

EVERGREEN SMART DUSTBIN THE RECYCLABLE MATERIAL SEGREGATING DEVICE

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BACKGROUND

In Malaysia, inappropriate municipal solid waste (MSW) management is a major issue, especially in urban and rural regions which has caused illegal dumping and landfill pop-ups among communities and business owners. As a consequence, it will negatively impact our environment, health, and economy over time as the contamination of the air, land, and water uprisen. Therefore, in this project, the aim is to mitigate this issues by developing a proper waste segregator device whilst promoting recycling practices among communities.

PROBLEM STATEMENT

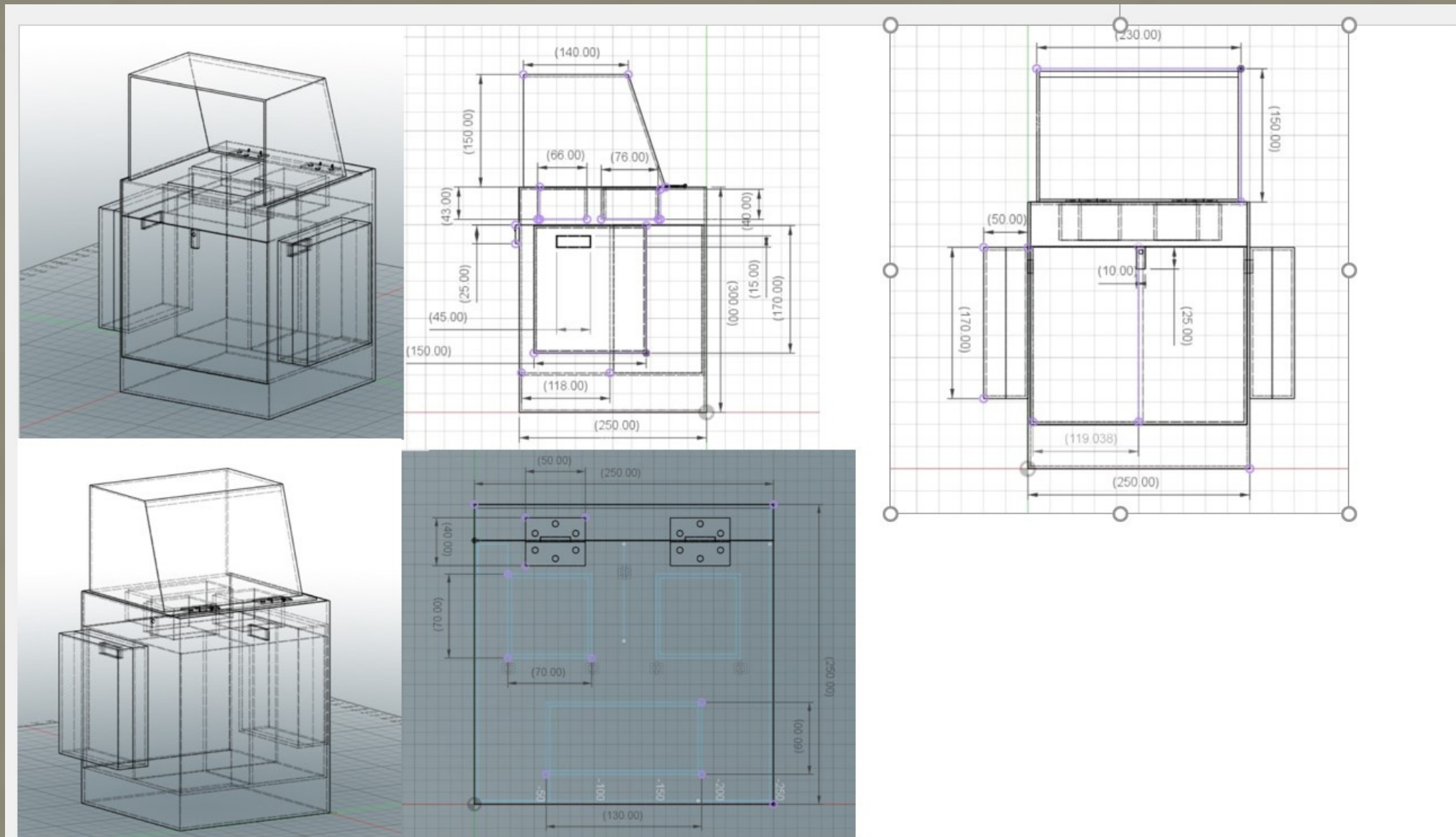


- Overflowing dustbins had caused discomfort and environmental pollution.
- Unsorted wastes disposal between recycled and non-recycled waste has caused odor and attracted pests.

