

Project Litter Bot Lab Prototype!

CPE 190 / EEE 193A

Team 10: **Ricardo Navarrete Jr, Vadim Babiy, Vaukee Lee, Deven Robinson**
California State University, Sacramento ; College of Engineering and Computer Science



PROBLEM STATEMENT

We are designing an autonomous scouring bot as a remedy to mitigate the man-made litter pollution and reduce its impacts on the environment.



Figure1: Litter intoxicating Farmlands and waterways.

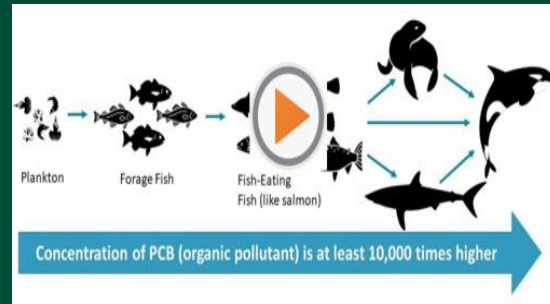


Figure 2: Litter decay in aquatic life endangering the food chain.

BACKGROUND

Litter and trash are found everywhere around the world. Most of the trash ends up in the ocean through river ways or blown by wind onto streets, farmland, beaches, etc. What does this mean for us? It means the declination of a food source that is from the ocean, increase in global warming, and declination in human health from hazardous pollution.

SUMMARY OF WORK – FALL PROTOTYPE

We split the work into independent feature integration due to the pandemic limiting 'in person' meetings. Such work includes having a camera identify plastic trash from 5ft, grabbing small items with a wooden servo arm, finding way to integrate GPS boundaries for our bot, and integrating an all wheel drive with proper mobile power and motor controllers.



Figure 3: AWD system with trash bin.

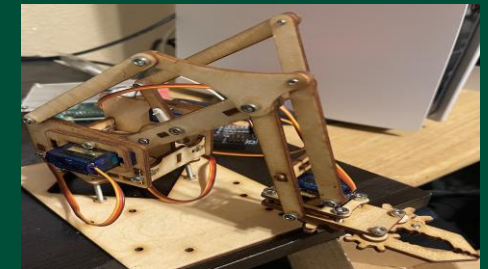


Figure 4: Lab Prototype Gripper Arm

IMPACT ON THE COMMUNITY

- Help reduce litter in community parks and streets.
- Keep farmlands cleaner for healthier plant growth.
- Reduce microplastic decay intoxicating the marine life.
- The Litter bot can be placed in open areas for occasional cleaning maintenance for the city, farmers, and rangers.