



OZCAR

A New Era of Trash

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MA Industrial Design Final Project
Joel Wittkamp - Winter 2018
IDUS 748-01

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Research





From the start of this project I knew that I wanted to design something around the home waste system. I quickly decided that in order to design properly a new waste system, I needed to understand the old.

I present the history of trash. In 1875, garbage collection became an official system in England. The bins were commonly made of metal, wood, or even buckets people had lying around.

Just a few years later in 1885, the first American garbage incinerator was built on Governor's Island, New York to deal with the trash issue of the city. Yet the iconic curbside trash can didn't emerge until around 1930. Circa 1945, By this time in the U.S., about 100 cities were using sanitary landfills. Before then, many used oceans as dump sites, and burning trash in yards and the street was still very common.

In 1950. Trash bags were invented to line garbage cans.

And in 1968, around one-third of the U.S. started sorting their garbage, calling for more garbage bins. Recycling became a mainstream concept with the Keep America Beautiful campaign.

So lets talk how about Trash...

Through extensive research, a cultural probe and survey, I found that a surprising majority of people regardless of age has different waste cans for different materials. I.e. A can for trash, paper, plastic, metal, etc.

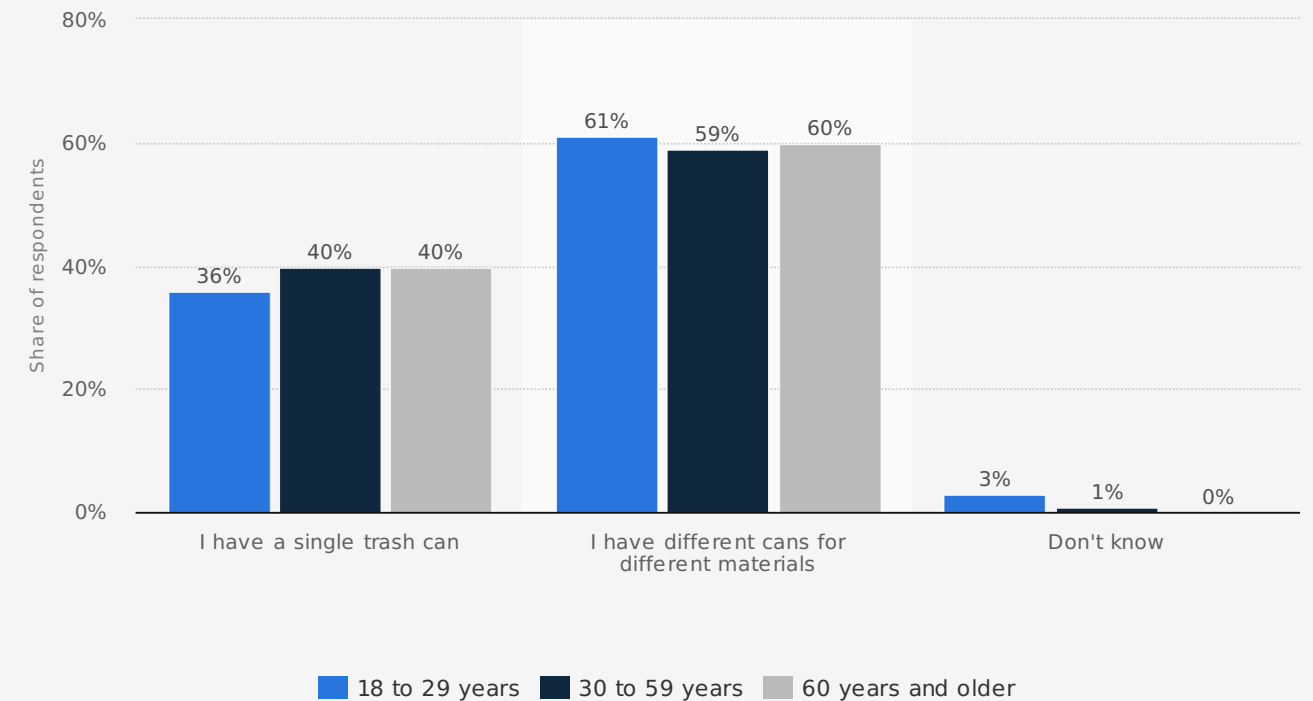
What shocked me even further was that based on my research I found that most people took out their trash several times a week, rather than once a week which I would have hypothesized would have been the case.

In 2013, Americans generated about 254 million tons of trash. And recycled and or composted 87 million. This is equivalent to a 34.3 percent recycling rate

On average we generate about 4.4 pounds of trash per person per day and recycling about 1.51 pounds of the 4.4lbs

Its projected that by 2025 the high income with produce 2.06 kilograms of solid waste in the urban environment a day. Whereas, the low income in less than half of that with only .86kilograms.

Household usage of garbage cans in the United States in 2017, by age group

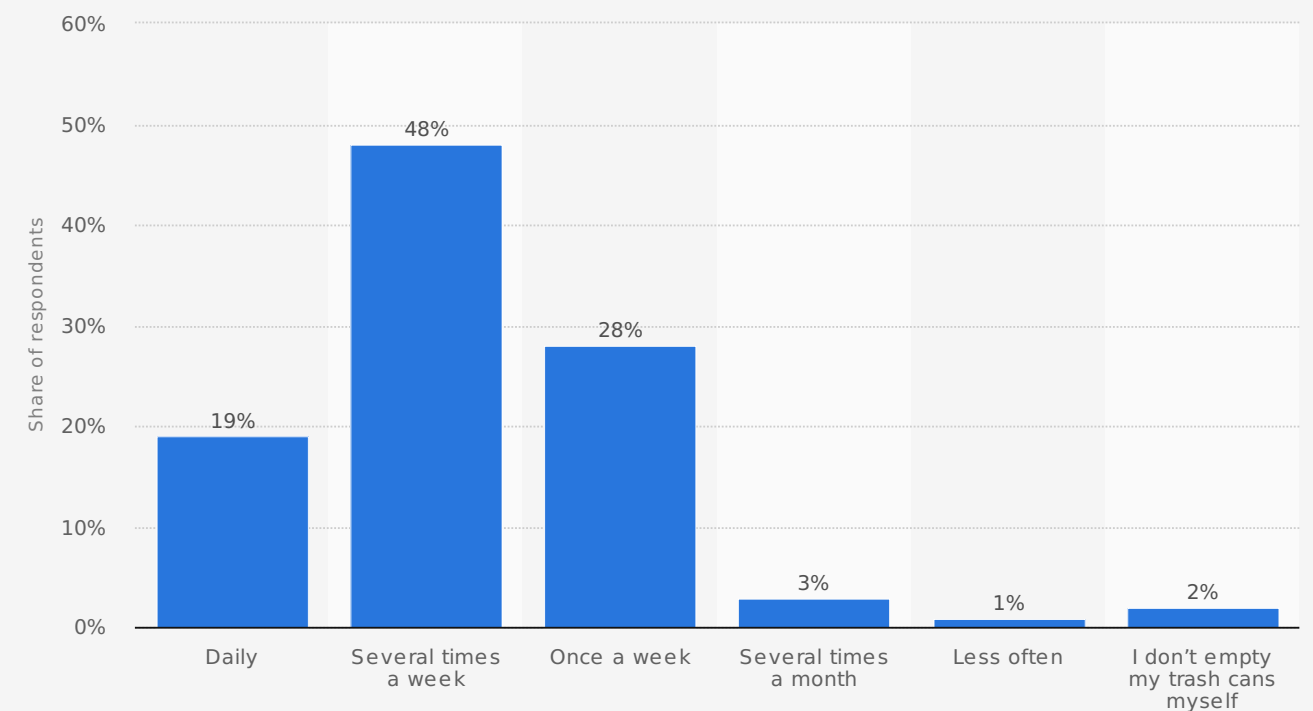


Source
Statista Survey
© Statista 2017

Additional Information:
United States; Statista Survey; March 20 to 29, 2017; 980
Respondents; 18 years and older

statista

How often do you empty your trash cans at home?



Source
Statista Survey
© Statista 2017

Additional Information:
United States; Statista Survey; March 20 to 29, 2017; 980
Respondents; 18 years and older

statista



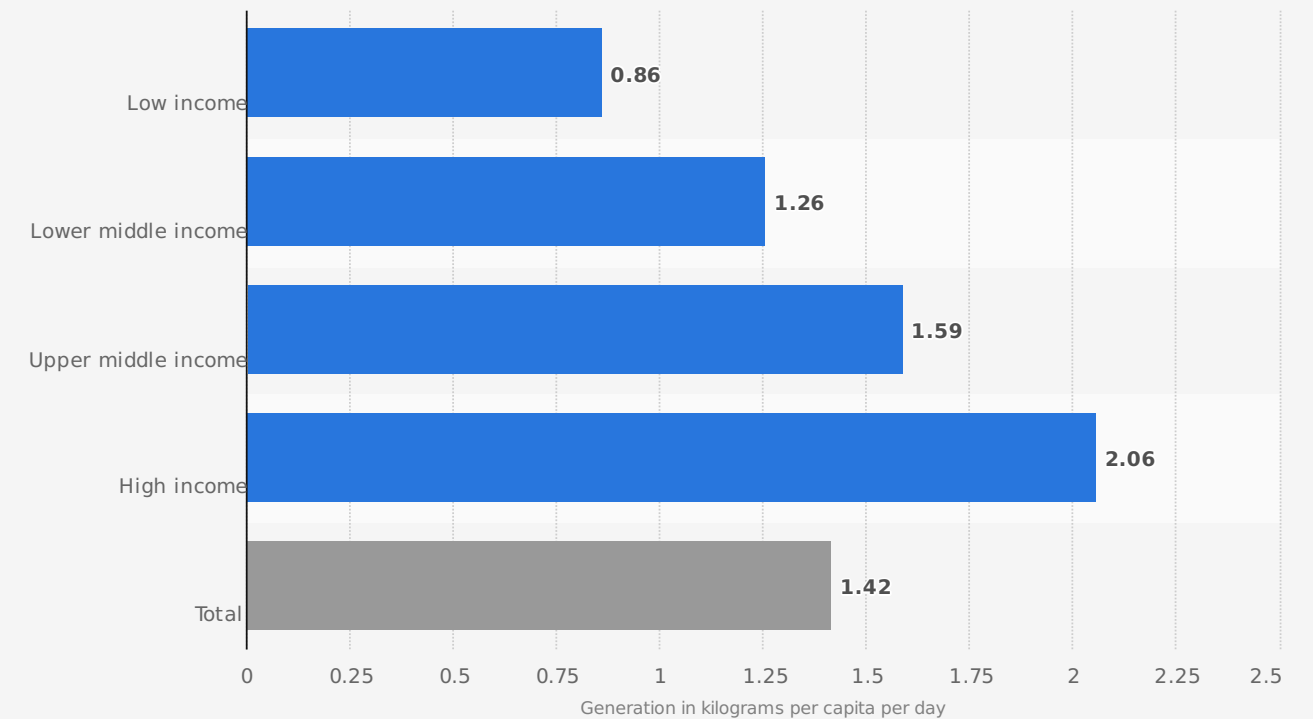
**Americans generated about 254 million tons
of trash.**

recycled and or composted 87 million

34.3%



Projected per capita generation of municipal solid waste in urban areas worldwide in 2025, by income group (in kilograms per day)