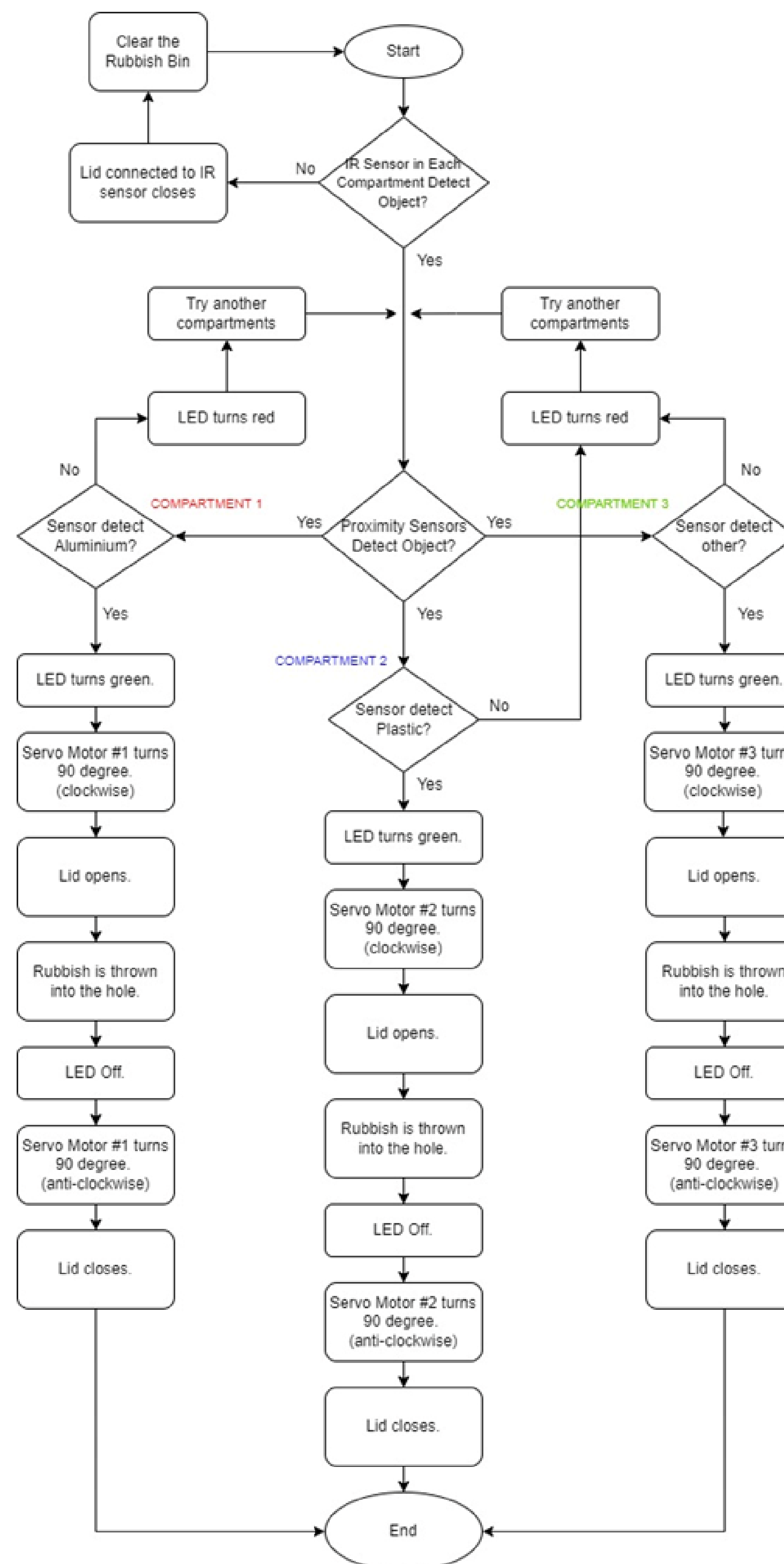
OBJECTIVES

- To design a smart dustbin that would aid in keeping our environment clean while also being environmentally friendly.
- To design a smart dustbin that is able to automatically detects the garbage level and sends message to administrator for the garbage cleaning, also able to segregate recyclable wastes from the non-recyclable ones.

DESIGN CONCEPT



WORKING PRINCIPLE



BUSINESS CONSIDERATION

No.	Item	Quantity	Cost Per Item	Total Cost
1	Arduino Mega	1	RM95.00	RM95.00
2	Breadboard	3	RM2.70	RM8.10
3	Ultrasonic Sensors	3	RM3.50	RM10.50
4.	Servo Motor	3	RM15.00	RM45.00
5.	Acrylic Body	1	RM355	RM355
6.	Automated Control System	1	RM110.00	RM110.00
7.	Solar Panel System	1	RM13.90	RM13.90

PRICING

Total cost = RM687.50*
Selling Price = RM 750*
Profit = RM 62.50

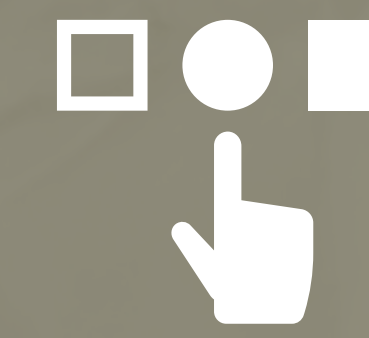
The total cost for the Evergreen Smart Dustbin, as per roughly based on the main components cost is total for RM637.50. The additional components such as wirings, joints and stickers are roughly RM50.00. Therefore, the overall cost for our prototype is RM687.50. The selling price that we proposed for our product is RM750 which gives a return of 8.3% profitable income.

METHODOLOGY



Problem identification

- brainstorm ideas
- finalize product



Materials selection

- rough sketch of the product was made



Engineering analysis

- engineering concept and calculations were made



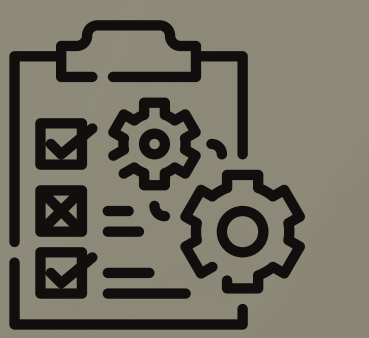
Prototype design

- 3-D product design using Fusion360



Model fabrication

- product making



Prototype demonstration

- product testing if it works or not
- final report making

CONCLUSION

Evergreen Smart Dustbin, we believe, is ready for prototype since it will have a significant effect as an appealing and simple-to-use device that is both unique and functional.

RECOMMENDATION

- Develop a crushing stage by piston to compress the wastes inside to increase space and bin capacity
- Implement a decomposition on wet container by using organic composting material to prevent moisture and odor from the wastes