

# Spring Newsletter

Hello, friends and family of CV Robotics! This is our second seasonal newsletter, and we hope it will keep you updated with the team! Here's what we have done since our last newsletter, how this year's competition season went, and what we plan to do in the future.

## Competition Update

### Wilsonville

Wilsonville gave us an interesting start to the competition season. We went from a total 12 inches (of movement) during our first Qualification Match to becoming Finalists. Not long after, we discovered we had multiple functioning problems with the robot. Working hard to find the problem, we soon figured out that our chain was too tight, causing our motors to draw 50 amps each and drain our battery extremely fast. To fix this, we switched out our six-wheel drive with shopping cart drive (back-powered tank drive), and were henceforth able to actively compete in matches.

To fix some driving issues, we tried using omni-wheels instead for our front wheels, but learned doing so was not the best idea after being pushed around and trapped at the end of a match. After switching back to treaded wheels, our drive base issues were resolved, and we returned to the competition to perform much better. We ended the qualification matches, ranked 19th, and were then picked to join the sixth seed alliance whose captain was team 3674, Cloverbots, and were later joined by team 1540, Flaming Chickens. We managed to win our way to the Wilsonville finals, where we lost to the first alliance. In addition, we took home the Safety Award and the Judges Award (the Do Everything award) for the event. Considering how we started out, we ended off our first competition well!



## Clackamas

Our second district event of the year, Clackamas ran much smoother than Wilsonville. We didn't run into any major robot or team problems, and ended up in ranked 21st at the end of our qualification matches. We performed quite well overall, and ended up being selected by 2811 Stormbots, the captain of the fifth alliance, along with 5085 Lakerbots. We moved on to semifinals after defeating the fourth alliance, which was captained by 997 Spartan Robotics.



During the semifinals we went up against and actually beat the first seeded alliance, with Shockwave 4488, 1425 Error Code and 6445 CTEC. We only won the first match against them, however, and we were defeated and eliminated in the next two matches against them. This might sound like a crushing defeat, but we were the only alliance to win against them, and that's something to celebrate!

## Cheney

At Cheney, we got off to a great start! We loaded 20 of our team members into a charter bus and drove for 7½ hours to Cheney, Washington. We even had one of our members working on vision during the bus ride there (Good job, Duncan!). We arrived at the venue in one piece, and our pit crew began working on improving our vision system and shooter. Our first day of qualification matches went smoothly; we only experienced minor brown-outs and wiring issues throughout a single match of many. The next day of competition started off with a bang, literally! The staff and volunteers put a trash bin in the center of the playing field filled with balls and put a sealed plastic water bottle filled with liquid nitrogen inside, and boom! The qualification matches that day were a little rougher; we experienced an increased frequency of wiring issues and brownouts in our matches but still managed to pull through and do well in the majority of them. On the third day, we only had a couple of qualification matches in which we performed fairly well, and pulled out ranked 39 out of 64 teams. We were not selected into an alliance in the end, but remained to cheer the other teams on. After the event, we ended up ranked 42nd overall in the Pacific Northwest District. Luckily, due to the dropout of some teams, we ended up getting an invitation and qualifying for Worlds in the end!

## Worlds (Houston)

We had about 12 students who attended Worlds, and it was quite the experience for them! Overall, we managed to rank 31st out of 66 teams within the Roebbling division of the Worlds competition. We did run into a few communication and wiring problems during our qualification matches, and we even had to replace our router as we were heading onto the field! Thankfully, the FTAs were very nice about it and let us replace the router. We didn't get selected into an alliance after the qualification matches finished, but we were astonished when we watched the teams representing our division win Einstein, which included a team from the Pacific Northwest. Go Viking Robotics! Despite not being selected into the playoffs in our division, we were happy with our results. We performed much better at Worlds compared to last year, even if we ended up in the middle of the pack, and the competition was still an amazing adventure for our students.



## Broccoli Bot Update

In the summer of 2016, we began a project called Broccoli Bot. Our goal was to develop a mechanic arm which can cut broccoli with minimum extra stem at various heights. It utilizes a vision system to identify the broccoli and adjust the height of the blade to best cut it. Last summer, we created our first prototype inspired by our 2015 robot to prove the concept of autonomous broccoli harvesting. This summer, our goal is to create the first full prototype from scratch that is fully autonomous -- can drive on its own with no human control. We plan to have it identify a broccoli head and adjust the blade itself to accurately cut the broccoli while moving at a steady two miles per hour.

