PROBLEM

- Broccoli crowns are difficult to harvest due to their leaf canopy
- OSU designed broccoli whose crown grew above the leaves, but were unable to market their creation due to lack of mechanical harvesters
- A Team 955 mentor, Dr. Peter Mes, proposed a solution, a robot to mechanically harvest all types of broccoli, to OSU's Dr. James Myers, Dr. Ed Peachey, and Dr. Alex Stone
- This project will fill a gap in the agricultural tech industry, as the current harvesting methods require lots of expensive manual labor

"Mechanical broccoli harvesters that are currently available produce inconsistent results and are very expensive. Our bots on cost around $3,000."

And so, we took up the Broccoli Bot project under the leadership of Dr. Peter Mes.

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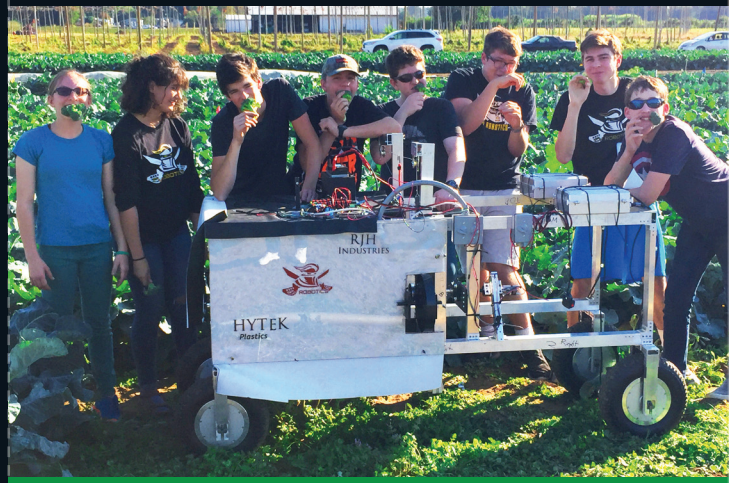


BroccoliBot

Tackling the Problem

We created, developed, and wrote a computer program that utilizes a camera to find the exact distance of the machine's blade from the broccoli's crown.

The camera detects the unique texture of the broccoli, and the computer software then determines the machine's position relative to the broccoli's crown in 3D space so that the blade knows precisely where to slice.

Prototypes

01 Our 2015 FRC Competition Robot adapted to include a Microsoft Kinect Camera

02 Our 2015 FRC Competition Robot, but mechanically retooled and this time with an Intel R200 camera

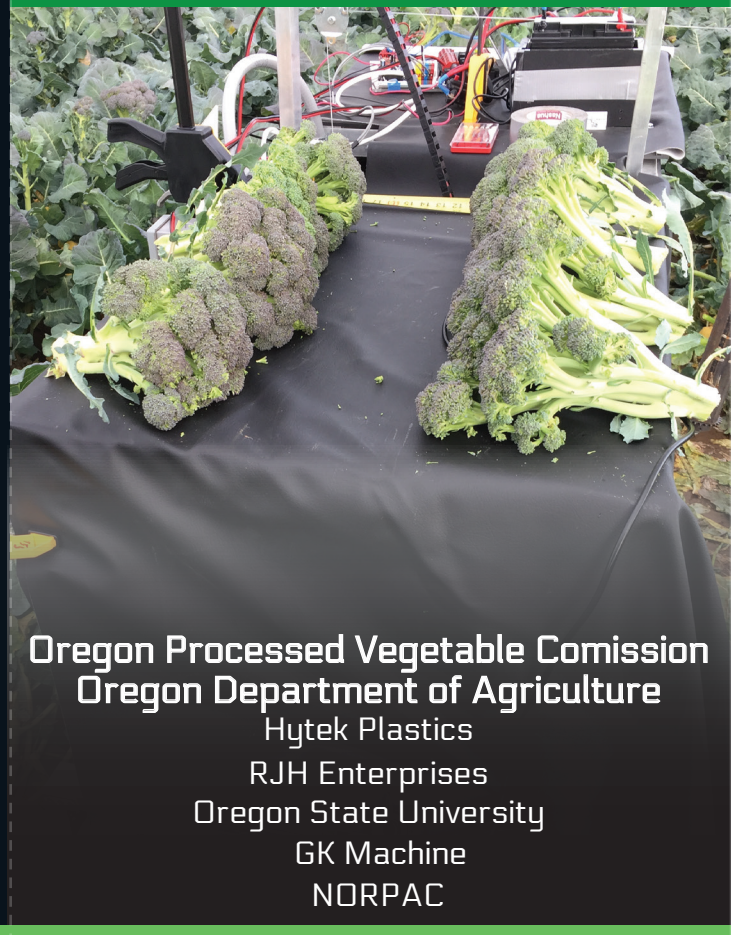
03 Modifications on farmer Ron Pearmine's custom built broccoli harvester, applied a vision system to spot the broccoli heads using an Intel SR300 camera

04 **A 955 originally designed robot built in Summer 2017 featuring an Intel SR 300 camera**

- $$ $4000 to build
- Runs on 12V battery
- Self-maintaining
- Cut accuracy within 1/8"
- 100% efficiency

Future Aspirations

We hope to create Prototype 5 (P5) which can not only **HARVEST** broccoli, but also **COLLECT** it.



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