Source
World Bank
© Statista 2017

Additional Information:
World

statista

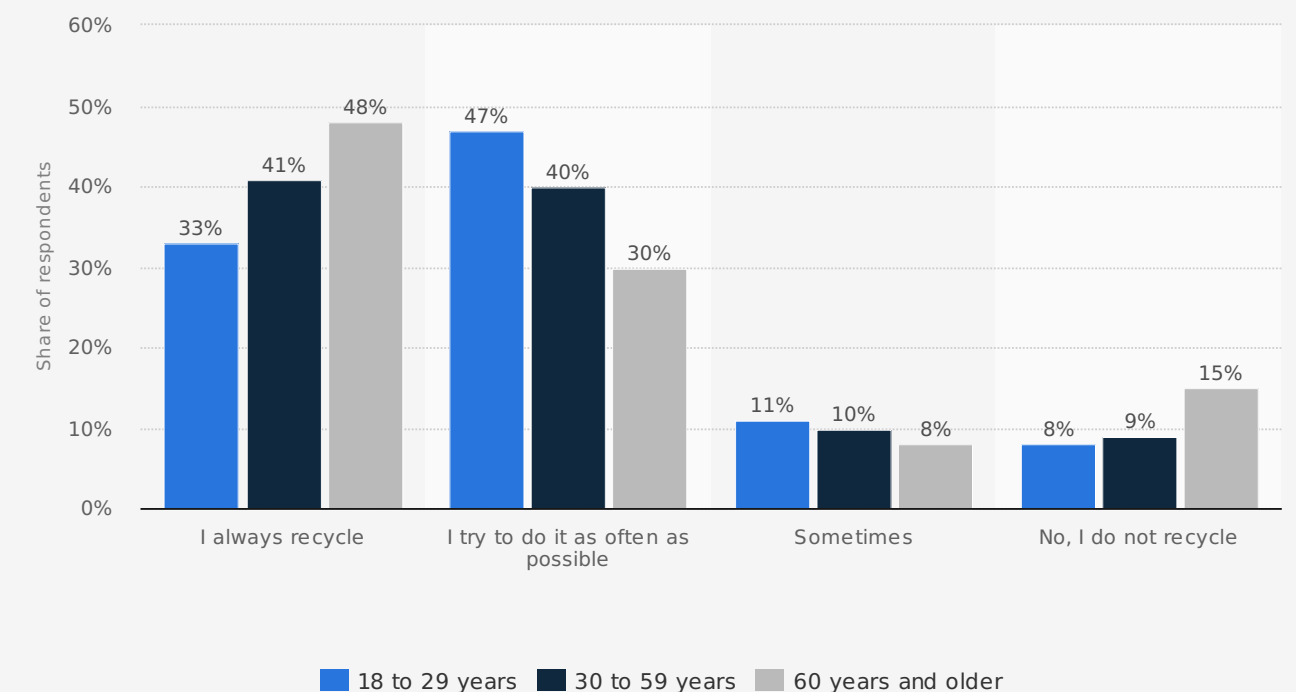
Additional insights from secondary research

- Nine in ten adults (87%) report that they recycle
- Only half of adults (51%) recycle every day

Most likely to recycle

- College graduates (59%)
- Adults aged 55 and older (57%)
- Residents of the Northeast (58%)
- West (56%).

Share of consumers who participate in recycling in the United States 2017, by age group*



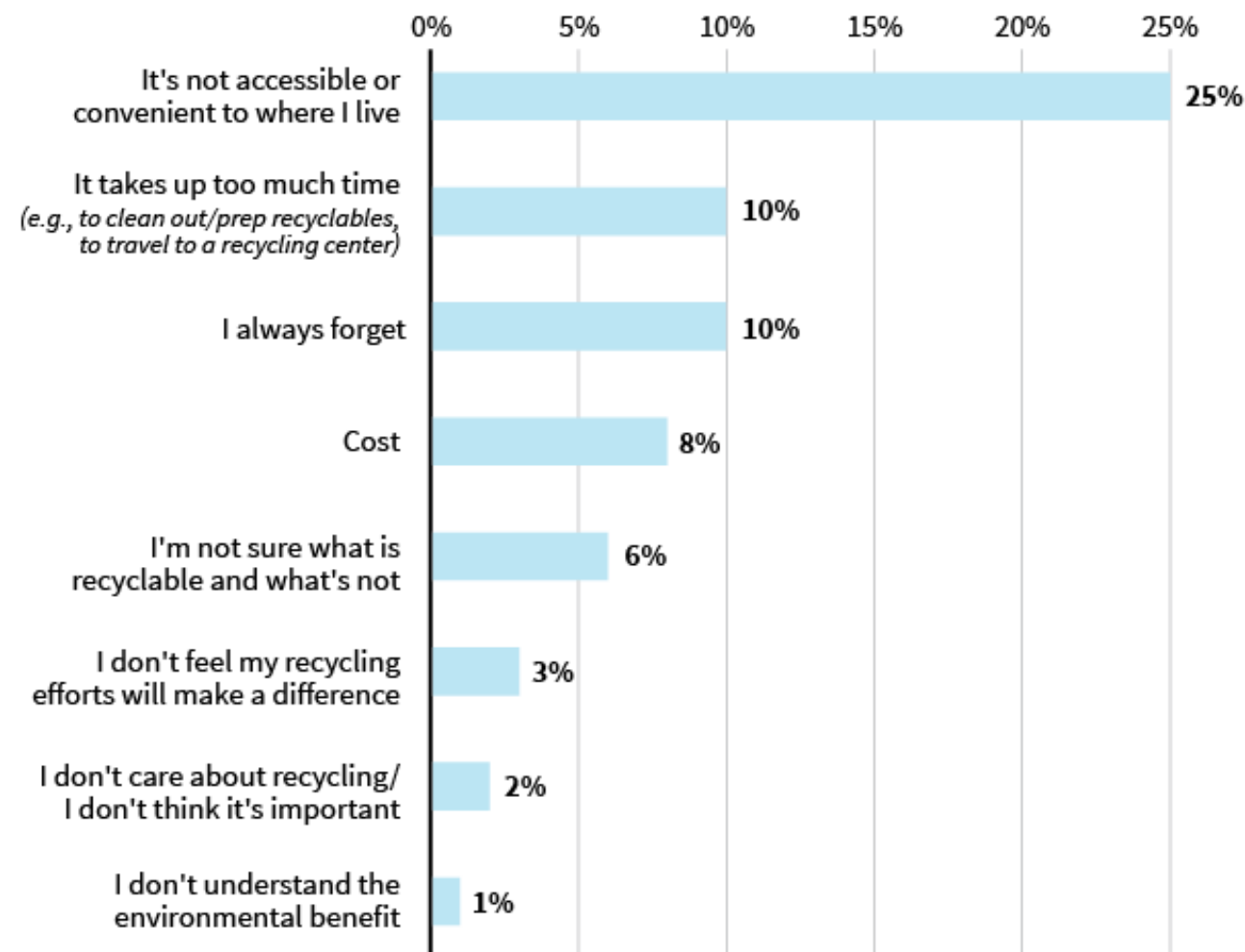
Source
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Additional Information:
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statista

Why People Don't Recycle

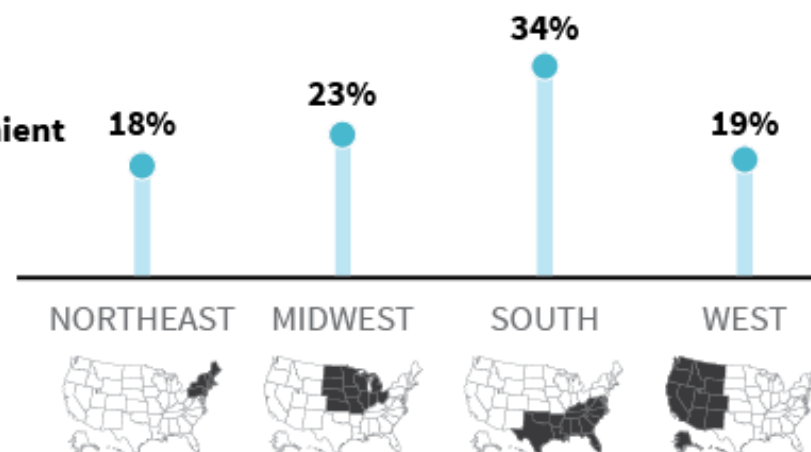
Which of the following, if any, prevents you from recycling more?



