

SUSTAINABLE WASTE MANAGEMENT DUSTBIN



Why do we need it?

Urban India (about 377 million people) generates 62 million tonnes of municipal solid waste each year, of this **about only 43 million tonnes (70%) is collected**, and 11.9 million tonnes (20%) is treated.

Thus, 30% of waste remains uncollected and untreated.

About 31 million tonnes (50%) is dumped in landfill sites



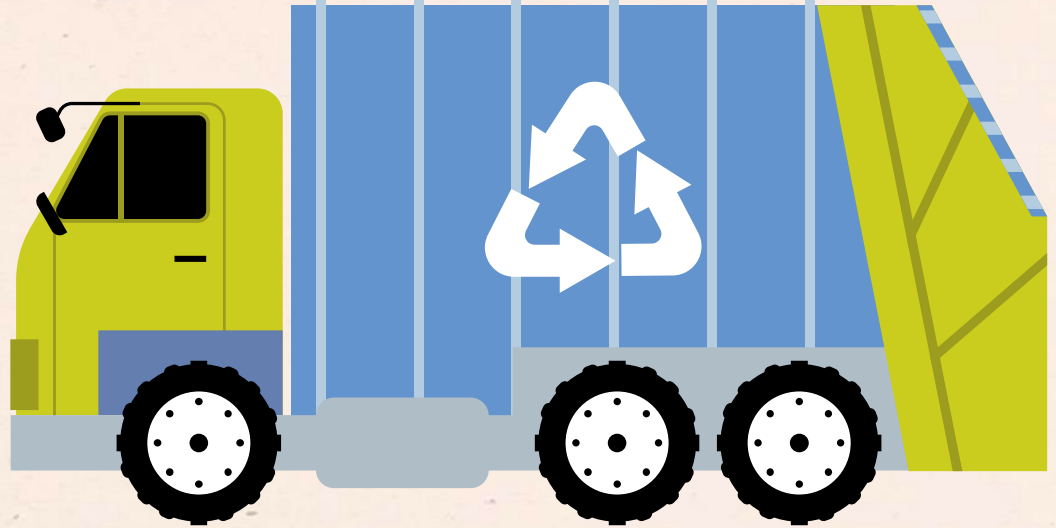
Why do we need it?

According to a survey conducted by the National Sample Survey Office (NSSO) in 2017-2018, about 60% of households in urban areas were aware of waste management practices.

In rural areas, the awareness level was lower, with only about 40% of households reporting knowledge of proper waste management practices.



**So, I wanted to make
something which will
make it easier for
common household
people to segregate
waste**



Materials Used in my Smart Dustbin

01

Arduino

02

Breadboard

03

3 Motors

04

Buzzers

05

**Sensors – IR, Gas,
inductive and
Capacitance**

06

**Dustbin with
compartments**



Prototype 1

I used a gas sensor for detection of organic, easily decaying waste.

If the suitable waste was detected, the dustbin will open and if not detected, a buzzer will ring to make the person aware about the wrong disposal.



Prototype 2

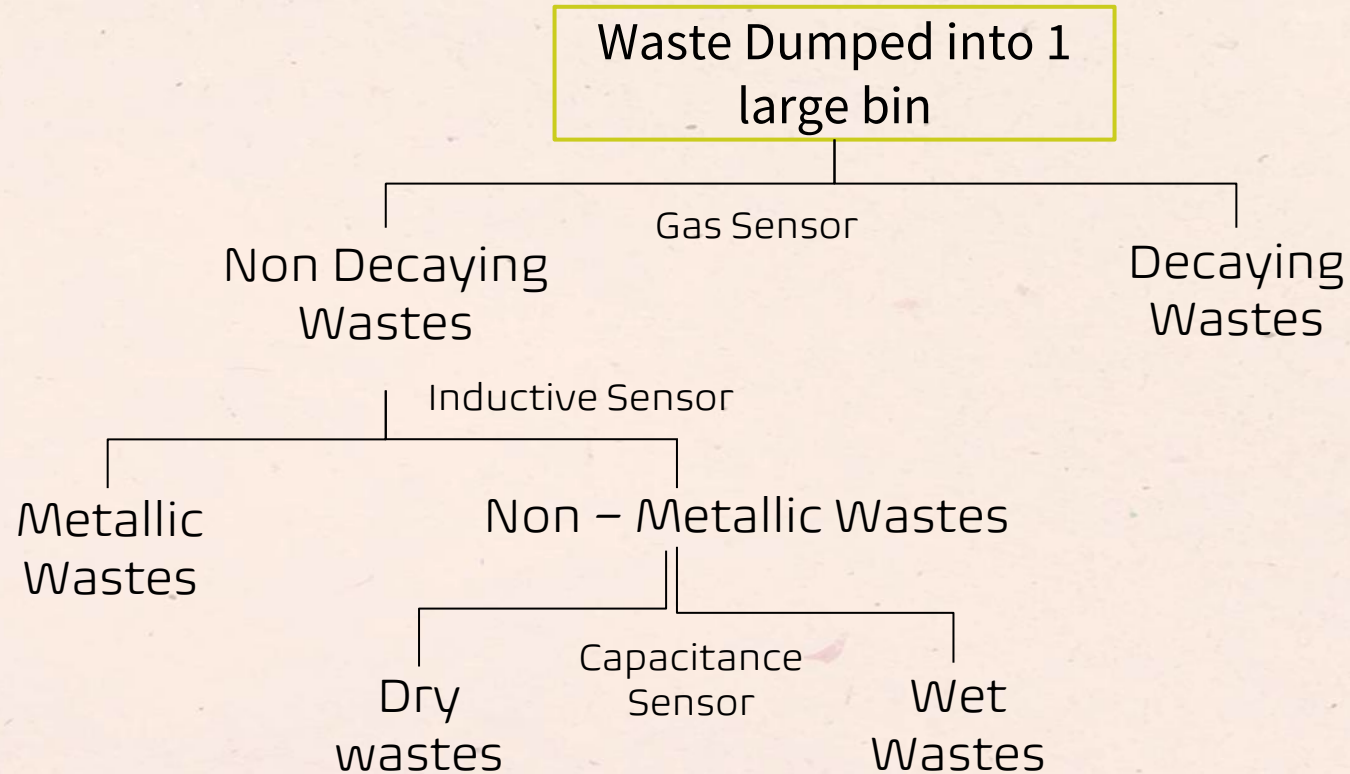
After segregation by a gas sensor, I added an Inductive sensor for detection between metal and non metal wastes among the non decaying wastes.

Further Changes

I am also going to add a capacitance sensor inside, where the non metal wastes will further be segregated into dry and wet wastes.



Final Segregation Flowchart



Benefits of Waste Management

According to the Central Pollution Control Board (CPCB), proper waste segregation could reduce the amount of waste sent to landfills by up to 50%.

The Confederation of Indian Industry (CII) estimated that proper waste segregation and recycling could save the economy up to ₹25,000 crores annually.



Benefits of Waste Management

Recycling metals, paper, and glass saves natural resources and energy. For example, recycling one tonne of paper can save 17 trees and 7,000 gallons of water (Environmental Paper Network, 2017).

According to a report by FICCI, the waste management sector could generate employment for over 500,000 people by 2025, with a significant portion of this potential realized through better segregation and recycling practices.



THANK YOU

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