Winter Newsletter

Hello, friends and family of CV Robotics! This is our first seasonal newsletter, and we hope it will become a regular send out to keep you updated with the team! Here's what we have done so far this season, more about our team, and what we plan to do in the future.

BroccoliBot:

The problem with broccoli isn't the flavor or the texture, it all stems back to harvesting the broccoli fresh from the fields. Currently hand harvesting is the only way to collect broccoli, and machinery can be used solely to assist processing. Hand harvesting requires large labor forces which are difficult to find and expensive to employ.

Why is money spent on hand harvesting when it is not efficient? Why not streamline the process with a machine that can do it all? The problem lies in the way that broccoli grows, with the head, the part that people eat, below the leafy canopy of the plant. Machines can't pick through the leaves to get to the head. Additionally, broccoli grows at irregular heights, making processing and collecting remarkably challenging. These two factors prevent machinery from easily harvesting it.

Regular Broccoli

Exerted Head Broccoli

There are more than a few groups working to fix these problems, and one of them is Oregon State University. OSU's solution is quite simple, have the broccoli head grow above the canopy instead of below. This kind of broccoli, called exerted head broccoli, was developed specifically for mechanical harvesting in Oregon, and will be available for growers in 2017.

BroccoliBot is a three-year independent project the CV Robotics Team is working on with the goal of developing an automated robotic broccoli harvester. Prototypes are designed specifically to harvest OSU's exerted head broccoli, and work as extensions of pre-existing farm equipment. These machines could be a much-needed solution to Oregon's agricultural industry problem.

This project doesn't just help farmers out, it also allows high school students to use their knowledge and team skills to tackle a real-world problem. This a rare opportunity that both helps the farming industry and gives budding engineers the chance to step into the growing technological world around them.

Meet the Team:

CV Robotics was founded in 2002 as a FIRST (For Inspiration and Recognition of Science and Technology) team, and always strives to improve itself by doing everything from fundraising to competing in competitions throughout the year. Its members help engage elementary and middle school age children into the technological world around them by visiting schools and leading them through science and engineering related activities. There is always a supportive atmosphere during meetings that fosters new and innovative ideas as well as teamwork among individuals and sub-teams.

The Year So Far

This year has brought about many exciting opportunities to our team. We have had the chance to do amazing things, such as touring the GK Machine facility, making owl boxes for the U.S. Fish and Wildlife Service, and are close to finishing our first prototype of BroccoliBot. These events have allowed us to create connections with more companies and organizations as well as learn about industrial engineering. The mentors and a few leaders in our team have also set up 3 different FIRST Tech Competition (FTC) teams at Cheldelin Middle School, where we help them learn more about robotics and get new experiences through competitions!

BunnyBot:

BunnyBot is an offseason, non-FRC related, competition designed to introduce new members to robotics. This competition allows new members to get acquainted with how our team works and where they would like to help on the team. We want to make sure every member enjoys what they are doing, therefore this training is very important. When FRC season does arrive our students will be better prepared for the six weeks, and be able to maximize productivity in the workplace. It also helps start a team spirit among new and old members, and help expose members to a real competition event. This is also much more relaxed environment and creates the optimal learning experience for everyone.

FRC/ STEAMworks:

FRC stands for FIRST Robotics Competition, a competition that has been around since 1989. This helps students become familiar with an actual workplace and help form better team cooperation and communication skills. We build, code, and raise money for both a competition robot and a practice robot in order to compete at large scale events along with many other school and groups. This is an amazing opportunity for a student to be a part of as it helps them gain necessary skills for STEAM related jobs, or even business work.

Pancake Breakfast:

The annual Pancake Breakfast is a major fundraiser for us that nets over $1,000 for our team. This not only helps stabilize our funds for the upcoming build season, but also helps our team reach out to our community. We had baskets that were created with donations and items from both parents and sponsors. These baskets were raffled off at the end of the breakfast. This year we amassed some amazing donations from so many different places, and we had with a wonderful turnout for the breakfast itself. Every team member had a part in making this breakfast a success, from working a shift preparing food to creating the raffle baskets.

Owl Boxes:

On the 23rd of October, the Crescent Valley High School Robotics team partnered with the US Fish and Wildlife Service to build wooden nest boxes for Western Screech Owls. In a little under four hours, our group worked to created 56 full-sized owl boxes under the guidance of Matt Stuber, the Pacific Region Eagle Coordinator. The community service project doubled as a chance for the team members to build skills in construction, machinery, and teamwork—skills that will apply to building robots for competitions. Students divided into small groups and began cutting and drilling boards in assembly line fashion. Novices were grouped with more

experienced team members, allowing them to gain teamwork skills and learn about different tools, like table saws.

During a break, Stuber described how there is currently not much information about screech owls. He talked about how the owl boxes the club was building would facilitate nesting, thereby making it easier to find and band owls for research. The owl boxes would be placed throughout the Willamette Valley to gather this data. After the break, production sped up. As the various components were completed, the groups merged to work on assembly. While before the break only four owl boxes had been completed, the team flew through the construction of the other 52 boxes. "It was really nice to see the whole team engaged in this task, and see them learning safety and teamwork while doing something to help the community," said Ben Nelson, a Crescent Valley High School junior. With more than four dozen new owl boxes, Matt Stuber is now looking for suitable environments in the region to install them.

WIN Expo:

On November 9th our team attended the Willamette Innovators Network (WIN) Expo for the second year in a row. This event was an amazing opportunity to demonstrate our robot and team for local businesses and possible sponsors. A total of forty startups, organizations, and businesses exhibited at the WIN Expo along with us. At the event, we brought along our 2016 FRC robot, Peacewalker. Visitors enjoyed driving the robot around over obstacles and launching dodge balls, which were a part of last year's game.

This robotics year has so much more to come, so come and see us at our upcoming competitions, and keep a look out for the next newsletter!

BunnyBot - December 17th, 2016

Wilsonville District Event - March 9-11th, 2017

Clackamas District Event - March 23-25th, 2017

PNW District Championship (Cheney, WA) - April 5-8th, 2017