52% of respondents said 'None of the above.'

The most common reason people don't recycle, lack of access or inconvenience, is more prevalent in the South than other regions of the country.

Percent saying recycling is not accessible or convenient where they live



- not accessible or convenient to where they live (25%)
- too time consuming (10%)
- just forget (10%)
- aren't sure what is recyclable and what isn't (8%)
- the cost (6%)
- a majority (52%) reports that none of these barriers prevent them from recycling.
- Nearly three quarters (72%) report that they recycle to most at home
- curbside recycling (46%)
- taking their recyclables to a local recycling center (26%)

We make more trash than we ever have before. Most of the solid waste that is landfilled could have been recycled or repurposed. Yet we are so engrained to not think about the ramifications of improper waste disposal. If it's out of sight it's out of mind.

The majority of Americans regardless of age try to recycle or do all the time. Nine in ten adults (87%) report that they recycle, though only half of adults (51%) recycle every day. Those most likely to recycle on a daily basis are college graduates (59%), adults aged 55 and older (57%), residents of the Northeast (58%) and West (56%).

U.S. adults do see a wide variety of benefits of recycling, particularly that it helps to reduce landfills (81%), saves trees (69%), and conserves energy (62%).

Some barriers that make it difficult for certain people and areas to recycle are as follows:

- Not accessible or convenient to where


they live (25%)

- time consuming (10%)
- just forget (10%)
- aren't sure what is recyclable and what isn't (8%)
- the cost (6%)
- a majority (52%) reports that none of these barriers prevent them from recycling.

When unsure as to whether an item is recyclable, half of adults (50%) say that they are most likely to just throw the item away. Roughly one in six (18%) say that they would put it into the recycling bin anyway. Just a quarter (26%) report that they would look it up before deciding whether to throw it in the trash or the recycling bin.



Let Talk About Trash Baby!



Put finished surveys here

I ♥ Trash

Instructions

1. Take one survey from Oscar's Questions Can
2. Fill out the survey
3. Place finished survey into Oscars Trash can
4. Take a piece of candy from Oscar's Candy Can

Thank You!

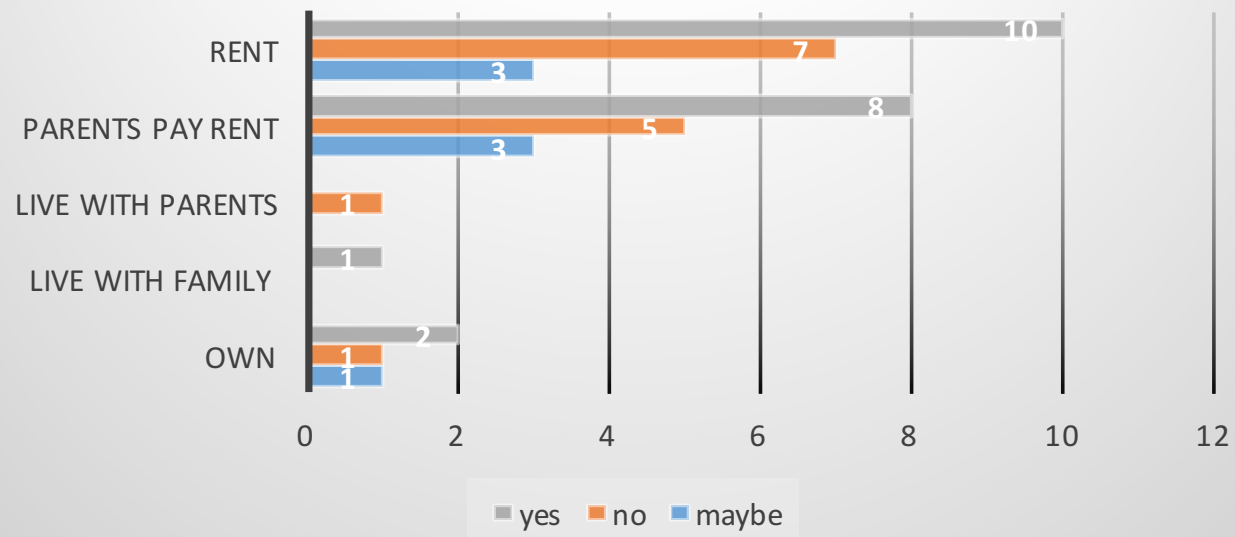


Some of the research that I was able to gather in a short amount of time has revealed that.

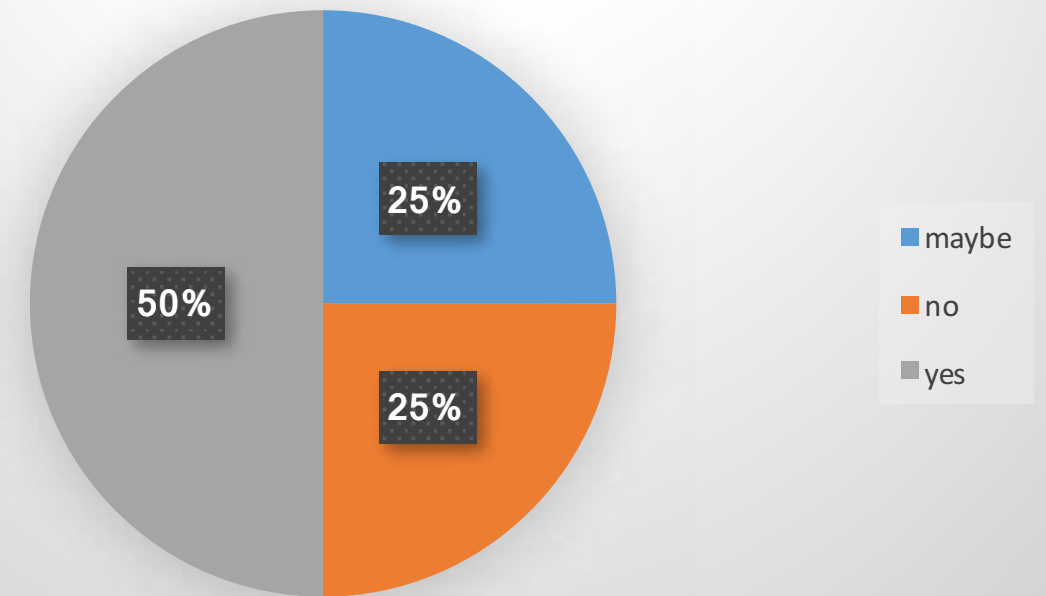
- People hate taking out the trash
- Recycling matters to people
- Most people take out their trash once a week
- People don't rinse their bottles before recycling.
- Women take out the trash far more often than men

- The average person works around 30-40 hours a week
- Most people place their waste bins in the corner of the kitchen or under the sink
- Most people consider themselves as an active recycler
- People have 2 waste bins

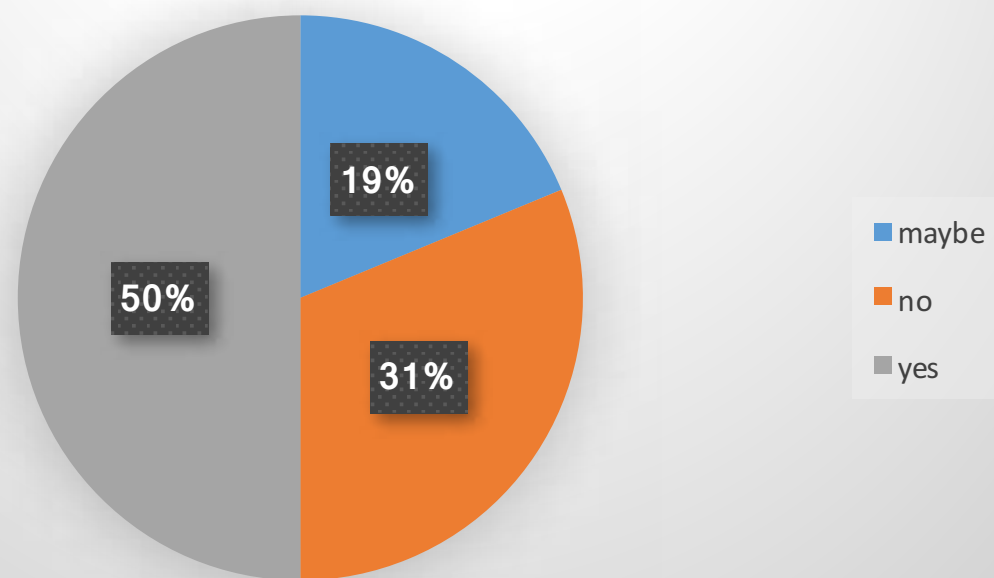
Do you consider yourself an active recycler?



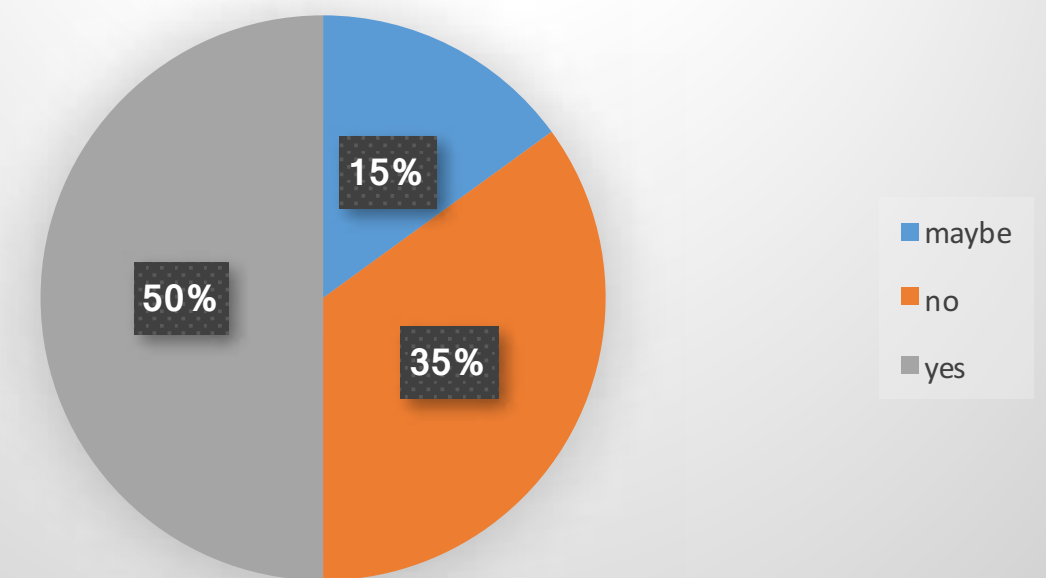
own



parents pay rent



rent



Insights

- **People have around 2 bins for trash and one for recycling**
- **The majority of participants thought of themselves as an active recycler. But are aware that they could do more.**
- **Trash cans are normally under the sink or in the kitchen corner to keep out of sight or for convenience.**
- **Most participants considered that they were busy and worked an average of 30-40 hours a week**
- **Women tend to take out the trash more than men.**

“because our landfills are full and getting fuller and our resources are limited and becoming more limited.”

