

A decorative graphic in the top-left corner consists of several overlapping circles in shades of orange, blue, and red. Small white plus signs are placed around these circles.

Sustainable Replasticing for Future Design

Repurposing PLA scraps as new material for students.

+ TABLE OF CONTENTS

01

Research &
Analysis

02

Prototyping
& Refining

03

Products &
Next Steps

01

Research & Analysis

The Problem.

If there was an easier way to reuse the plastic we consume, then we could reduce the amount of plastic that we purposefully buy for alternative products which would lead to a greener world as well as a sense of a higher self-esteem for consumers based on their pro-green actions. With the trillions of plastic products currently in circulation, there is a clear need to reduce plastic usage and opportunity to deeply impact the environmental-conscious consumer.





380 Million Tons

Of plastic produced every year

50% of all Plastic

Is single use plastics

<9% of Plastic

Is recycled

40 Pounds

Of plastic are eaten by humans in their lifetime

Current Journey Map



Journey Map

	Stage 1	Stage 2	Stage 3	Stage 4
Doing	Looks for food to eat before she goes back to work	Buying food from a local store that includes a plastic container	Finishes eating and looks to dispose of the waste	Finally disposes the waste at the container
Thinking	Thinking about eating healthy and quickly	Whether they made a right purchase. Worried about the waste they create	about how and where to properly dispose their trash	about whether she disposed her waste properly in the right bins
Feeling	Hungry, anxious, overwhelmed	Happy, relieved, slightly peeved, curious	Lost, Scrambled, Satisfied with food, Rushed	Confused, Self doubt, Guilt
Opportunity	Create a database/app for great eco friendly places	Create cheap easy methods to package foods that are biodegradable	Public trash/recycle locations/map. Help users find places to dump their stuff	Better legends, iconography for disposal. Better recycle/trash cans

Personas

Susan: Eco Friendly Student



Susan

Age: 26

Occupation: Graduate Student

Location: New York City, NY

Bio

Susan regrew her passion to be eco-friendly after her move to NYC. The lack of nature pushed her to take part in conservation communities and raises plants at home. She gains satisfaction in growing things of nature. She spends her time outside of her intense class schedule to relax and have time to plant. She tries to grow as much time outside as she can and will take opportunities to leave the city and go towards areas with more green.

Brands



Values

- Environmentally Conscious
- Composts in her backyard
- Buys local and organic
- Takes part in her community

Motivations

- Growing plants in her garden
- Working with her community
- Eating healthy

Goals

- Reuse materials
- Saving money
- Buying more plants
- Helping others get involved

Personality



Jonathan: Efficient Worker



Jonathan

Age: 32

Occupation: Software Engineer

Location: New York City, NY

Bio

Jonathan came to NYC after graduating and has established himself as a Software Engineer at a local tech company. He's always in a rush to get this done which has severely limited his free time. He used to recycle and be more eco-friendly back home but now that he's living on his own, he struggles to make an effort. He does try bare minimums of recycling when clearly obvious but knows that what he does isn't enough. He wants to be environmentally conscious, but his lifestyle makes it tough to be that way.

Frustrations

- Confusing public recycling
- Takes too much time to throw away recyclables
- Doesn't feel like her contributions make a difference
- Wish it was more efficient to help the environment

Brands



Values

- Saving money
- Cares about cleanliness
- Efficiency is important

Motivations

Frustrations

- Feels like everything is too confusing
- Things require too much time
- Feels like things aren't efficient or effective

Goals

- Have more free time
- Reducing his carbon footprint
- Save money and the planet the best he can

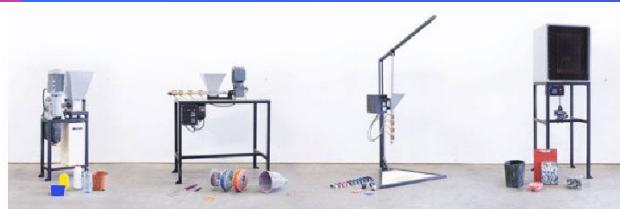


Competitive Cooperative Analysis



Precious Plastics

Open source plastic project to breakdown and reuse plastics



ByFusion

Forming plastics into blocks for reuse as building materials



02

Prototyping & Refining

If we could facilitate ways to create new materials from scrap PLA plastic in the NYU Makerspace and other affiliated departments, we could prevent plastic garbage from entering the waste system and the need to buy plastics like acrylic through repurposing PLA. This way, PLA will not enter our landfills while students and staff get sustainably sourced project materials without affecting the NYC waste pipeline.

