COLLEGE OF ENGINEERING

Project Scope

The team was tasked with creating a prototype which mitigates some aspect of trash polluting Oceans and waterways. The prototype is to be operable by a single person, and must fit in the trunk of a four-door sedan. The team was to then document the engineering process utilized from the planning stage to the final product in the form of short videos.

What is a Capstone Project?

A capstone is a senior design project. In any engineering degree, when you are in your final year of college, you enroll in a class ro begin your capstone. A bunch of groups or companies, in or outside of OSU, submit projects they'd like done. From there, students pick their favorite project descriptions and are then placed in groups. Time frame depends on the major but it's usually 20-30 weeks long. There's lots of report writing involved along with the building. This board is the accumulation of some of the work we've done for our capstone and the finished product.

Meet The Team!



Gabrielle Tomba Major: Mechanical From : New Orleans, LA



Andrew Harker Major: Mechanical From: Portland, OR



John Herrera Major: Industrial Engineering From: Santa Barbara, CA



Igor Patrakov Major: Industrial Engineering **From:** Portland, OR



Upstream Garbage Project Our Process

strip that locks don

hand held

Plan



The first, and usually longest step is planning. It's important to explore every and all ideas no matter how crazy! Then pick the best one.



Discuss and show off your work to your teammates, sponsors, and mentors to improve upon what you have

Our <u>Timeline</u>



Concept Intro First, we talked to our sponsors to clear up any questions we had. Then we did research on what solutions were currently out there to get ideas!



PLASTIC

Brainstorming We then got to brainstorming! We put down all our ideas then picked the best one. We then spent a lot of time describing all the details to include in our design.





Test out ideas using prototyping, 3D modeling, simulations, or anything that visually displays your product.



It's important to test your ideas to make sure they'll work long term! Testing can be a range of things from making sure it's light enough or that it won't break.



Prototyping

Then we got to prototyping. We had to make a lot of changes along the way, but that's ok, that's what this step is for.



Once we were finished, we shared our idea with our sponsors and our professor to make sure we got it right! Then we documented everything we did.

The final prototype is a foldable trash can fit with backpack straps, side handles, and a motion sensing lock mechanism built into the lid. The idea was to create something that prevented litter in the streets and roads. We were inspired by how many people come to Corvallis for game days and how much garbage is left lying around. Our hope was to create a garbage can that prevented overflow of trash into the street that would eventually end up in our waterways.

Team 204

Ideate and Planning Process

(1) Initial Downselect or Brainstorming

- Come up with as many ideas as possible Fun garbage can Tiny garbage robot
- Storm drain catcher
- Choose the ideas that we believe are interesting but also feasible





Decision Matrix or Pros and Cons

- Place values on certain parameters that need to be met by the project!Decide what is the most important needs our project needs to meet talk to sponsors research
- See how well each concept would meet these criteria and narrow down our choices! 0 1-10

110						
	Competency	Cost	Viability	Desirability	Alignment	Total
Criteria rating	3	4	5	4	2	
ldea A	1	3	3	1	1	
Weighted rating	3	12	15	4	2	36
Idea B	5	3	5	3	4	
Weighted rating	15	12	25	12	8	72
Idea C	1	2	3	1	1	
Weighted rating	3	8	15	4	2	32
ldea D	5	1	2	1	1	
Weighted rating	15	4	10	4	2	35

(3) Final Concept Definition

- The group must come together and weigh all of the options, and choose one to go with!
- o Detail our chosen prototype
 - verbally concept sketches
 - cardboard proof of concept (prototype)



Our Solution

