste disposal is one of the most important industries in the world. If not maintained properly it would lead to the destruction of the environment. Improper waste disposal is becoming a critical issue in Sri Lanka and the lack of waste segregation, inadequate waste collection methods, the lack of support for waste management from the public are among the root causes of the problem. As a solution we propose an IoT- based solid waste management system that allows garbage bin monitoring, routing of garbage collector trucks, a prediction model and a point rewarding system. As an end result of this research the following prototypes will be built. A prototype model of a smart bin capable of opening and closing by itself and detecting the waste level of the bin, a prototype mobile application for garbage collectors which delivers data analysis on truck position and timeliness, a prototype mobile application for the public which receives the solid waste discarded and calculate reward points to encourage the public in proper waste disposal and a prototype web application which delivers statistical data for detailed reports and a prediction model which predicts the amount of waste to be collected in the coming month using machine learning. This is a low-cost IOT-based solution that uses existing resources to handle the massive amounts of garbage collected each day.

Keywords

Smart Bin Model, Mobile Application, Web Application, Solid Waste Management System, IOT, Prediction Model, Machine Learning.