



The Smart Automatic Recycling Sorter

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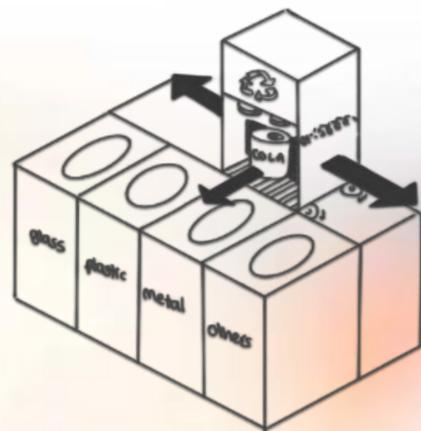
Introduction

Currently, students must sort out their own waste in the bins provided around campus which entails them having to use their hands to remove the cover of the bins before disposing of the waste. What often happens is students are unsure of which designated bin to put their waste in as many objects are made from a combination of materials. On the other hand, some students are not bothered to put in the effort to sort their waste. In both of these scenarios, the purpose of having recycling bins at UBC is meaningless.



Solution

The Smart Automatic Recycling Sorter(SARS) = Create a fully automatic machine that will sort your recycling for you.



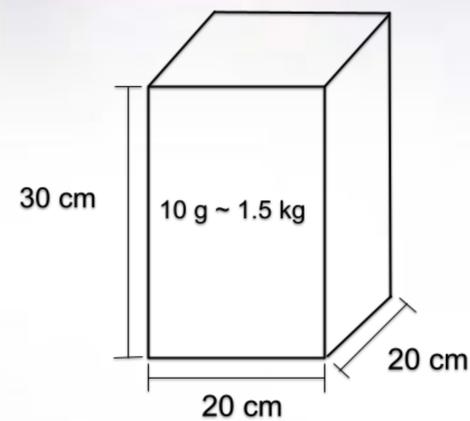
Design

Goals:

- Reduce the amount of recycling contamination.
- Educate students and faculty about the recycling streams.
- Reduce the spread of germs.
- Create an accurate and safer way to dispose of waste in the UBC community.

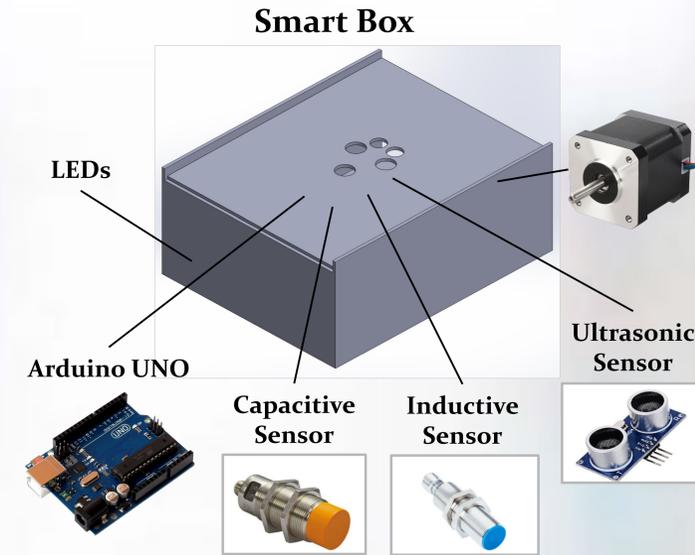
Requirements:

- Sortability
 - Metal
 - Glass
 - Paper
 - Plastic

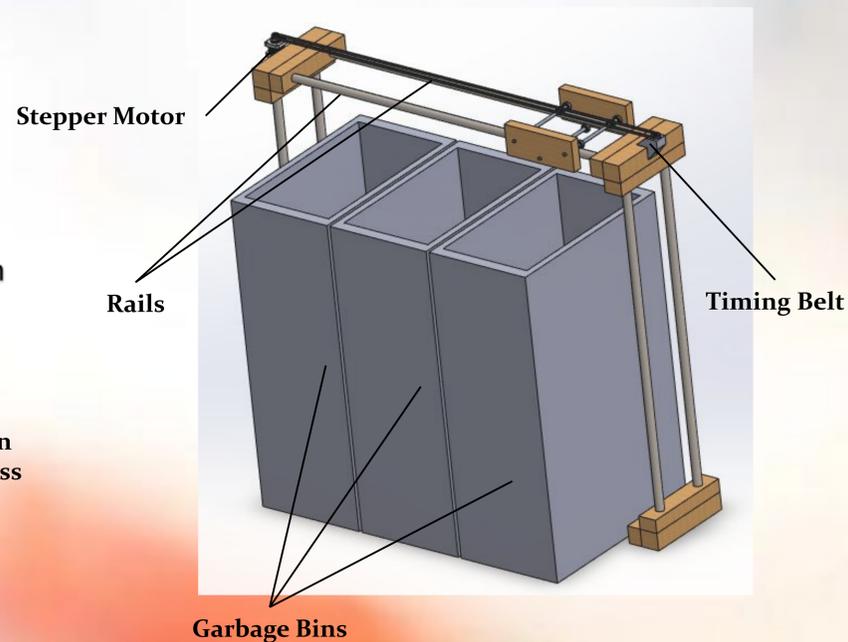


- Waste Size
- Waste Weight:
 - Minimum: 10 grams ~ empty soda can
 - Maximum: 1.5 kilograms ~ empty glass wine bottle
- No external help required

End Product



Base + Rails



Sensor Testing

	Metal	Glass	Paper	Plastic
Inductive Sensor	✓	✗	✗	✗
Capacitive Sensor 1	✓	✓	✗	✗
Capacitive Sensor 2	✓	✓	✓	✗
Distance Sensor	✓	✓	✓	✓

Conclusions and Future Work

With the time restraint, we were not able to include all features that we wished. Some future improvements we are considering is to include more categories of waste to sort such as compost, garbage, and paper with a wax layer, which belong to a significant part in students' life waste. We wish we could apply artificial intelligence and machine learning rather than inductive and capacitive sensors such that the precision and variety in garbage sorting could be increased.

Bibliography

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