

Meet Astro Bob

By Allan Olson

"Most of the time you will fail, but you will also occasionally succeed. These occasional successes make all the hard work and sacrifice worthwhile," FIRST Robotics Founder Dean Kamen said in 2017.

It's because of the all hard work and sacrifice that Nevis Team #3102 Tech No Tigers did and how well they made their robot, Astro Bob, work – that the team succeeded and made it to the World Championship Competition in Detroit.

At that event there will be 450 teams competing from all across the United States and, literally, the world. This is equivalent to about seven regional events occurring all at the same time. Team #3102 will compete against/with approximately 70 teams at their segment of the competition.

At the event where Astro Bob will be on the field, there will be a total of six fields with games running at the same time. Unlike the last World competition that TNT attended in St. Louis in 2016, where it was about a 20 minute walk between the pits and the field, the pits at Cabo Center in Detroit are expected

to be much closer, according to Mentor Olaf Netteberg. As a result of that difficulty in St. Louis, the team didn't have much time between rounds to do maintenance on their robot.

"When we travel to local competitions – Duluth, Minneapolis or off-season events – we know a lot of the teams and are familiar with the venue, as well," Netteberg said. "On this trip, it will feel like going to a new school. We will need to meet people, network and build relationships from the ground up."

Astro Bob is Team #3102's robot, and his strong suit is cargo handling. According to Netteberg, Astro Bob is one of the fastest robots he's seen at handling cargo in all of the competitions thus far. The robot was designed to quickly acquire and deliver the ball. In essence, it doesn't shoot it or project the ball into the rocket ship, but rather to deliver it in a careful, yet expedient manner.

"We are looking at ways to possibly modify it for Detroit. We are considering making a piece to adapt on our robot, but we haven't finalized that yet," Netteberg said on Friday, April 12.

He explained that the hatch panel is something they are

somewhat slower at delivering and securing. While it's really only a matter of seconds, in this game every second counts. "We are critiquing ourselves and focusing on how we can get better."

At the last competition, the team fixed Astro Bob with an additional camera, and while that did help, the actual physical line of sight is still way better for the operator, according to Netteberg. "We know that when we are driving by camera, we need to go slow, be patient and make it count," he said. "It might be slow, but if we can be more successful, then that's better for us. When we have physical sight lines, we can go full speed ahead."

At the regional competitions, Astro Bob completed many level three climbs, which are worth 12 points, compared to six points for a level two climb, and three points for just getting on the platform.

"At the World Competition, we expect that most everyone will be able to complete a level three climb. We can also do the level three climb in less than eight seconds, so we continue to play the game until there's about 12 seconds left, where most teams head to climb with 30 seconds remaining. One thing we've learned is that not everyone can complete a level two climb – which we can," Netteberg said. "We're studying everything that we can and looking at different ways to improve ourselves."

Astro Bob also has a phenomenal drive train, it's virtually bullet proof. "We've not had a single concern about the drive train. We've replaced the wheels, and have another set of wheels ordered because they simply get worn out. That's not something we want to have happen in the middle of the competition."

The World event will run similar to a Regional, in which they will go through practice and qualification rounds, followed by a process of selecting the final alliances, and then go through the final rounds to determine the winner. Once those are completed, the top six winners from all six fields will then compete against each other for a final face-off to determine which teams are truly the best in the world.