# Outreach Update

## Hoover

This year, our team organized and set up a booth at the Hoover Elementary School Science Fair, and we utilized this opportunity to spread the ideas of FIRST and STEAM. Going to the Hoover Science fair was not only a nostalgic outreach event for many of our members, but also a great way to get the next generation interested in robotics. As we have done in the past, we had kids make gumdrop bridges using gumdrops and toothpicks. This not only gave them some sugary treats, but also got them thinking like engineers and about engineering through a fun and simple activity.



While there, we had our 2015 robot out on display for people to see, a laptop with videos of our robots, team buttons up for grabs, and brochures out for people to take. All of our members discussed robotics, and what it meant to be a FIRST team, with parents and their children. We also taught them the different levels of teams (FRC, FTC, FLL, etc.) and how they could get involved throughout their time at school.

The decision to attend the Hoover Science Fair was very last minute as it was the night before our Wilsonville competition, and the pit crew had already gone up to Wilsonville. However, despite this, our table was among the most popular and the event was very successful overall.

## Cheldelin

In late May, we had a small group go to Cheldelin Middle School to give a presentation about our team and what we do. The excited audience of 8th graders asked us many questions ranging from STEAM to what being in a robotics team was all about. Of course, we didn't just tell them what being a part of FIRST meant to us. Those who wanted to, including not only students but also teachers, got the chance to drive our 2017 competition robot. Nerds of all ages had the opportunity to test out their driving skills, and have fun while doing it!

## CO Maker Faire

The CO Maker Faire is an annual event comprised of local groups and businesses in the STEAM fields who set out to show the power of science, technology, engineering, the arts, and mathematics. Our second year attending the event, which is hosted at OSU, we had a gumdrop bridge activity for kids to teach them about engineering. We also had the base of our 2016 robot on display, as our 2017 robot had already been packed and was on its way to Worlds. During the faire, we had the opportunity to speak with kids ranging in age, their parents, and college students. Many expressed interests in either our team or robotics as a whole. One girl we met even talked about her own experiences trying to start up a FIRST team at her high school!

## OSU Engineering Expo

On May 19th, the OSU Engineering Expo offered the community an opportunity to see this year's senior engineering projects, and other local STEAM-related groups. Our team immediately saw the chance to spread the message of FIRST to a wider audience. We had a booth where we showed off our 2017 competition robot, videos about Broccoli Bot, and buttons and brochures free for the taking.



## Team Bonding

### June 4th End-Of-Year Party!

June 4th, we plan to have an end-of-the-year party with games, cards, food, movies, and more! Seniors will be sharing a few slides about their favorite times at robotics, what they have learned here, funny stories, and the times to come, like where they will attend college. It will all begin with a light snack in the Crescent Valley High School Cafeteria.

## Gaining and Keeping Members

Many students are attracted to our team simply because of the word “robot”, but how do we keep them coming back meeting after meeting despite mounting homework and other extracurriculars? Well, as FIRST proudly tells anyone who happens to visit their website; we as robotics members build more than robots. Through everything from crazy Mario Kart battles to hidden gems like King of Tokyo, we create lasting relationships that run as smoothly as a well-built robot. Team bonding, and the supportive and fun atmosphere it creates, is just as important to our team as attending competitions every year. Without our exciting, and sometimes ridiculous, team building events, we might not have a team to go to competitions in the first place. We have made a strong movement towards changing our team atmosphere to prioritize member retention instead of competition performance this year.

## Benefits of Team Bonding

When initially joining a team full of people who all seem more knowledgeable, skillful, and taller than you, it makes sense to be nervous and unsure of yourself. This can be especially true when it seems like everyone's already in one big family of nerds and you're just an outsider. To bridge this gap and welcome new recruits, we do everything from pre-season Nerf Gun wars to playing Exploding Kittens during downtime at competition. We set aside special meetings where everyone can forget about pressing deadlines, get to know each other, and lament over losing a game of Super Smash Bros. Both new and old members have a chance to meet each other as friends, instead of just running into each other as fellow members who are not really connected.

This feeling of community makes new members much less likely to leave, as they see robotics as the opportunity not to work or win, but also the opportunity to create networks and enjoy themselves. With that kind of motivation, we retain more teammates and see an increase in productivity which can only be created when everyone is working towards a common goal -- together.



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