SOLAR POWERED AUTOMATIC IOT BASED GARBAGE COMPACTOR

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Introduction:

Though the world is in a stage of up gradation, there is yet another problem that has to be dealt with. Garbage! Pictures of garbage bins being overfull and the garbage being spilled out from the bins can be seen all around. This leads to various diseases as large number of insects and mosquitoes breed on it. A big challenge in the urban cities is solid waste management. Hence, smart dustbin is a system which can eradicate this problem or at least reduce it to the minimum level. Our present Prime Minister of India, Sri Narendra Modiji has introduced the concept of implementing 100 smart cities in India. “Swachh Bharat Abhiyan” was initiated to ensure a clean environment.

Majority of the public environment seems to be polluted with the waste material. So, modernization of the restaurants is needed by imparting the smart technology. Amounts of waste are largely determined by two factors: first, the population in any given area, and second, its consumption patterns. According to the UN, between now and 2025, the world population will increase by 20% to reach 8 billion inhabitants (from 6.5 today).

This project deals with the concept of Solar powered smart garbage compaction and notification system which compacts the garbage and notifies the concerned authorities via sms. The system also implements IOT based garbage monitoring system which will monitor the level of garbage in dustbins and send it to the android application so that concerned authorities can remotely monitor the garbage levels as well as the compaction status

Objectives:

The main objective of the project is to develop smart solar powered IOT based automatic garbage compactor problems of uncollected garbage and the overflow of garbage across the public dustbins due to people irresponsibly dumping the garbage in already full dustbins. The objectives of the project are:

1. To fabricate a smart dustbin which continuously monitors the level of garbage in the dustbin

2. To develop the notification system where in the message is sent to the municipal authorities once the garbage reaches the threshold.
3. To develop self-compacting system which gets activated when the garbage crosses threshold limit and compacts the garbage using the mechanism developed. This prevents the overflow of waste.
4. To develop an IOT based system which will send the garbage levels monitored in the dustbin to the IOT portal and android application
5. To implement SMS notification updates along with IOT based system
6. To make the entire system solar powered which not only makes it portable but also eco-friendly so that the dustbin can be installed in remote places.

Methodology:

The entire code of conduct of the project follows the following methodology. Everything is carried out in phases so that the final project will be complete without any errors. The following methodology yis implemented step by step in the project.

1. Material survey and selection:

In this phase the market study is done for the optimal materials available for the purpose of project work. The materials were surveyed and the most optimal ones were chosen for the project.

2. The chassis or the frame fabrication:

In this phase the frame is fabricated onto which the garbage can and the compaction mechanism will be mounted. The fabricated chassis should have adequate amount of space to mount all the components.

3. The garbage can fabrication:

In this the garbage bin is fabricated and incorporated onto the chassis

4. The compacting mechanism:

The most important phase of this project is the compaction mechanism. In this phase the compaction mechanism is fabricated and the added to the frame. The compaction mechanism is responsible for compacting the garbage.

5. The smart SMS system:

In this phase the sensor is interface to the microcontroller. The sensor monitors the level of garbage in the dustbin and once it is full informs the respective authorities using SMS

6. The solar power system:

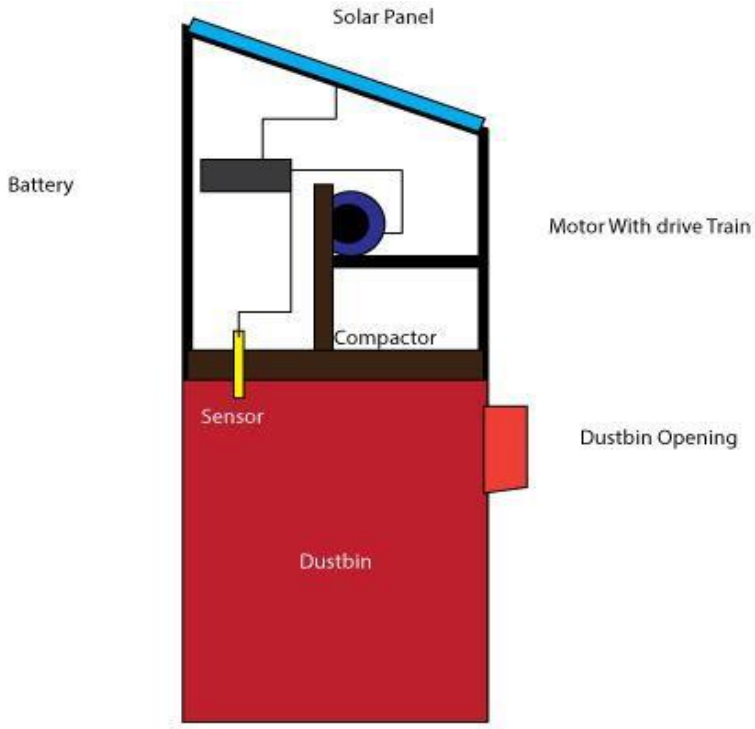
In this phase the solar power system is fabricated. The solar power system consists of solar panel, the charge controller unit and the battery unit required to provide the adequate amount of power to entire system.

7. The IOT based System for garbage Monitoring:

In this phase the IOT based garbage monitoring system is developed which will send the live garbage status to the IOT Control panel using IOT protocols. Android application is also developed which can be used by the concerned authorities to monitor the garbage and compaction status.

8. Assembly and testing:

In this phase the components fabricated above are assembled and tested for performance



Conclusion:

This project deals with the development of smart garbage compacting dustbin. The machine will compact the garbage mechanically and once the dustbin is full it will send a message to the municipal authorities to come and collect the garbage. The system also consists of development of IOT based Panel to monitor the garbage level over internet of things protocol using android app and compaction status. Thus this will not only maintain hygiene but also contribute towards development of smart system. Additionally the entire system is solar powered thus doesn't require any power source for compacting the garbage.

Scope for future work:

We can say that these project in future big metropolitan cities to help or identify the amount of garbage collected in the dustbins it will immediately intimate the municipal corporation workers about the garbage content

Where they can take the action do the further work related to it. It can be also used in small town villages.