THE SOLUTION

Goal Journey Map & Flow

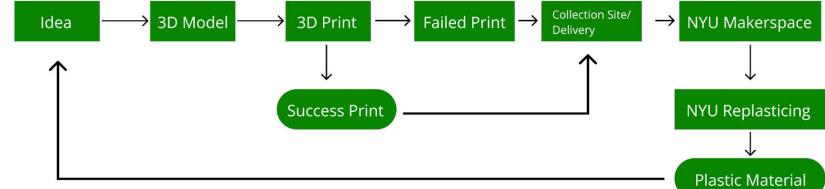


Goal Journey Map

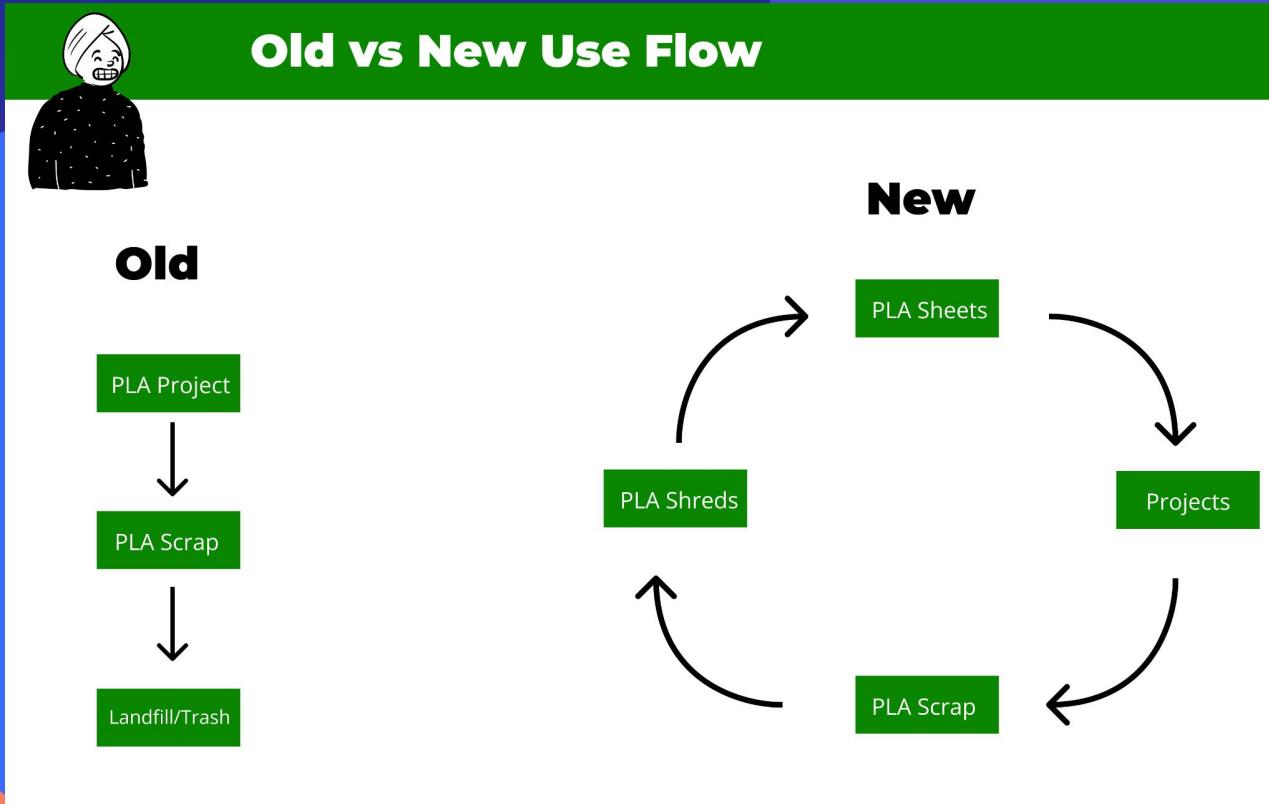
	Stage 1	Stage 2	Stage 3	Stage 4
Doing	Printing 3D model	Removing failed print and any scraps	Packaging and delivering scraps to NYU Makerspace	Using plastic material made from other plastic scraps purchased from NYU
Thinking	that they properly printed their model and it wont fail	they should've fixed their model, but knowing its alright.	That they're more green and that they can make cool things with the scraps	They can make so many more things. New opportunities for ideas!
Feeling	impatient, worried	Irritated, annoyed, eventually at peace	Optimistic, hopeful, slightly peeved but confident	Joy, excitement, anticipation
Goals	Bringing ideas to life	Clear way for improvement and iteration	Turn their failures into potential successes. Divert sadness into confidence	Use materials as opportunity for new ideas and products



