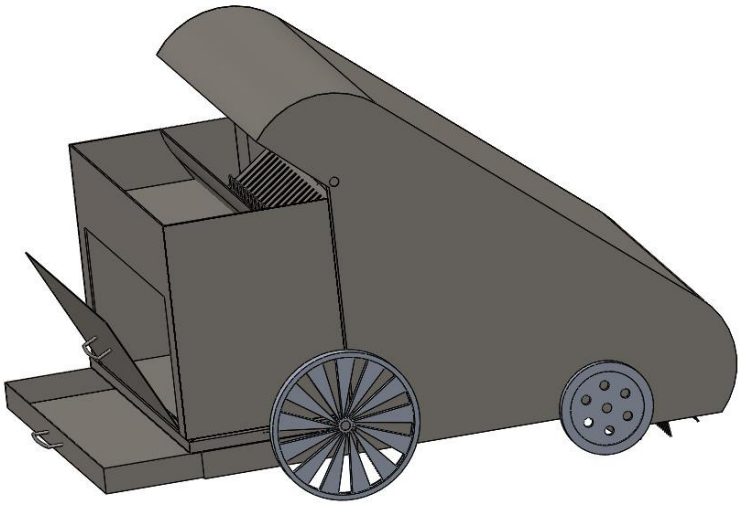
Project Name : SABO garbage collection trolley



Project Motivation

The current scenario in India of garbage cleaning is not automated. From garbage collection to separation, everything is done manually. There are some automated systems of garbage cleaning vehicles in India are available only in metropolitan cities. But those are very costly and not affordable in every region in India. So there is a need of automated garbage cleaning system which also reduces human efforts and fatigue in reasonable cost in Indian conditions.

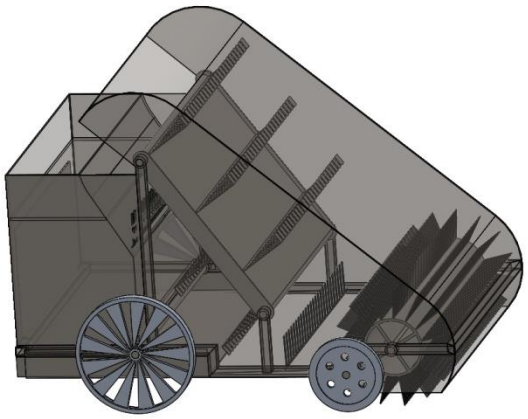
Challenges Addressed

- Current methods of sweeping and garbage collection are under efficient.
- Current technology used is not feasible considering the local road conditions.
- Conventional garbage collection methods are not ergonomic and thus utilize unnecessary labor.
- Dust clouds that occur due to sweeping cause harm to operators and passers-by.

Project Narrative

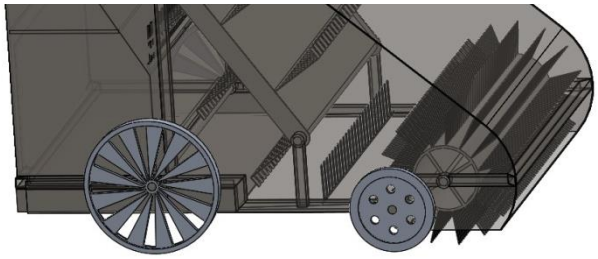
- A semi automatic battery operated (SABO) garbage sweeping machine

- It uses the same principle of reciprocating manual sweeping method but with a long continuous brush that rotates at certain RPM in an enclosed trolley.
- This trolley proves to be an effective solution to the problems mentioned above.
- It also reduces labour effort as well as reduces dust pollution, thus making the product a social and environmental advantageous by controlling dust clouds.

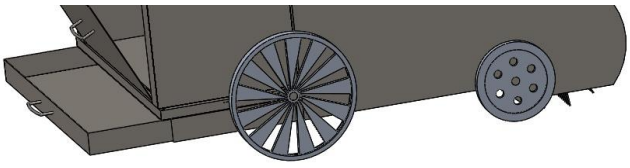


Engineering Concept Applied

- A semi automatic battery operated (SABO) garbage sweeping machine uses the same principle of reciprocating manual sweeping method but with a long continuous brush that rotates at certain RPM in an enclosed trolley.



- Vibration because of road will cause sand travel on slope to Separate sand container provided in SABO garbage collection trolley



Key Success Parameters

- The proposed solution of a SABO garbage sweeping machine theoretically solves the problems faced effectively.

- The functionality of the machine was checked using 3DEXPERIENCE software.
- The estimate of the cost structure of prototyping verifies the economic feasibility of the product.
- The product, when used extensively will prove to be environmentally advantageous.

Estimated Cost with Breakup (Optional)

	B.O.M. : SABO Garbage Pick UP Machine			
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1)	**Main Body**	**Quantity**	**Cost**	**Total**
1	Road wheel front LH/RH	2	500	1000
2	Road wheel Rear	1	500	500
3	Road wheel Axle (Front)	1	500	500
4	Road wheel Fork (Rear)	1	500	500
5	Main Chassis	1	5000	4000
6	Sheet metal body	1	5000	5000
2)	**Brush**	**Quantity**	**Cost**	**Total**
1	Garbage Collecting Brush	1	2000	2000
3)	**Conveyor system and Gear box**	**Quantity**	**Cost**	**Total**
1	Complete conveyor system	1	10000	15000
2	Gear Box and cover	1	5000	5000
4)	**Electrical Component**	**Quantity**	**Cost**	**Total**
1	Battery	1	10000	10000
2	Electric Motor	1	5000	5000
3	Electric Wiring Set	1	1400	1400
4	On/Off switch	1	100	100
	Total			50000

Unique Features

- Considerable increase in work output.
- Economically feasible.
- Bristles of the brush adapt to the terrain conditions.

Technologies Used

- 3d-experience
- Solidworks

Institute Details

Pune Vidyarthi Griha's College of Engineering and Technology, Pune

Project ID

LF-IACP-STP-0003

TAGS

Industry	Technology	Software Tools	Engineering Field
#IndustryEquipments	#3DSimulation	#SolidWorks	#MechanicalEngineering
#Automation	#GreenEnergy	#CATIA	#ElectricalEngineering
	#MaterialScience	#SIMULIA	#Mechatronics
	#Manufacturing	#3DEXPERIENCE	#MaterialScience
	#Optimization	#ANSYS	#Instrumentation
	#FEA		
	#CFD		
	#CAM		