“It’s at least a bit better than just tossing everything out”

“save the planet, duh”

“Trying to reduce output of waste on my end as much as possible”

“Because I want the planet to survive.”

“yes, it should be more available / easier”

“The planet is dying and it’s our fault. Can we at least **slow down it’s death?**”

CURRENTLY ON THE MARKET



Joseph Joseph Titan Trash Compactor 199\$

- Holds three times more than a trash can of similar size.
- Patented manual compaction-plate design for hygienic, mess-free trash compaction.
- Liner plate covers trash when compacting, so there's no direct contact with trash.
- Anti-tear technology won't stretch or pinch liners as you compress trash.
- Carbon filter inside lid neutralizes odors.
- Includes three liner bags and one odor filter.



Joseph Joseph 60-liter trash can \$250

This smart, savvy bin offers a one-stop solution for sorting and storing refuse, food waste and recycling.



Joseph Joseph stack 48L trash can 45\$

This smart, savvy bin offers a one-stop solution for sorting and storing refuse, food waste and recycling.



The step N' Sort 3-compartment recycling bin. 99\$

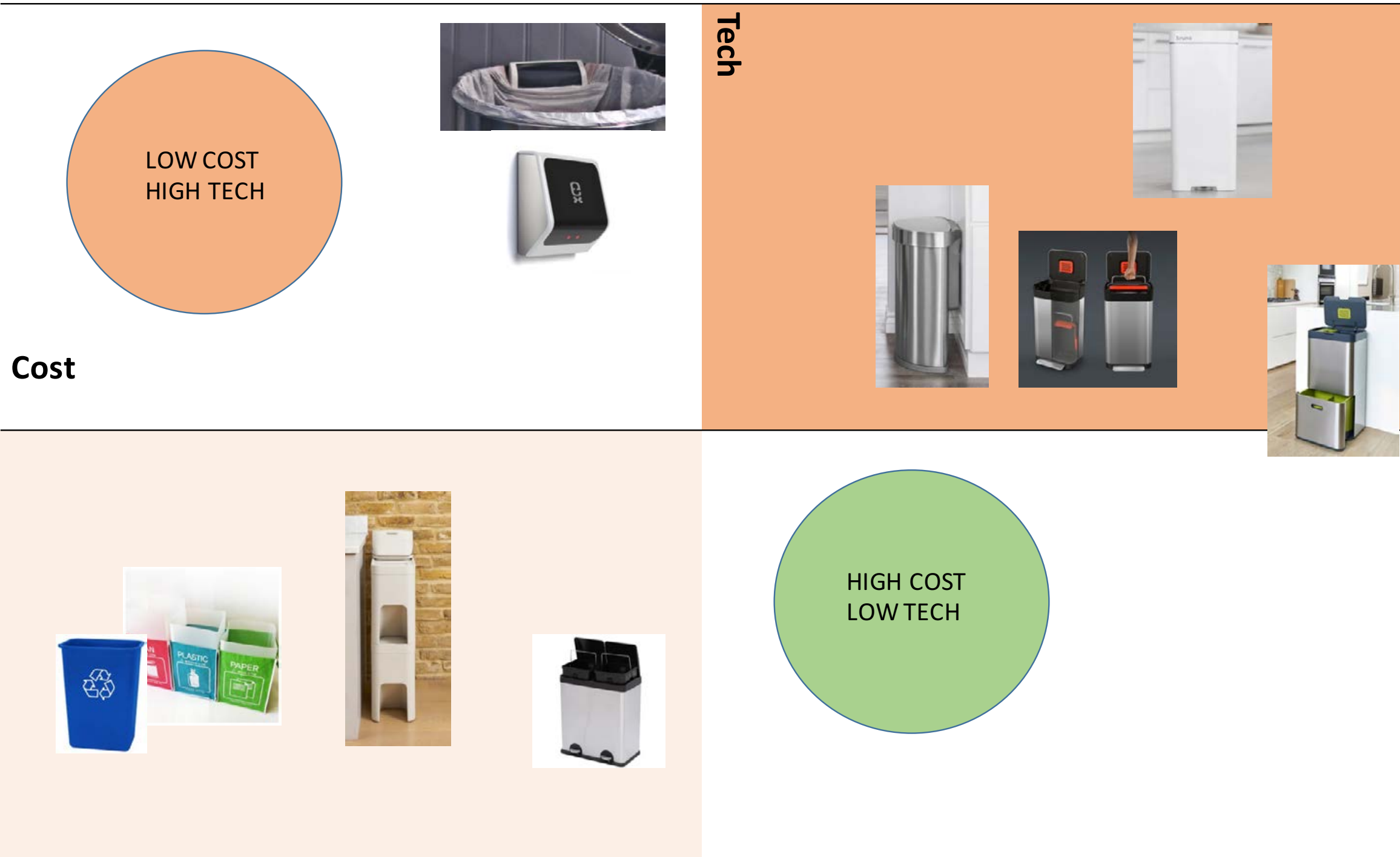
CURRENTLY ON THE MARKET



UZER Eugene Smart Trash Can
Wi-Fi-enabled scanner that reads the bar codes on your
garbage and tells you if you can recycle the container.
\$99



Genican Wi-Fi-enabled scanner that reads the bar codes on
your garbage and tells you if you can recycle the container.
\$99



If we place all these products on a 2x2 we can see that there is a opportunity in the low cost, high technology waste bins and also the high cost, low technology area.

My original project brief at the end of my recycling phase was focused on millennial and how to establish better recycling habits at the home.

Project brief 1.

To Create a Trash Can + Recycling bin that helps the user be more responsible with their recycling.

Target Market

- Mid twenties +
- Preferably starting their career
- For the individual that doesn't have time to take out the trash often

Product specification

- Easy to separate waste from recycling
- Light weight
- Can hold enough trash for a week
- Designed to enhance the surrounding décor

But I started to wonder what the point was designing for Millennial if they already get recycling?

So I started pondering whom else might have difficulties taking out the trash, or be from an era where recycling wasn't the norm. Naturally I started to explore how the elderly took out their trash.

From my research I discovered that there was little information on how the elderly took out trash. There are providers that will assist the elderly to take their trash from the garage to the curb. But nothing related to from the home to the bin, to the curb.

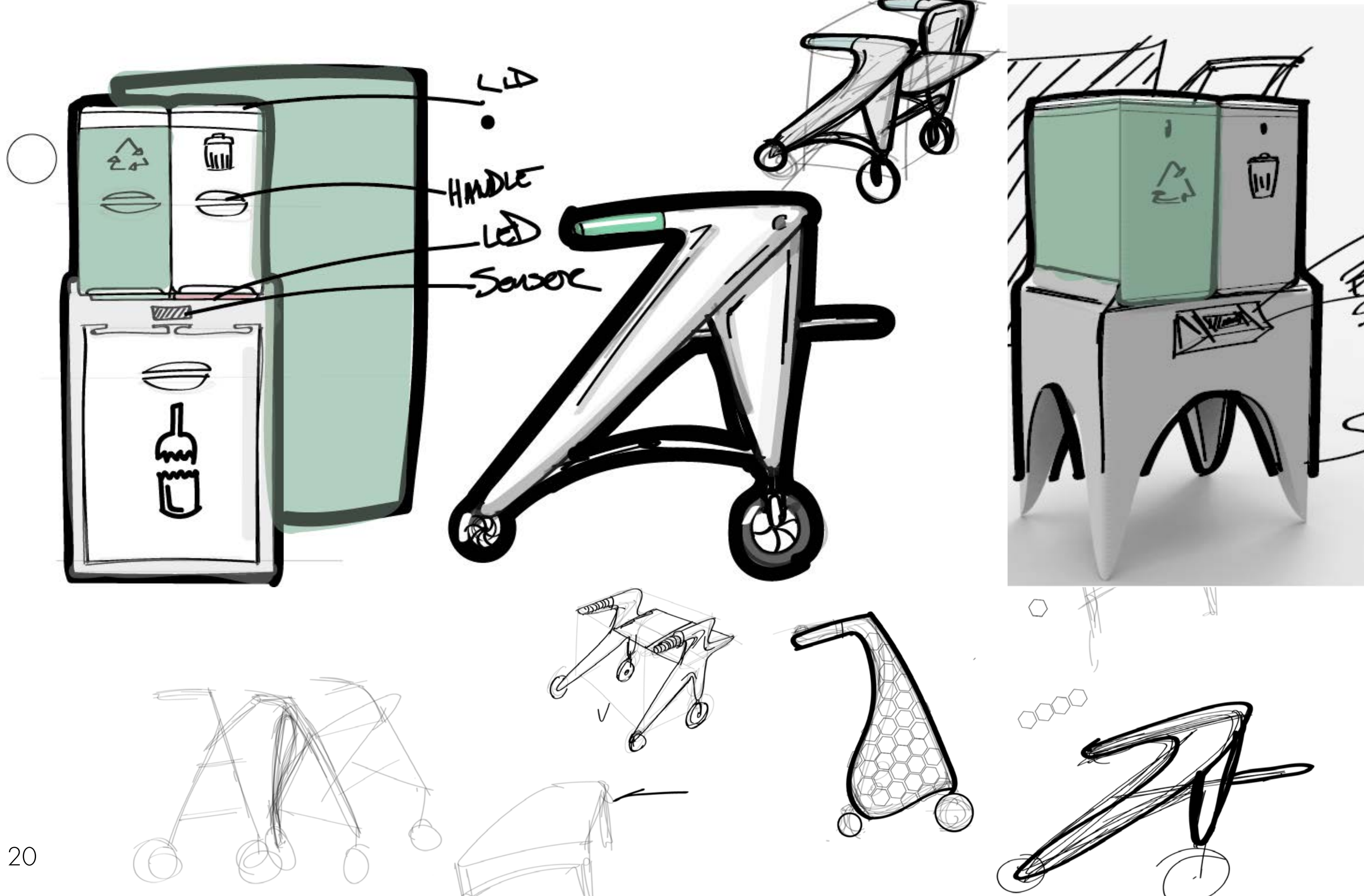
I found that the elderly usually use smaller plastic bags for their waste so they can't make it too heavy, or have a family member and or