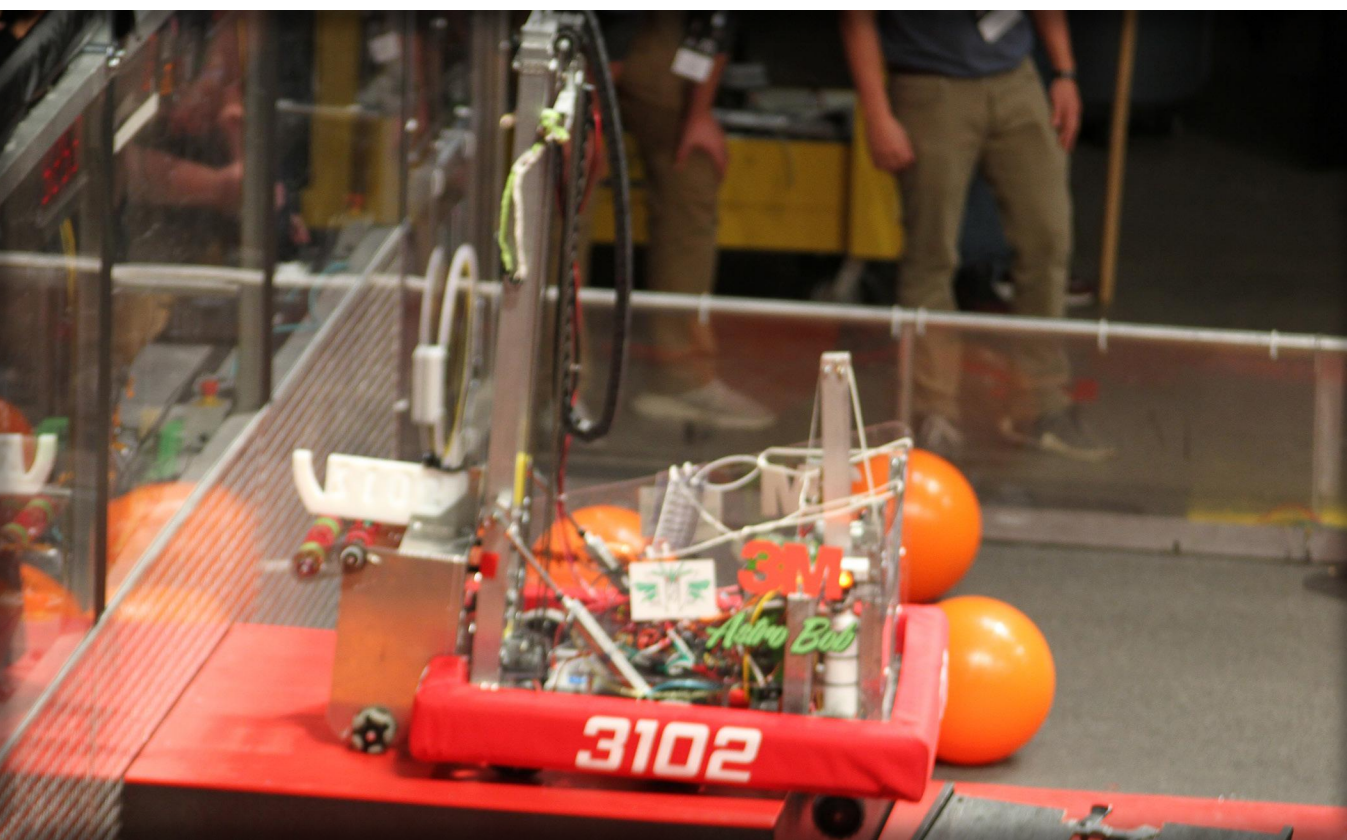
Netteberg recalled that at St. Louis in 2016 they finished in the middle of the pack "...which we were pretty pleased with."

The Tech-No-Tigers will also be using their time in Detroit to practice for the Minnesota State Event, where they will compete against the top 36 teams in the state. Of those teams, three other teams are currently tied for first place and although Nevis is ranked third in points, they technically are ranked fourth. "Everything we learn at World, we will apply to our game at State on May 18," Netteberg said.

Matches

The World match rounds can be viewed live on the internet thebluealliance.com, or through the mobile app, The Blue Alliance, which can be found on every device app store for free.

For more information, or to make a donation to Team #3102, contact any of the team members/mentors, call the school or visit the Go Fund Me page at <https://www.gofundme.com/nevis-robotics-team>.



Astro Bob successfully making the climb to the top platform during the Duluth Regional Event, on March 9.

Photo by Allan Olson.

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less expensive, but then how would we move everyone from hotel to venue every day? Ultimately, we would just end up renting a charter bus in Detroit. Departing from Nevis in the same charter bus that we will use for the next six days just made more sense logistically. Moving 40 bodies at the same time isn't easy. Basically, we will have a cushy cab everywhere we go. It was the most logical solution for us."

The cargo area on the bus will hold the team's tools, carts and other supplies needed for the competition, as well as the team members' luggage. The robot was shipped to Detroit about two weeks ago, and will be waiting for them when they arrive on Wednesday. On the way back, they will transport the robot with them on the bus. To make that happen, they will lie it on its side and pack their bags around it to provide some cushion, according to Netteberg.

In all the team will travel with 32 team members and six adults – four official mentors and two volunteer mentors. All students must be in good academic standing and exhibit good behavior. "Above all us, they are students first," Netteberg said.

Lodging

To find a place to stay in Detroit, team officials went online and did what anyone traveling to an unfamiliar area does. They did some research and found accommodations that would fit their budget and meet their needs. They did limit the kids' luggage – or rather, the amount they can carry. "We are trying to teach them life travel lessons during our trips, as well, and part of that is traveling with only what they absolutely need," Netteberg said.

TNT also received a large donation of breakfast cereal for the team, thanks to one of the families that has connections with a company. At the venue, they will dine on food in Cabo Food, or from the food trucks that will be on site.

Minneapolis

The team also recently competed at Williams Arena in Minneapolis at the 10,000 Lakes Regional Event. After the dust settled there, Team #3102 found themselves in fourth place after the qualification rounds. After the selection of final round alliances, TNT's alliance advanced through the rounds and ended up in second place. They finished with a 10-4-1 overall record.

The Tech-No-Tigers will also compete at the Minnesota State High School League State Competition at Mariucci Arena in Minneapolis on May 18.

History

This is the second time that Nevis Robotics Team #3102 has qualified for the World Regional Robotics FIRST Championship Competition. They last competed in 2016 in St. Louis. The team was founded in 2009. The team's overall record for the 2019 season is 22-7-2 in official play for the year.

Congratulations, Tech-No-Tigers, and best wishes for your time in Detroit. We are proud of you!

GOOD LUCK!!!

GO TEAM!

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