Waste *or* Value

To design tools that make waste segregation an easier and a more natural action.

Overview

Improper Solid Waste Management is a systemic problem for all of India's cities, and out of the 70 million tons of waste that urban India generates every year, over ***90% is currently sent to the landfill.***

Over 377 million urban people live in 7,935 towns and cities and generate 62 million tonnes of municipal solid waste per annum. Only ***43 million tonnes (MT) of the waste is collected,*** ***11.9 MT is treated*** *and 31 MT is dumped in landfill sites.*

Research & Understanding

SOLID WASTE in Mumbai **10,000** MT / day

Gorai Dumping Ground
1972 - 2007

Malad Dumping Ground
1968 - 2002

Mulund Dumping Ground
Since 1968 | 65 ha (~4000 MT/day)

Kanjur Dumping Ground
Since 2005 | 141 ha

Deonar Dumping Ground
Since 1927 | 132 ha (6000 MT/day)

Mahim Dumping Ground
Till 1976 (Now, Mahim Nature Park)

13th Compound, Dharavi
85% of Mumbai's recycling happens within 15000 single-room factories

Tajole Dumping Ground
(Proposed future site)

3 Landfills
983 Trucks
30,000 MSW management employees
250,000 Informal Waste-recycling employees

Journey of Waste

Waste Generation

When a user consumes or purchases products and services

Throwing in Dustbin

When a user dumbs it in the household dustbin they may or may not segregate

Garbage collectors

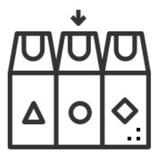
The society or community gargabge collector gather from all the houses

Community Dumping Area

The garbage collector dumps in or around the building are until BMC comes and collects it

BMC Collection trucks

BMC sends their pick-up trucks to collect this mixed waste from across the city



Temporary storage & Transpotation

The BMC trucks dump it at the temporary space where the recyclable plastic and glass is segregated from other waste.

Waste Segregation

This segregation is then send to Dharavi for futher processing

Landfills

The rest is then dumped in the landfills

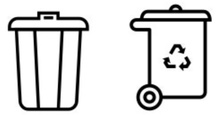
Stakeholders & Problem areas

Consumers

When a user consumes or purchases products and services

Segregation of dry and wet waste

When a user dumbs it in the household dustbin they may or may not segregate



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Waste Pickers & Kabadi wala

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Waste Segregation & Processing

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Landfills

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Characteristics & Challenges

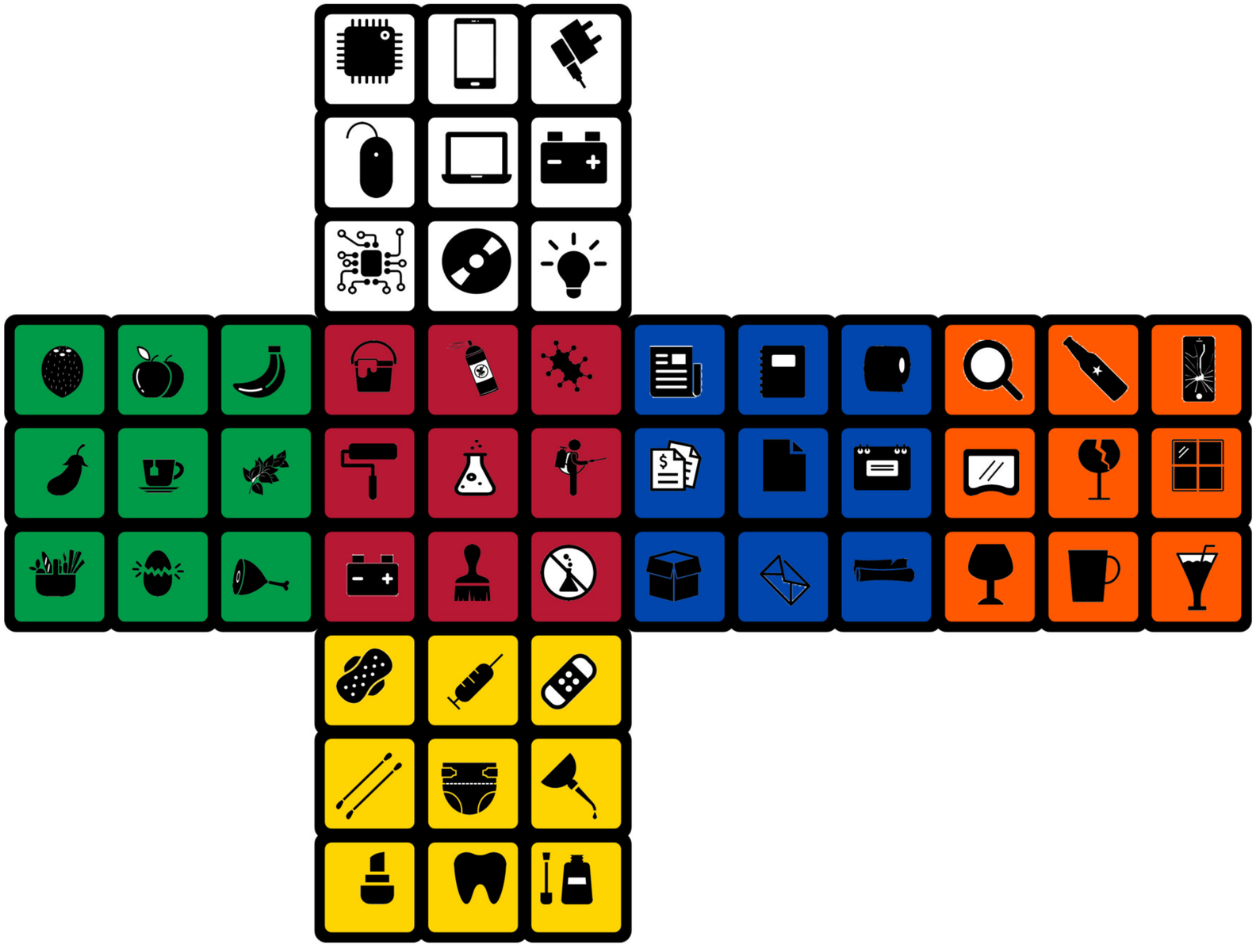
- 3/4 of the apartment population segregating waste while rest didn't.
- Simplifying problem at the apartment level, to decrease the pressure in chain at the later stage.
- There is a gap of a day between the collection cycle of the building and the BMC. The waste from the builing is collected at 11 a.m but the same waste is collected by BMC the next day at about 9:00 a.m.
- To find and inspire people to do waste minimization.
- Incorporating recycling and reuse of the waste as early as possible
- Reductions in fossil fuel by substituting energy recovered from waste combustion.
- How can energy derived by CH_4 from landfill site can be used for in situ energy requirement.