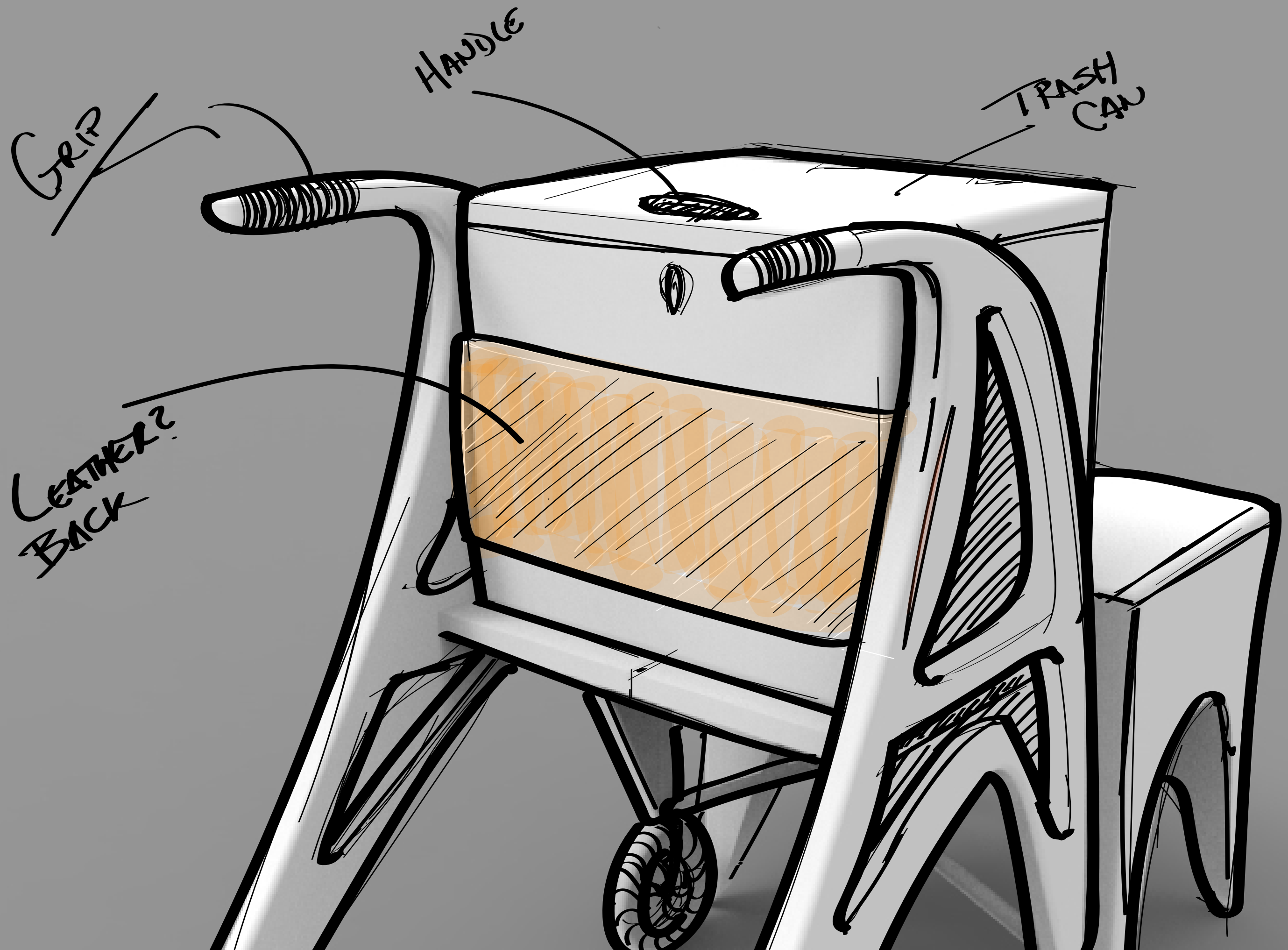
assisted care to help take out the trash.

So for my first round of ideation my target audience switched from the youth to the elderly. The hope was if I could find a solution that help the old & weak, then it would trickle down to the younger generations.

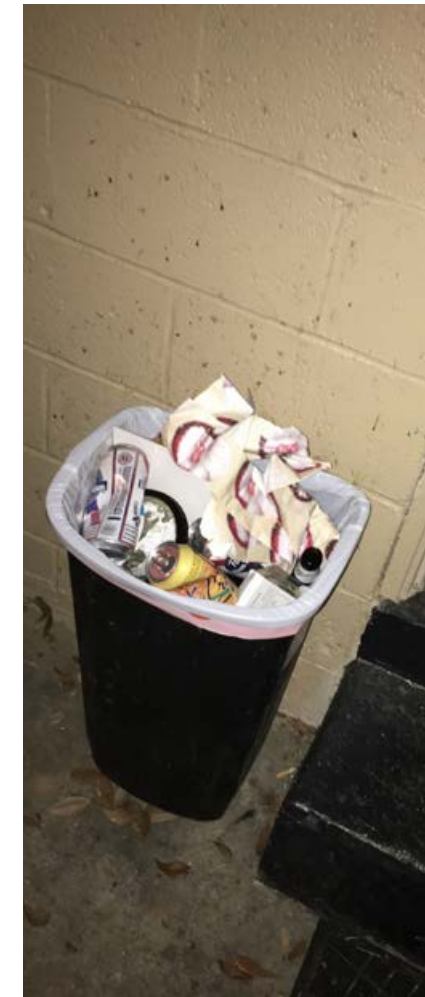
I focused on a walker that could help assist with the transportation of the waste from within the home to the curb. It would also double as a sitting walker when not taking out the trash. Though I thought that this was the direction I wanted to go, after some hard critiques I came to the realization that I had to scrap the idea and start from scratch.







They all live in apartments!



Slightly deflated, I scraped the walker idea and started to reexamine the data that I had collected so far.

22
I must be honest, I spent days just


drawing trash can after trash can. But reviewing my data I came to realize that all of the interviews that I had conducted had three things in common. first every single person was living in an apartment.

And that everyone had the more or less exact style of trash can. (pictured on the next page). The last commonality was that each trash can was overflowing and or using other containers to hold trash.





Apartments made me
think of cities. I wondered
how many people live in
cities?

An aerial photograph of a modern urban development. The image shows several high-rise apartment buildings with light-colored facades and balconies. A winding road with a white dashed line runs through the center of the development. There are green spaces with trees and grass between the buildings and along the road. The overall scene is a dense, planned urban environment.

66% of the
worlds population
will live in urban
areas by 2050

香港膺世界最具競爭力營商環境

香港有約10萬人居於劏房，即一個由普通單位分割而成的小房間，平均面積只有40呎。卻同時兼備了客廳、睡房、廚房，更不少人家門口住在這種環境，成為了名不虛傳的「劏房」。

