Smart Waste Management System

IDEATION

1.INTRODUCTION

One of the essential components of a smart city is a Clean and Green Environment and the crux of it is a Smart, Intelligent, and Connected Waste Management System. In Espha, I have developed a System where the Waste bins are equipped with a Compactor and a Bin Level Detection System.

2.PROBLEM STATEMENTS

Mostly the Garbage bins are Underutilized, if the waste is compressed regularly it could lead to significantly higher storage of waste in the same volume of Bin, leading to lesser numbers of pickup turns and improved efficiency.

For the same we can incorporate a solar based compactor which works on Linear Actuator Principle would work on the inputs from the Arduino Board.

3.IDEAS

- At Hardware Side, I have employed an Ultrasonic Sensor to know the fill % of the dustbin and upload it to cloud. Further, data is uploaded to channel only if there is significant change.

- On the basis of this Fill %, we can also run compactor, fill % is more than 45-55%. However, I wasn't able to implement this here.

- We can employ two or more HC-SR04 and take average instead of one sensor in order to avoid false alarms due to non-uniformity.

- I have assigned bin Id to each smart bin. So, we can manage the bins easily, and save the cost of a GPS sensor (around 1000 Rs.).