Goal User Flow

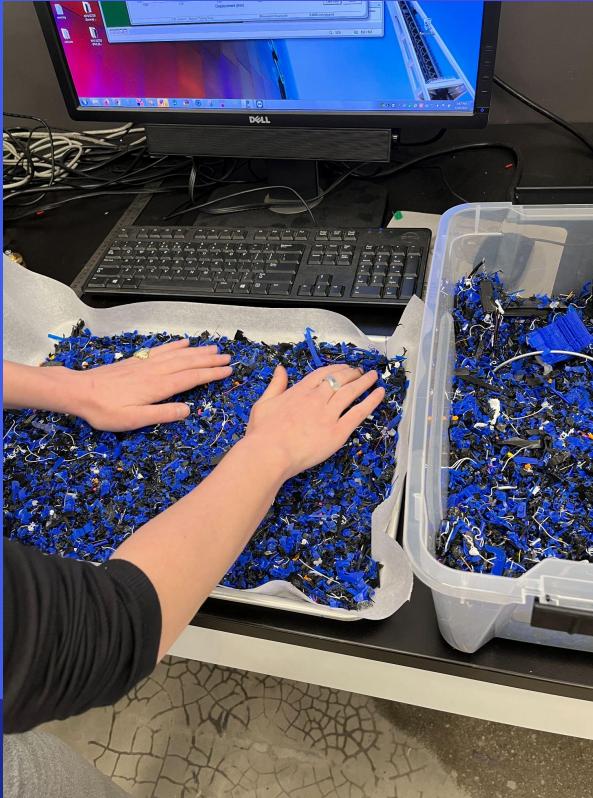


Intended Use Case Flow



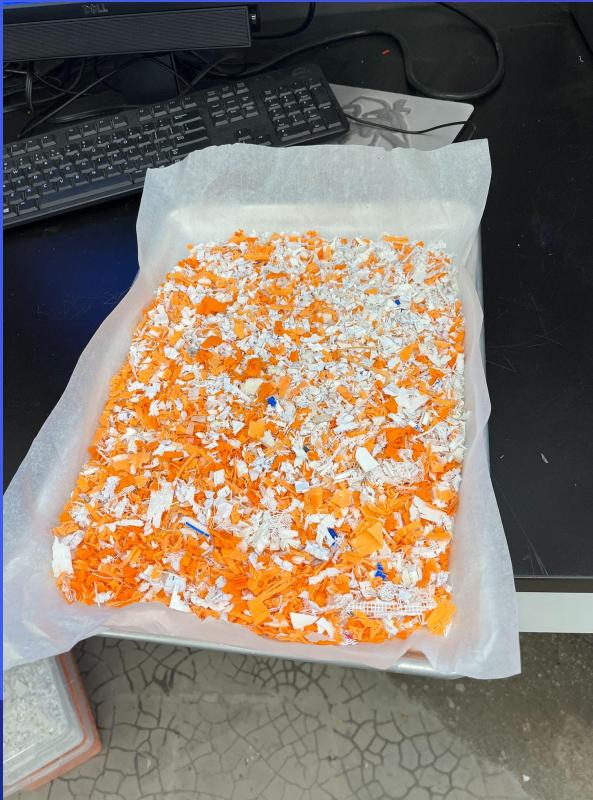
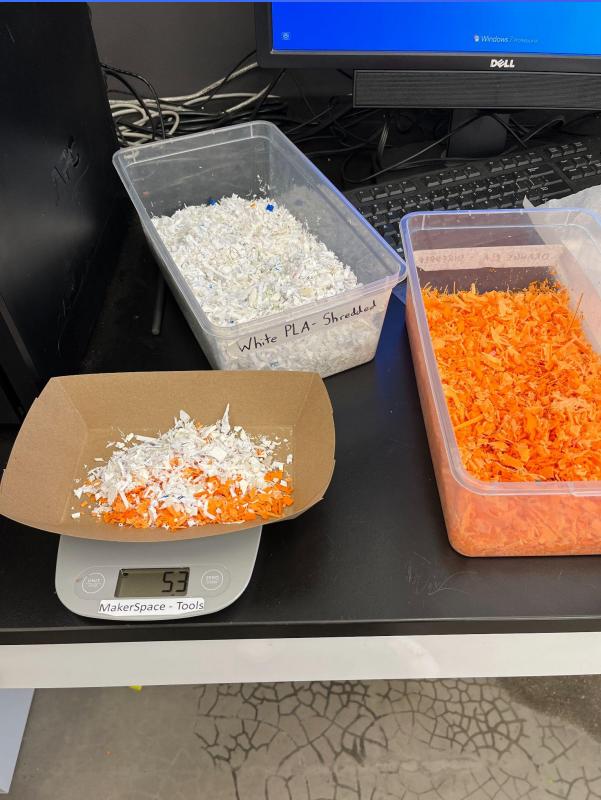