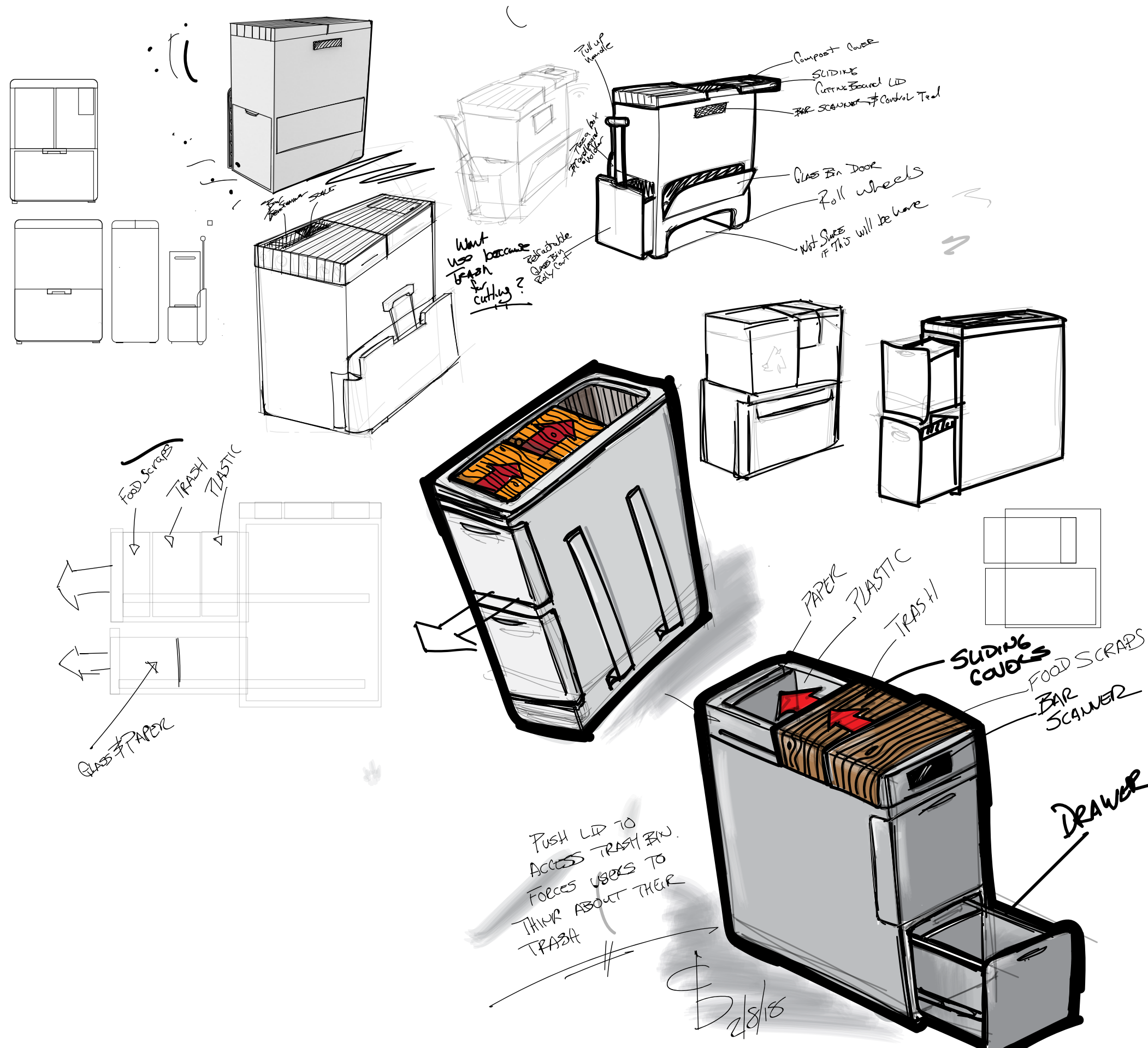
其實，劏房有很多一起努力的，創未能共享成果，需要你幫忙改善生活，維護社會公義！

Q: How might you make a trash can that could carry more trash, take up less space?

A: Make it taller.



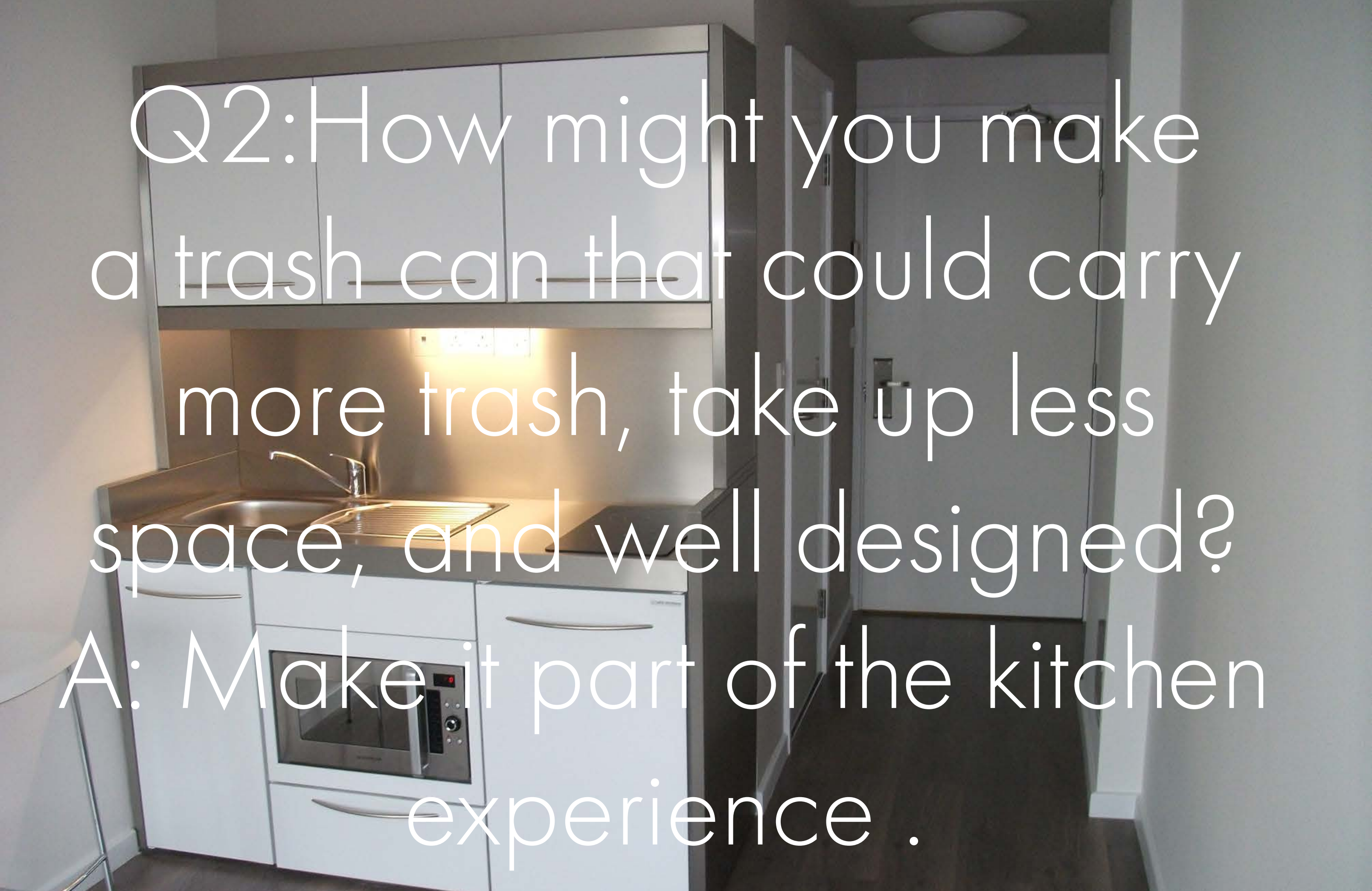
一人一信給政府



Considerations in Design:

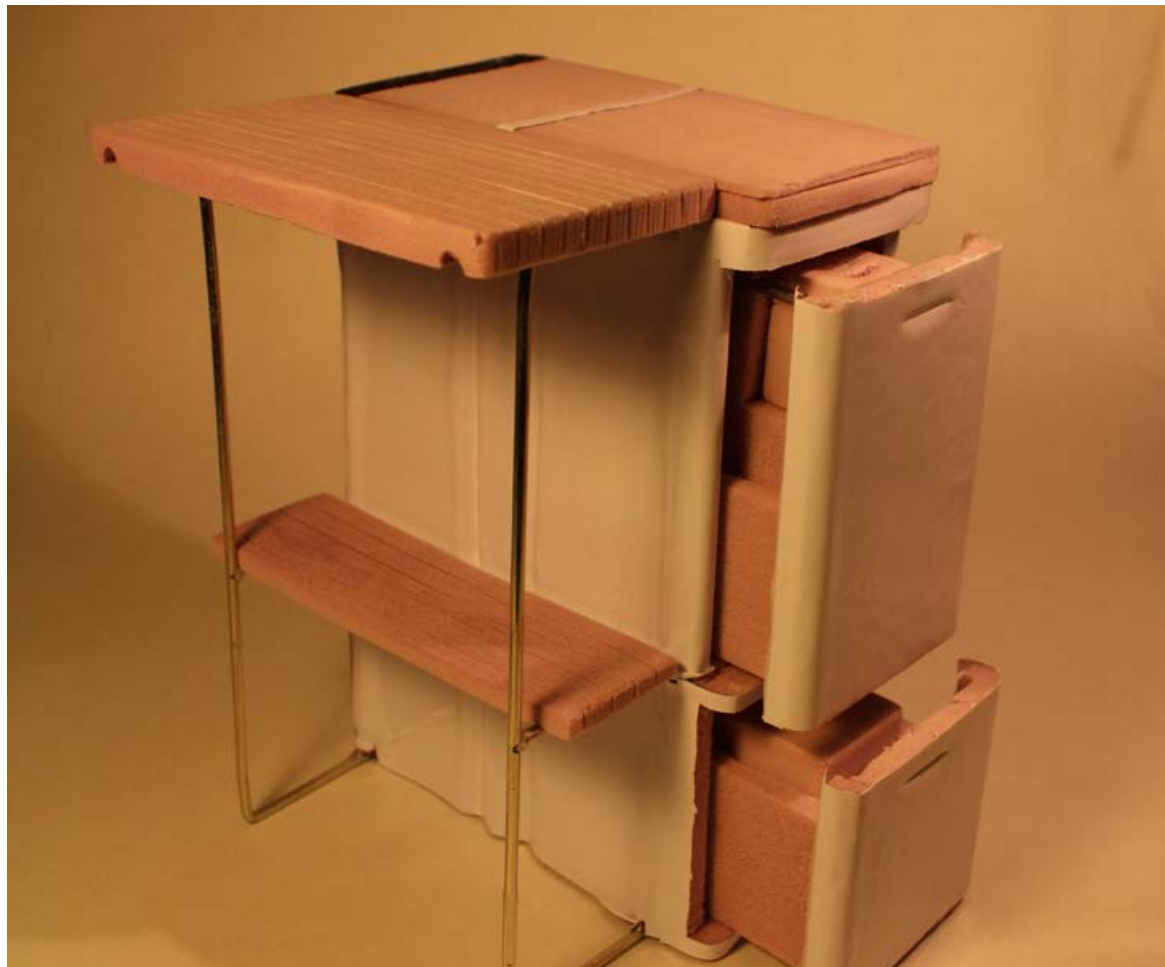
1. Can be expensive since the wealthy create more trash, but should be affordable for those who want to save and purchase one
2. Incorporate latest technology
3. Must be multi-purposed
4. Must be discrete
5. Not a me too!
6. Must have sustainability in mind
7. Has to make the disposal experience easier if not fun.
8. Intuitive



A photograph of a modern kitchen interior. The kitchen features white cabinetry with horizontal silver handles. A stainless steel sink with a chrome faucet is set into a dark countertop. Below the countertop, a built-in oven is visible. The background shows a hallway with a white door and a ceiling light fixture. The text is overlaid in white, sans-serif font.

