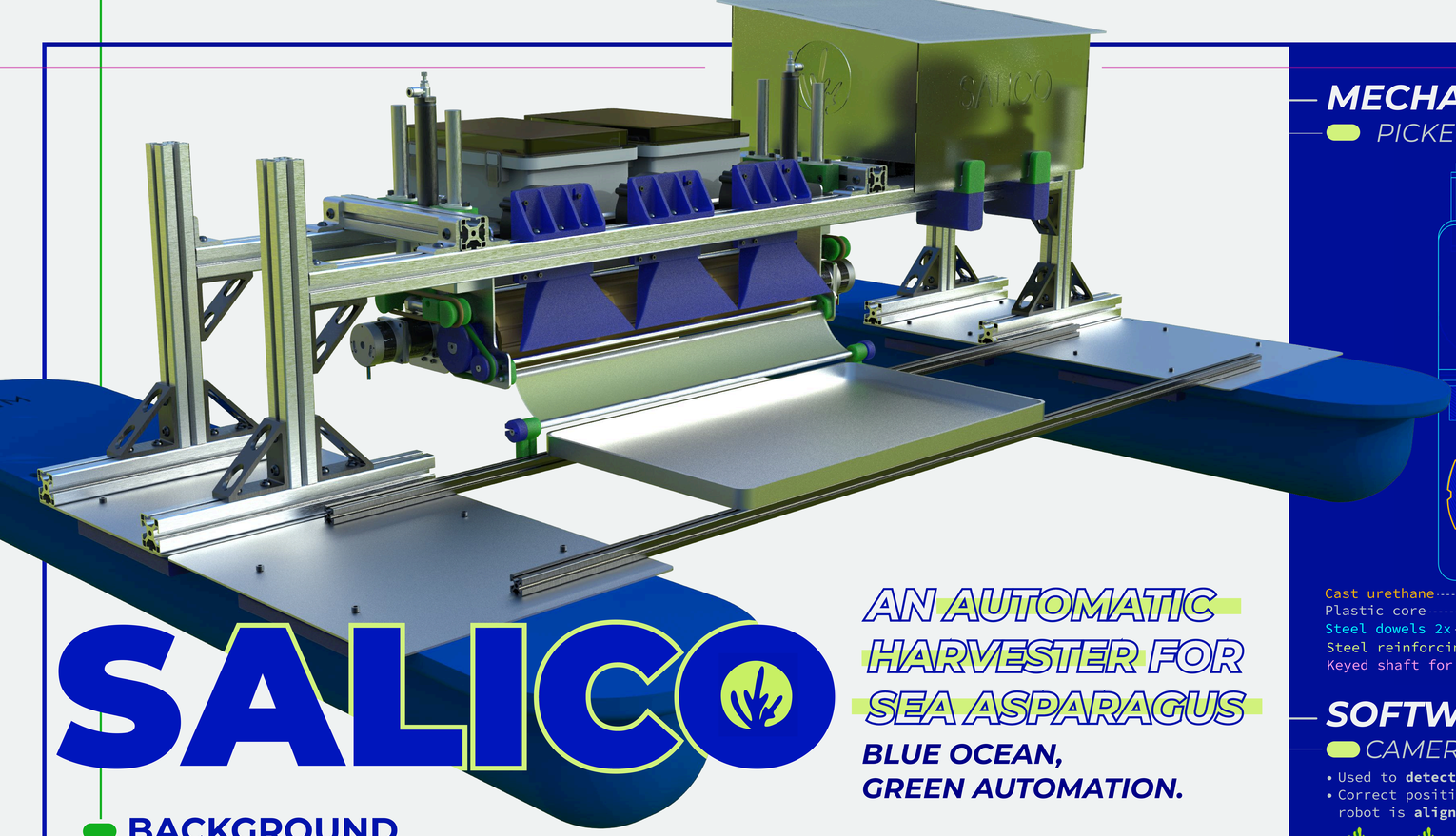


SALICO

AN AUTOMATIC HARVESTER FOR SEA ASPARAGUS

BLUE OCEAN, GREEN AUTOMATION.

BACKGROUND

Sea asparagus is a **delicious and nutritious** crop that can **grow in salty ocean water.** It **purifies water** and aids in **carbon capture**. As the world runs out of fresh clean water and land for agriculture, **sea asparagus is the future.**

PROBLEM

Currently the best quality harvest is **done by hand,** which **limits scalability.** Existing **machines** have a critical issue - they **cut and bruise** the plant, resulting in reduced yield quality and shelf life.