PLA Sheet Process



100%
tree free

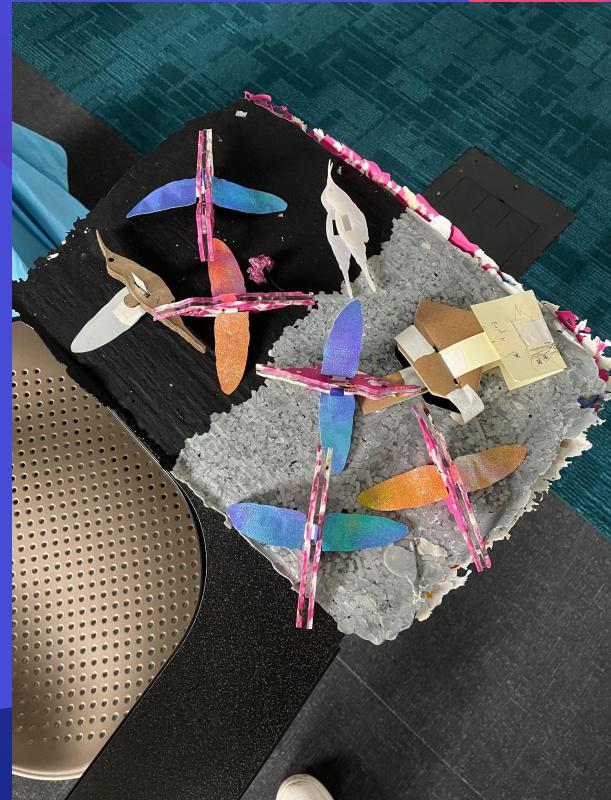
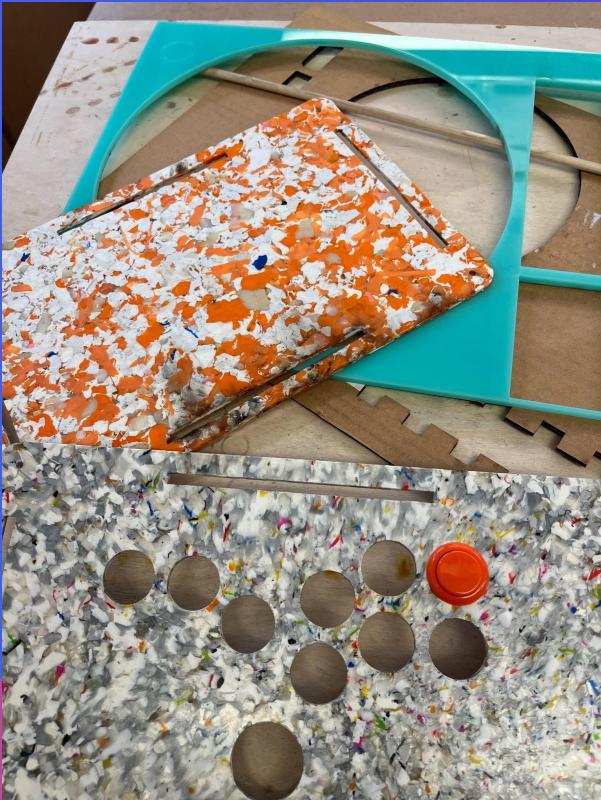
PLA Sheet Process



+

+

PLA Sheet Process



+

+

User Testing



03

Products and Next Steps



The Ideas



The Products



Next Steps

01

Present

Present research and results
to Office of Sustainability
and Makerspace

Fund

Get Green Grant funding
from NYU to continue
research and refine
process

02

03

Make

Renew efforts of PLA scrap
collection and Sheet making

Teach

Pass on documentation and
train sustainable members and
make sheets available for
students

04

Thank you!

If you are interested in this project, please feel free to contact me!

Link to our Replasticicing Documentation:

<https://drive.google.com/drive/folders/1KJVUPeoqSe3aw4mahjyfRSkVlulQCcrK?usp=sharing>

Special Thanks to:

NYU Makerspace

Molly Ritmiller

Blair Simmons

ITP Replasticicing Class