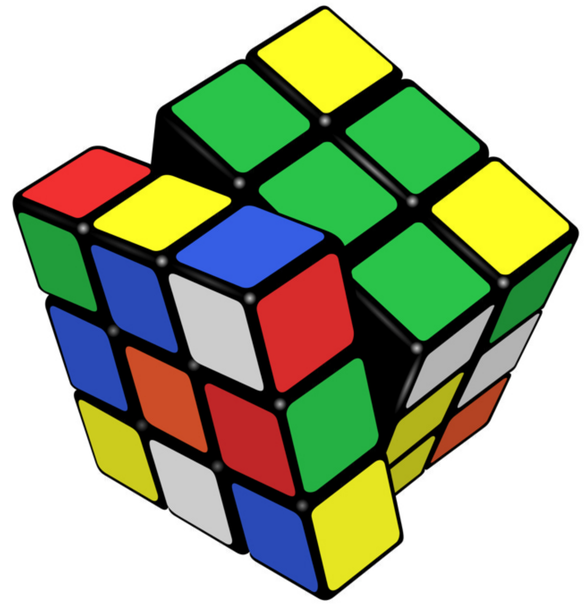
Solution & Approach

To commence the waste segregation at the source level. And add one layer between community and BMC collection.

We achieve the following goals:

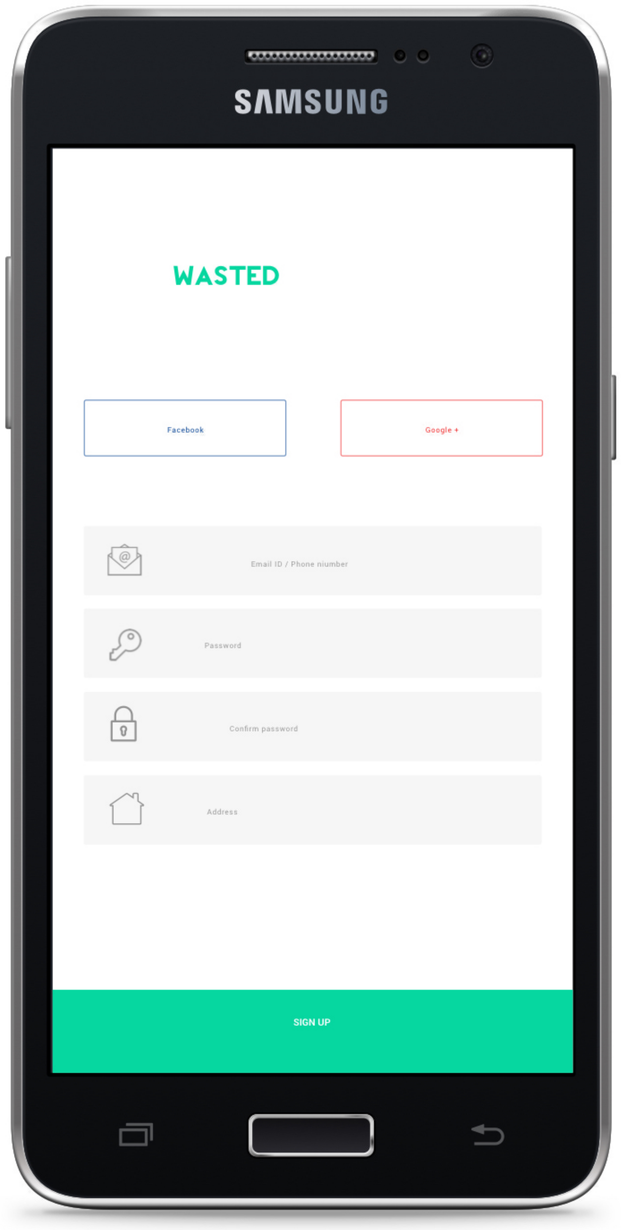
- Decentralisation of control over waste.
- Reduction of strain on land and resources.
- Intervention at community level.
- Reduction of pollution by directly transporting segregated waste to recycling unit.
- Creating awareness and try bringing in behavioral changes.
- Designing three point solution.