Q2: How might you make a trash can that could carry more trash, take up less space, and well designed?

A: Make it part of the kitchen experience .



Mock up Round 2.

I came to the realization that the current trash can is normally hidden away or not part of the kitchen but an accessory. What would happen if we designed it to align with the atmosphere of the kitchen experience?

The second round of mockup i designed the trash can to meet the standards of the average kitchen counter top of 36" in height, and 30" in depth, and 12" in width to match the average width of a normal trash can. The purpose of this was not to use up anymore space than the current trash can already takes up.



Woodworking



Hardware



metal fabrication



Testing



spray gun finishes



assembly



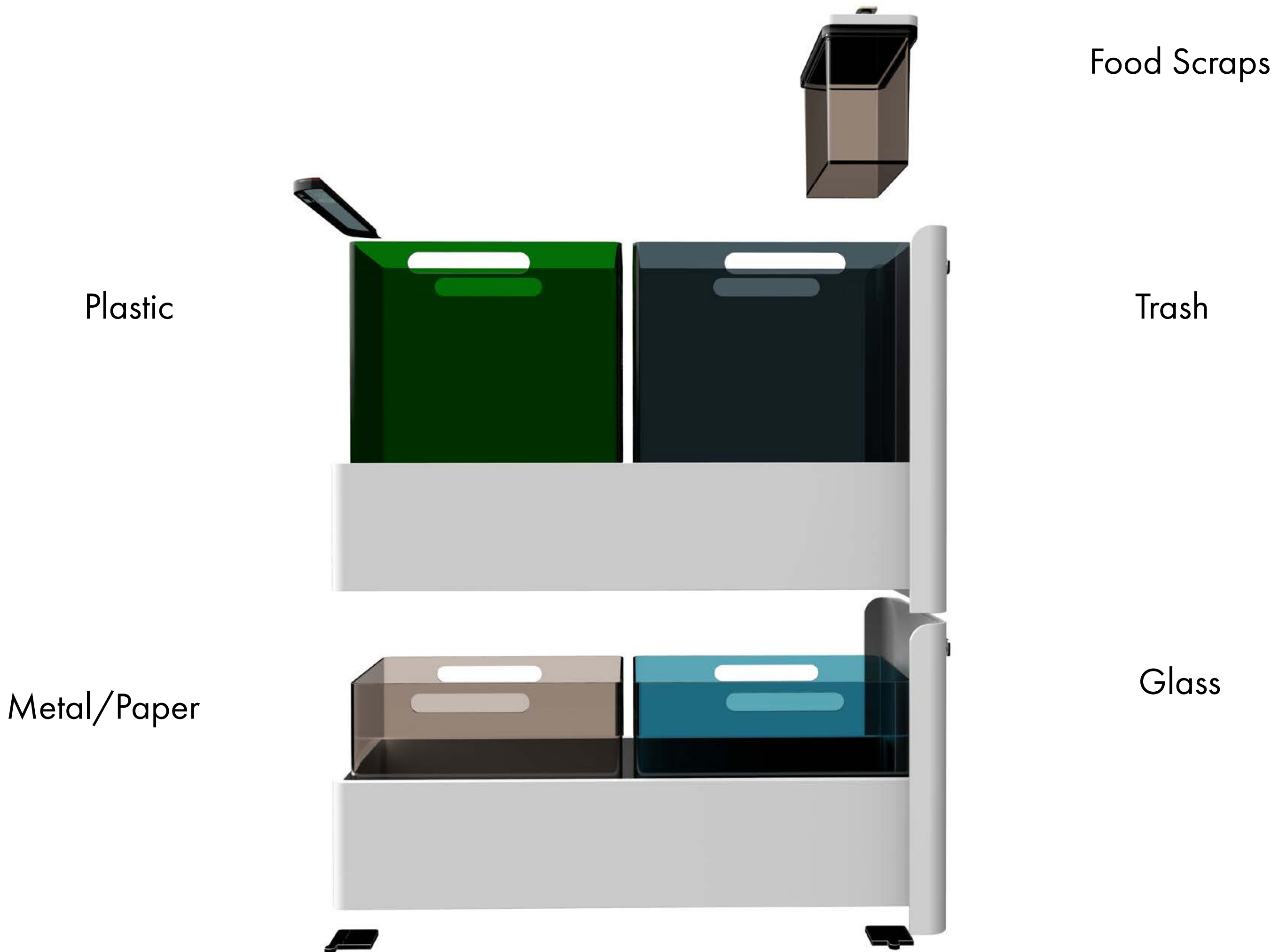
OZCAR

A New Era of Trash

Ozcar transforms the idea of the trash can from an simply an object that you place waste in to an extension of the kitchen experience.





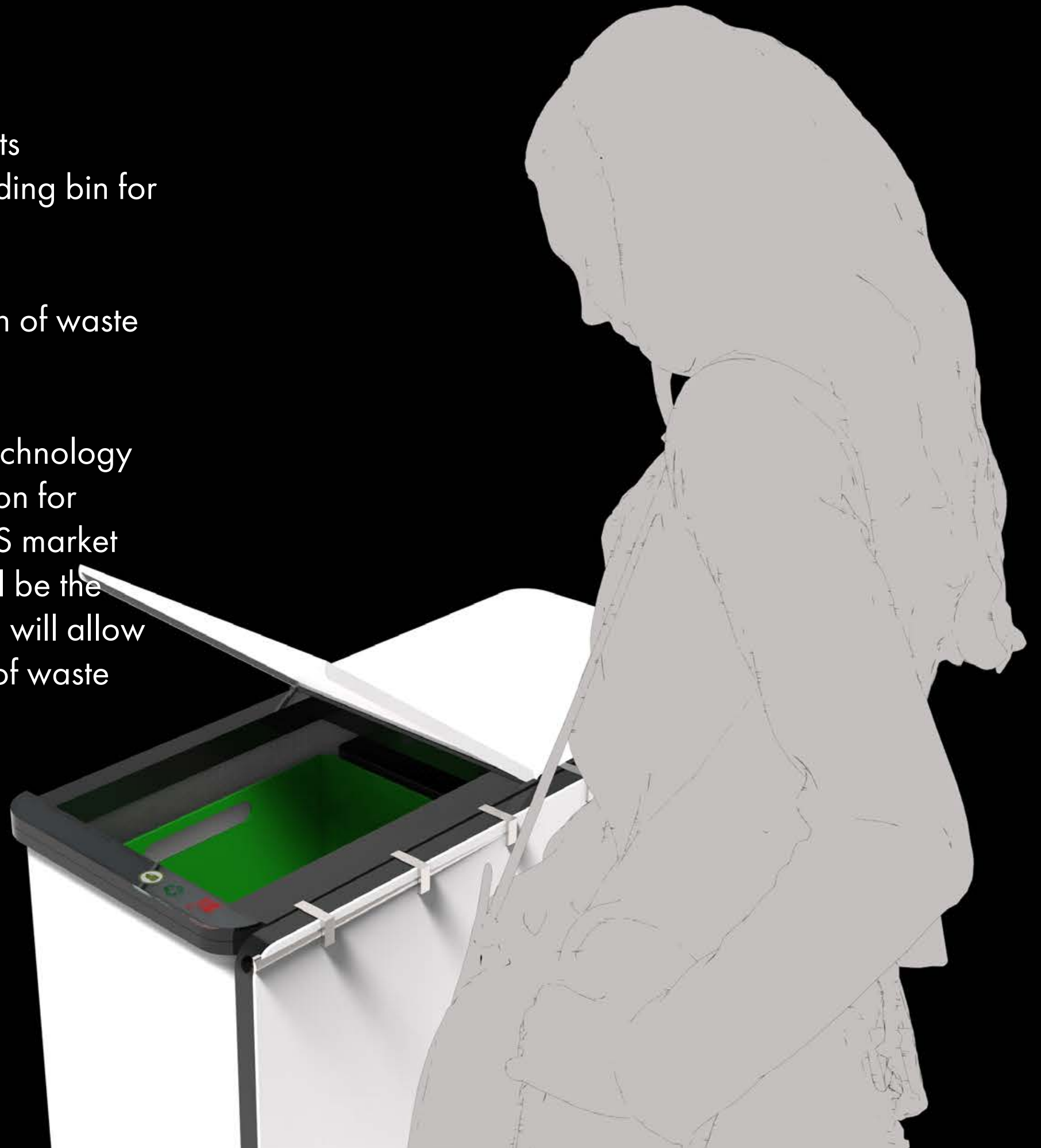


Digital Bar Code Scanner

Scan bar codes on item packaging to see if its recyclable as well as opening the corresponding bin for easy of use. Making it hands free.

