

# Marin County's FIRST Robotics Team 2551 is all Geared Up For Competition!

"Only 5 more minutes to go and we're officially done!" says Robotics Mentor, Mike Sousa as he watches the clock approach midnight on February 17th. "Time to bag it up!"



As the robot is sealed and tagged, marking its completion, the Penguin Empire Robotics Team that meets at San Marin High School is ready to compete at the annual FIRST, (For Inspiration and Recognition of Science and Technology) Sacramento Regional FIRST Robotics Competition (FRC) on March 20-21 at UC Davis.



“It’s like something out of Mad Max!” says a mom of a San Marin team member. “The stands are filled with fans cheering as robots race around to complete these wild maneuvers. There’s nothing like it and it’s electrifying!”

Penguin Empire Robotics, which is a club at San Marin High School in Novato, is the only FIRST FRC affiliated Robotics team in Marin County. It began in 2007 under the guidance of mentors Mike, Sousa and Tim Buss. A current roster of about 20 members, (a majority from the STEM program) and more recently Novato High, meets every Monday night throughout the school year.

But, in early January, everything kicks into high gear for the 6-week “Build Season.” On January 3<sup>rd</sup>, the FIRST organization unveiled this year’s FRC (FIRST Robotics Competition) challenge called, “Recycle Rush” to over 3,000 teams of 75,000+ high school students in all 50 states. With an animation of the game challenge, a booklet of guidelines and an issued box of a common kit of parts, the build season officially began.

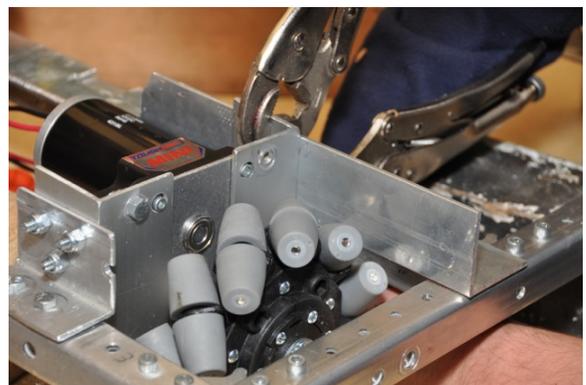




The students and mentors gathered 7 days a week for 2-8 hours, depending on the day, to design, machine, build, program and test their robot. For this year's competition, they needed to design their robot to lift, move & stack various containers in specific zones within a designated 54 x 27 foot arena in 2.5 minutes. The students learn a lot about leadership, teamwork, and trouble shooting to meet the 6-week deadline.

Always the underdogs going up against the well-funded and sophisticated teams from Silicon Valley, this year saw much more support by team parents and extended family and friends. Through their recent Gofundme campaign, and some key local sponsors, the students were able to raise enough funds to update computer equipment, cover event fees and purchase building materials.

The most exciting and instrumental purchase for this year's design was the "mecanum wheels." These are very trick wheels that not only allow the robot to move forwards and back, but sideways as well.





“It’ll be a different competition than ones in the past,” says Sophomore Poh Maga. “It’s a lot more precision based. This, along with wheels that can move sideways, required a different approach to the construction and design.”

“It was a challenge programming this year’s mecanum wheels,” says Sophomore programmer and team VP Jessica Walters. “We had to program 4 different inputs to control the X and Y axes, rotation and gyro angle. But the most exciting part was programming the autonomous mode.” The autonomous mode is where the robot is programmed to drive itself for 15 seconds at the beginning of each round.”



During the rest of the year, the team participates in various outreach events such as the Northern California Discovery Fair at Sonoma Fairgrounds and demonstrations for middle schools. “It’s fun to show people how cool these robots are,” says team president Manny LaCarrubba. “A big part of our mission is to inspire others with science and technology.”

At this time, the FRC in March is the only competition the team attends. They aspire to participate in more competitions and maker’s fairs. They have their eye on one day attending the FRC National Competition held in St. Louis.

The team is looking to partner with area businesses for sponsorship. With Silicon Valley so well represented, there's no reason why these young engineers couldn't find the same level of support here in Marin County.

The FIRST Robotics Competition at UC Davis is free and open to the public. It's an exciting event like no other and is truly a "varsity sport for the mind."

Please visit Penguin Empire Robotics at:

[www.penguinempirerobotics.com](http://www.penguinempirerobotics.com)

Facebook: [San Marin Robotics Club](#)

FIRST Organization: [www.usfirst.org](http://www.usfirst.org)

FRC Competition at UC Davis: [www.firstsac.org](http://www.firstsac.org)