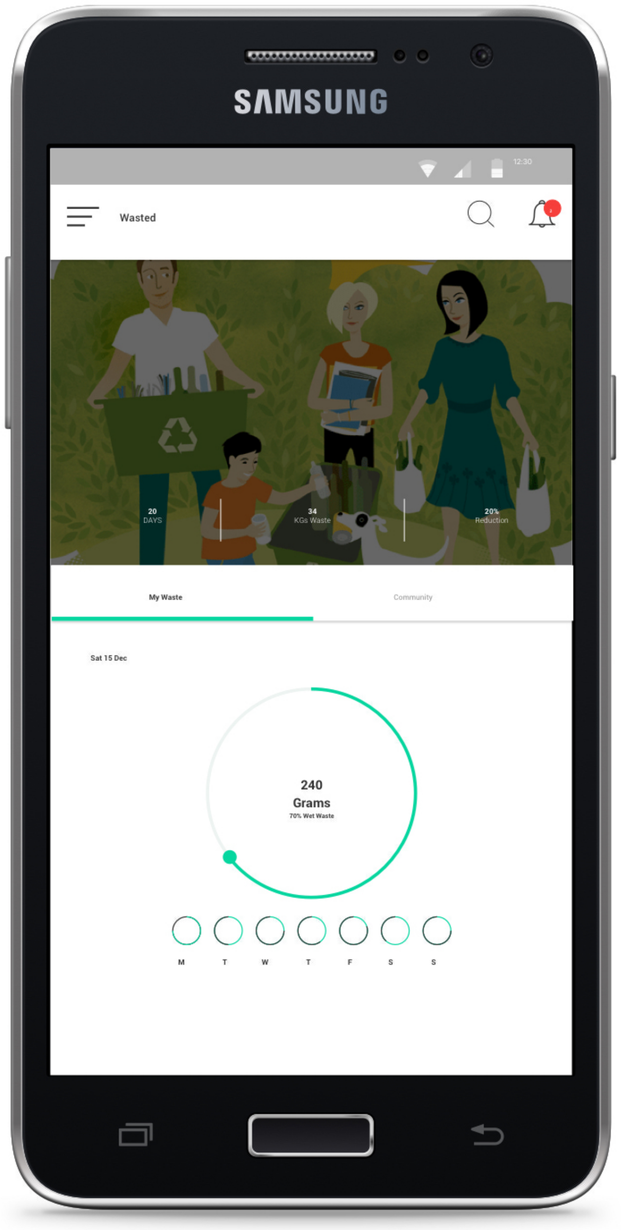




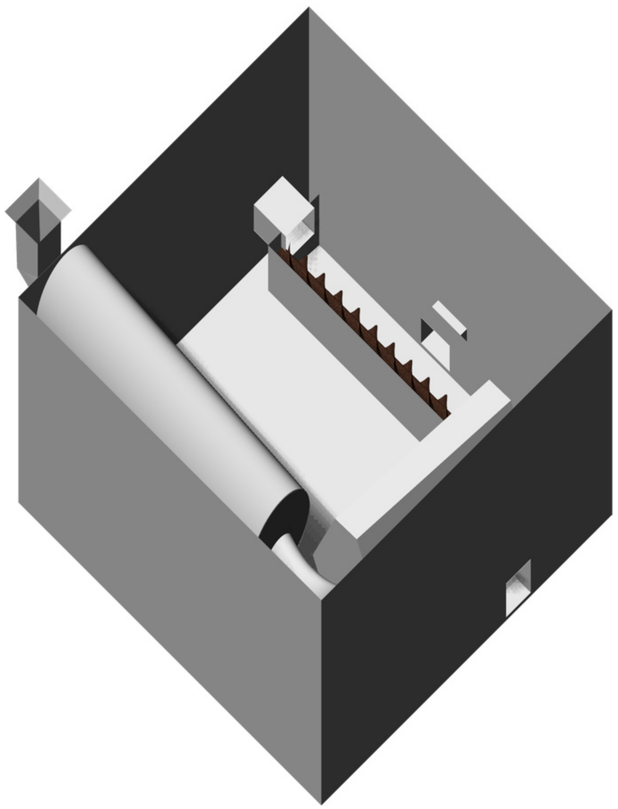
Gamifying the know how’s of waste segregation

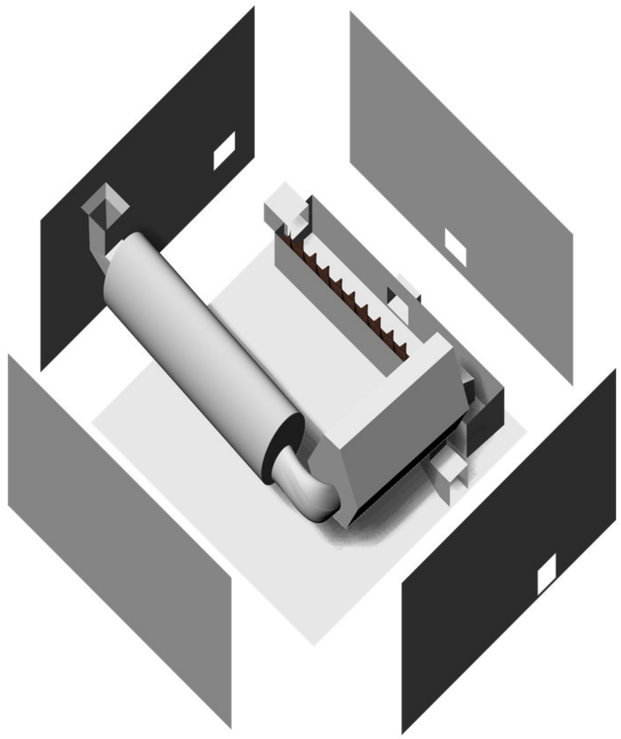
Designing waste measuring bins to inculcate behavioral changes among the users

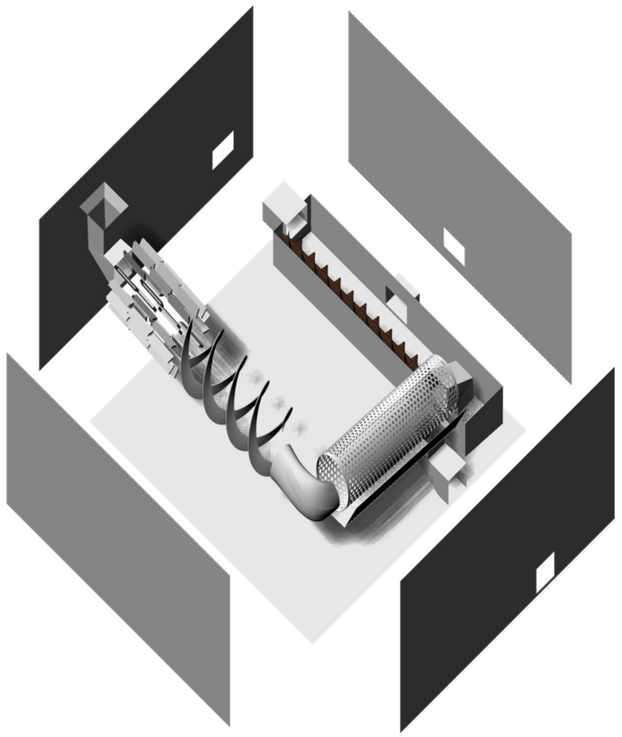




Tracking your daily solid waste production and comparing it with your peers, with a goal of moving towards zero waste production.







An economical waste segregation tool which will be used at the community level for plastic, glass, and paper designed based on simple physics