TESTING & SOLUTION

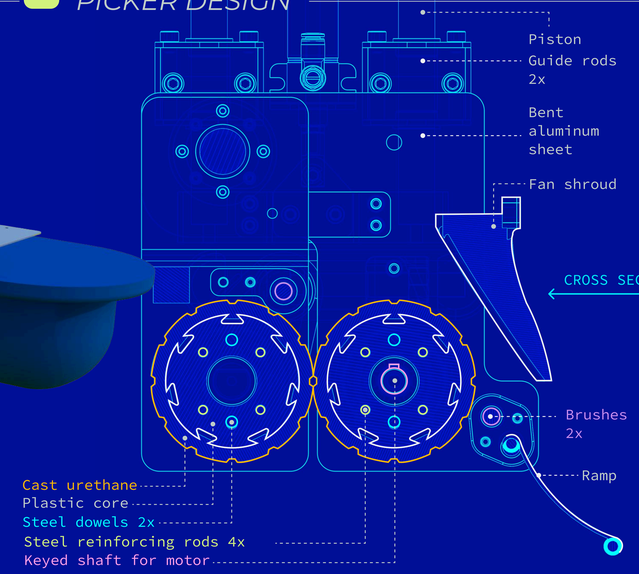
- Partnered with **Olakai Hawaii,** this robot has seen many days on the farm!
- Using **bladeless** technology, Salico's **novel roller design** does not damage the delicate sea asparagus and **uniquely mimics hand harvesting** while improving **harvesting efficiency.**

SPECIAL THANKS TO:

WENHAO SUN, PETER TEERTSTRA, ANDREW DEAGON, JOE KINSELLA, CODY NOBLE, CHIP MCDANIEL, WYATT BEHRINGER, BHARGAVA KATARI, & MICHELLE TRUONG

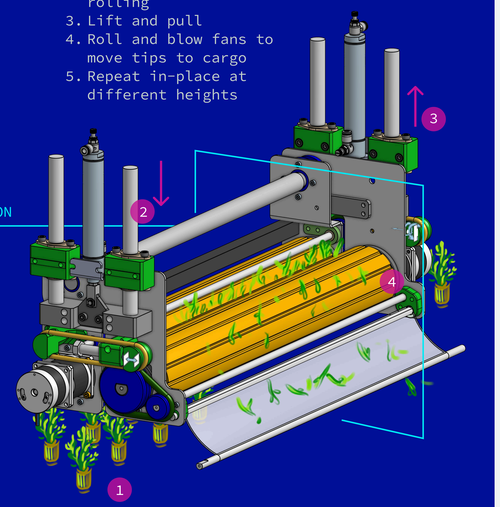
MECHANICAL

PICKER DESIGN



HARVEST PATH

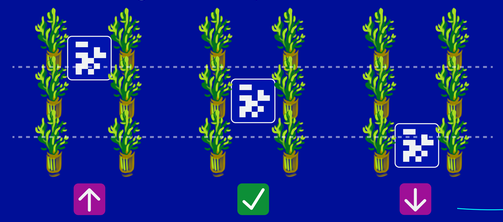
1. Position over row of plants
2. Press button to lower while rolling
3. Lift and pull
4. Roll and blow fans to move tips to cargo
5. Repeat in-place at different heights



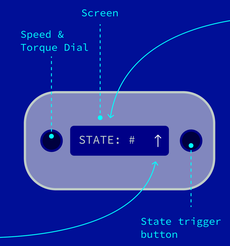
SOFTWARE

CAMERA VISION

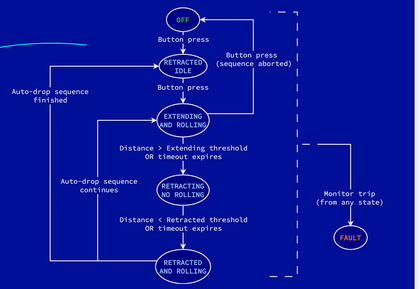
- Used to **detect location** of each row of plants
- Correct positioning **indicates to operator** that robot is **aligned correctly**



CONTROLLER

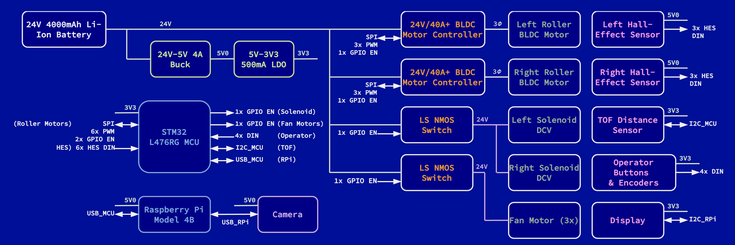


STATE MACHINE

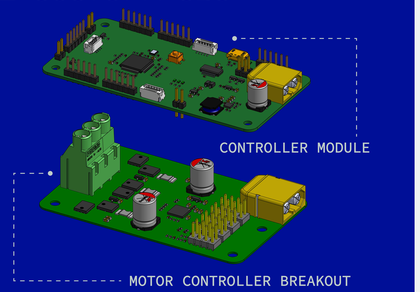


ELECTRICAL

SYSTEM DIAGRAM



CUSTOM PCBS



Max Apitz-Grossman, JOYCE CHEN, Kevin Li, Daniel Qu, Daniel Ye