Project Development

Sprint-1(case study)

Team ID	PNT2022TMID39755
Project Name	Smart Waste Management System For Metropolitan Cities

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Abstract

Medical waste disposal has been a big issue due to an exponentially growing population and the COVID-19 pandemic. Increased waste generation per person has resulted from urbanization, industrialization, and economic development. Substandard medical waste separation at the site of origin might have a cascading effect on the environment, putting humans, wildlife, and soil and water bodies at danger. If hazardous airborne pollutants are not effectively controlled, separated, and burned by on-site or off-site incineration, environmental concerns linked with inadequate clinical waste may pollute the air we breathe. This paper proposes an IoT based smart health care waste segregator which segregates the waste into five kinds. The sensors detect and the type of waste and the waste gets disposed into the smart bins accordingly.

Introduction

The Internet plays an important role in today' world by linking computers to the planet Wide net (www), that permits users to access data from everywhere the world [1]. The Internet of Things (IoT)refers to things that are connected to the internet and can often be managed from there[2]. Garbage is described as solid substances generated as a result of human activities that are removed from the system[3] because they are no longer useful in the respective economic, biomedical, or technical method. In a wider context, solid waste refers to all products that are used in the home, industry, or agriculture. Municipal solid waste (MSM) is described as waste that accrues in areas maintained by municipalities that are responsible for its disposal and recycling. People can throw garbage in waste bins, which is why they are valuable in life[3]. If it didn't happen, the future would be a mess. Because a business or household has a garbage disposal device, it becomes a valuable piece of equipment. The dustbin's position as a conciliator of changing waste practices has barely been regarded, despite its importance in our daily lives. Bins, it is believed, are providing a telling indicator of new garbage relationships in society as they are repurposed as environmental technologies for modern recycling schemes.

RELATED CODE :

novel approach to waste management in order to make the environment a safer, healthier place. Germany is first, followed by Austria, South Korea, Wales, and Indonesia. Clean Harbors, Stericycle Inc., Covanta Holding, and others are among the best waste management firms in the world.

The Government of India has encouraged city-based schemes and public-private collaboration projects to improve waste management systems, but these have proven to be troublesome. The lack of financial resources, appropriate skills, and technological competencies with the public sector are the main obstacles to improving solid waste management services in India. Governments have begun to look at PPPs as a possible solution. The amount of change and development made was minimal. Some serious problems have been discovered as a result of this research, and some significant proposals have been made.

Literature review

In the recent spans of years, Urbanization has inflated terribly nice in size and there's a rise in waste production. Waste management has been a typical issue to be thought of. during this paper, sensible bin is constructed with ARM microcontroller that is interfaced With UART and IR sensors. IR sensors square measure placed at each ends of trash bin. They work under AND operation. When the dust bin is filled message will be sent to the respective mobile displaying "Garbage is filled". It ceaselessly alerts the specified authority till the rubbish within the garbage can is press. Once the garbage can is press, individuals will recycle the garbage can. Once these dustbins are enforced on an outsized scale, by substitution ancient bins, waste will be re-used expeditiously and avoids gratuitous lumping of wastes on road aspect. Foul smell from these rotten wastes that remained untreated for while, because of neglectfulness of authorities and public could cause sturdy issues. Breeding of insects and mosquitoes will produce nuisance around promoting unclean atmosphere. this might even cause dreadful diseases.

Pros

Advancement of smart city system.
Effective management of the city waste helps people life style to improve
Making the garbage system an IoT application opens path to a lot of different opportunities
Hands on Device system for garbage system helps to have a more detailed update on the disposal system. Applications:

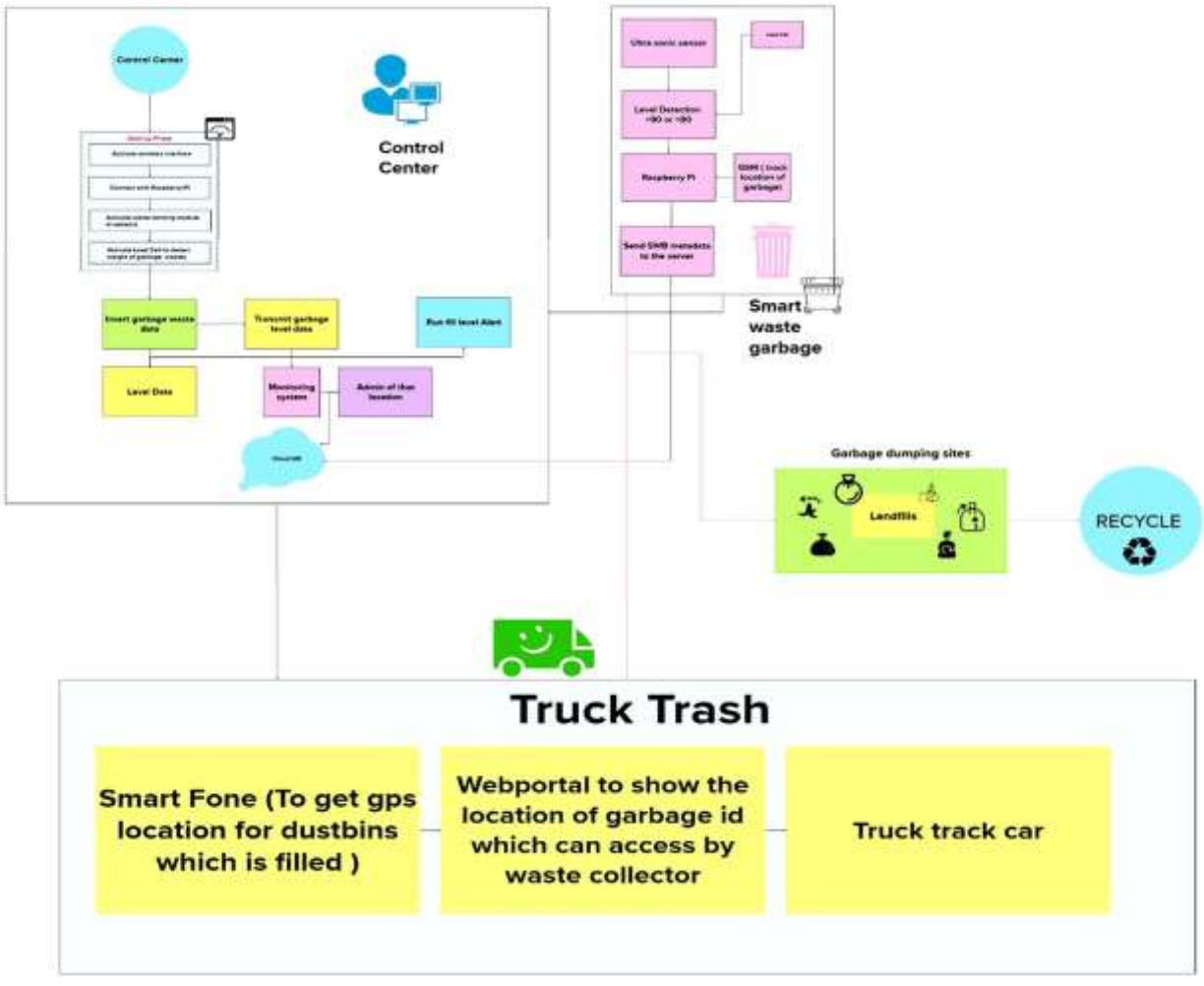
Can be implemented in highly trafficking system
Apartment based lifestyle has a huge requirement for this kind
of system Helps city people to have a update on garbage system

Hardware Setup:

The implementation of the smart garbage monitoring system is done by following the design approach as discussed earlier. The program is based on the C-compiler based IOT technique is loaded into the ARM micro-controller. The ARM 7 LPC 2148 micro-controller is used and the compiler lab code written can be ported on to the micro-controller using Code Composer Studio. The LCD module is connected onto the ARM 7 LPC 2148 kit, to deliver the latitudinal and longitudinal positions thus developed is also sent the respective mobile. ARM micro-controller is high speed ant is d based on RISC architecture. It has 64 bit micro-processor. It has reduced complexity, less power consumption and smaller size. The 16*2 LCD module can display 224 symbols is interfaced with LPC 2148 kit, it is helpful in providing user interface as well as for debugging purpose. LCD modules can display textual information as well as numerical information to user. The 16 by 2 LCD interface supports both 4 bit and 8bit. and facilitates to adjust. It has 16 characters per line by 2 lines.

That is each line displays 16 characters in 2 lines. Also the GSM module is interfaced with the UART, C program to send a message from LPC 2148 to mobile through GSM.

TECHNOLOGY ARCHITECTURE



CONCULSION:

The project titled “Smart garbage monitoring system “is aimed at implementing a safe and clean environment. Our proposed reward based intelligent garbage based system when implemented on a large scale and in the long run can get high satisfying outputs. By implementing this system of garbage disposal and collection we can reduce the pollution cost by the stinking garbage that we come across along the road paving way for clean environment also not only the world is made clean but also people are rewarded for the help. This robotization of waste additionally diminishes the human exertion and therefore the expense of entire procedure. This framework can be executed at wherever easily and inside sensible measure of time. Our work is little however a productive advances for working of a fantasy city with a clean and an extremely sound condition. With support from the administration we trust that our proposed framework when actualized will give exceptional returns.