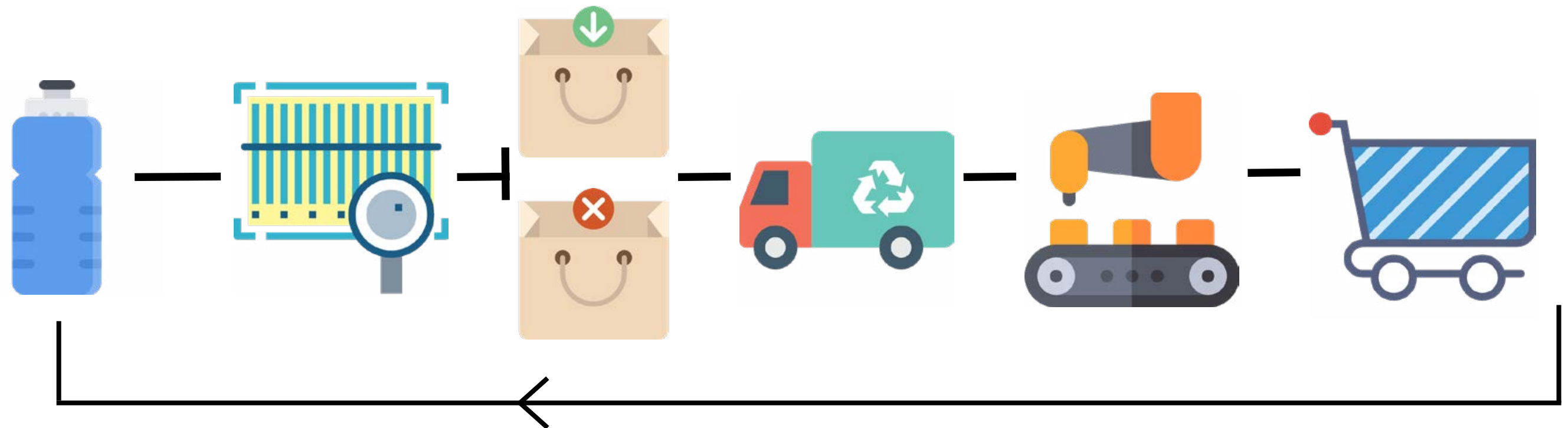
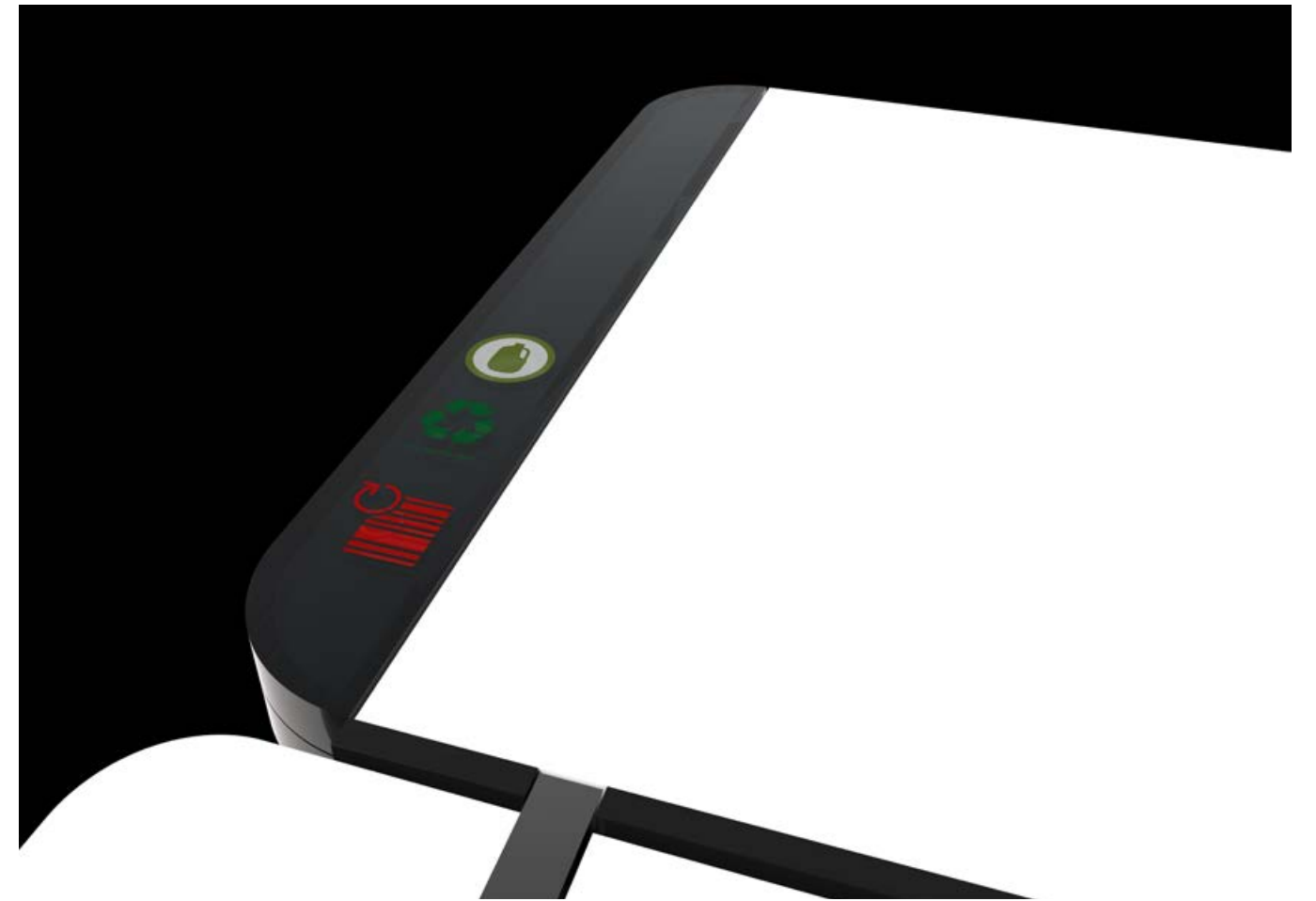
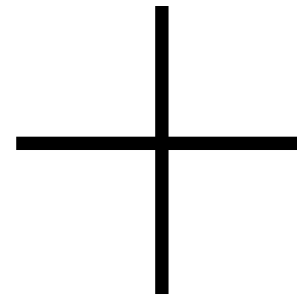
5 different bins allows for easier organization of waste and reduction of contamination.

A possible partnership with Uzer with their technology of scanning package material for identification for recycle, Ozcar can help move Uzer to the US market and be the physical element, where Uzer will be the platform and digital support. This partnership will allow for both to become key players in the future of waste management.





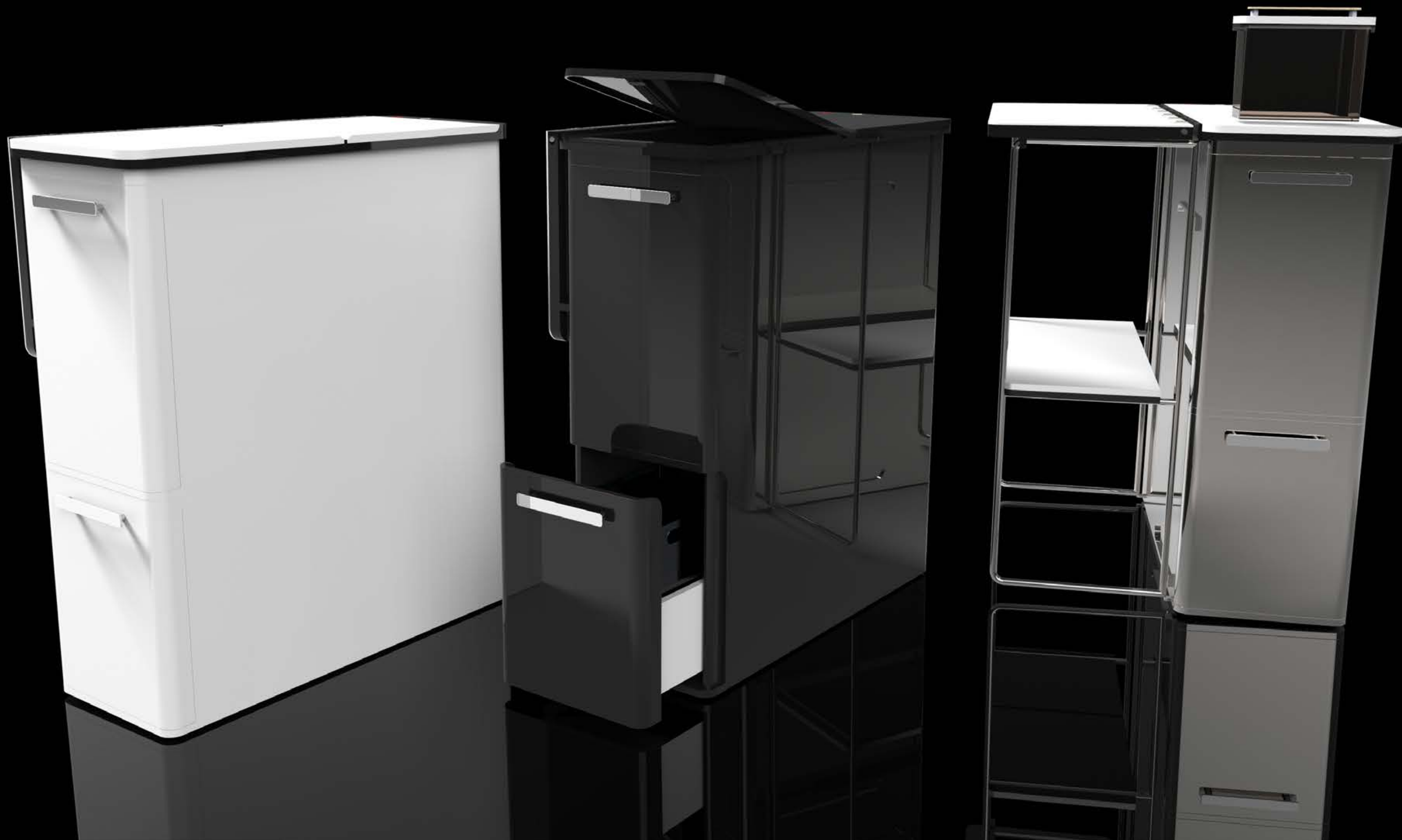
eugène
by UZER
MAKE YOUR TRASH CAN SMART













“Question everything generally
thought to be obvious.”
— Dieter Rams



Thank you

March 15, 2018

resources

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