

Robotics is for Everyone

How we expanded access to VEX robotics by spreading awareness
with the help of local and federal government officials



6627X - Knight Time Bots X - Tustin, California
By Zain Karamally

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Mission Statement

Our motivation and plan of action for making a difference



Mission Statement

Going into the 2023-2024 competition season, we knew that we wanted to embody excellence in all of our team's activities. This includes not just competition and documentation, but also advocacy and community service.

Our robotics organization places a strong focus on inclusion because we know that VEX isn't just about winning competitions, but also providing high quality engineering education and experience to thousands of students around the world. The main problems with equitable access to robotics are monetary restrictions and language barriers. We resolved to increase access to robotics for kids in our region by advocating for awareness of VEX robotics in the hopes that VEX programs could be supported by future legislation at the local, state, and national levels.



Below is our team (6627X) and our sister team 6627C:



Check out our team website and instagram!



Plan of Action

We split our plan of action into 3 sections so that we could impact the most people through both direct involvement and legislative action:

1. Mentor middle schoolers in our school district who already have access to VEX to help develop their preexisting engineering skills.
2. Help run local tournaments to provide competitive experience to all students.
3. Present to local and federal government officials to outline the need for STEM education through VEX robotics and expand competitive robotics to new audiences.



Our team at the Mall of America Signature Event with friends from our region!



Our team after winning the Excellence award at the Hollywood Signature Event.

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Our Process

How we went about making a difference in our community





Mentoring

The first step of our journey was mentoring local students who were part of middle schools in our school district. These students already have access to robotics equipment, but we hoped to teach them how to apply principles of engineering to robotics, and work more efficiently in teams.

We began our mentoring journey over the summer at the Tustin Summer Academy, working with students in grades 4-8 in both VEX IQ and VRC. We guided our students in the construction, programming, and documentation of their first competition robots. All five of our team members volunteered over a month, for a cumulative total of 300 hours.





Advocacy

We developed a plan to reach out to government officials over 3 levels:

- Tustin Mayor Austin Lumbard

We decided to attend a city council meeting in January to advocate for the importance of STEM education in underserved communities around us and impact future city policy. Advocacy is most important at a local level as it has the highest possibility of leading to direct change.

- 40th District of California Representative Young Kim

We also contacted House Representative Young Kim. She has a history of supporting STEM programs in Orange County, especially outside the classroom. Representative Kim can help us bridge the gap between local advocacy and national policy.

- California Senator Alex Padilla

We contacted the office of California Senator Alex Padilla because Senator Padilla doesn't just have influence in California; his voice as a Senator affects national policy.



Mr. Lumbard



Mr. Padilla



Mrs. Kim



Advocacy

We wanted to present how our government can make VEX robotics more accessible and widespread by creating individual presentations to fit the time we were given to address each official.

- We had 3 minutes to deliver a short memorized speech to our city council, including our local mayor, without visual aids like slideshows or videos. [We wrote this script](#) in preparation for our presentation on the evening of Tuesday, January 16th.
- We received a response from the legislative correspondent for Representative Young Kim, who agreed to a virtual meeting with us, and to whom we could showcase a [short slide presentation and video](#).
- We weren't able to confer directly with Senator Padilla, but his office assured that he acknowledged our call for expansion of STEM education through VEX.

Tustin City Hall



United States Capitol Building



03

Results

How our actions translated to
real life impacts





Mentoring

After the Tustin Summer Academy, we kept mentoring students from Legacy, Hewes, and Pioneer Middle School. We could not be more proud of the success our students have had this year. All of our mentees have greatly raised their level of competition, and achieved incredible success.

This year, the 7 teams and 40 students we mentor have earned:

- 5 Excellence Awards
- 3 Tournament Champions
- 5 Tournament Finalists
- 2 Skills Champions
- 2 Design Awards
- 1 Amaze Award
- 1 Innovate Award
- 2 Judges Awards



Legacy teams 393V and 393W after winning a competition together!



Pioneer team 6722A with the Innovate Award



Tournaments

Our School runs 2 tournaments a year. However, after our competitions, we end up with 4 full game fields, and nothing to do with them. This year we resolved to use our tournament fields to provide experience others by running numerous VRC tournaments. We provided fields for and/or helped set up 12 tournaments, notably the:

- Hollywood Blockbuster Signature Event, which 96 teams attended.
- Santa Ana Unified Kickoff Tournament, the first ever tournament in Santa Ana Unified School District, and the first tournament for every competitor in attendance.

We set up and took down fields, provided custom trophies free of charge, and volunteered as referees, tournament managers, and judges throughout Southern California. We have personally taken steps to achieve our goal of expanding access to competitive robotics by providing experience for 450 teams, and upwards of 2000 students.

Team Members Emceeing at the Over Under Legacy Event



Our entire team refereeing at our home event, the Roundtable Robotics Challenge





Advocacy

We began at the Tustin City Hall, where we made a 3 minute speech to the members of City Council at a bimonthly town hall meeting. Our speech script was linked in our process slide, and a video of our presentation can be found [here](#).

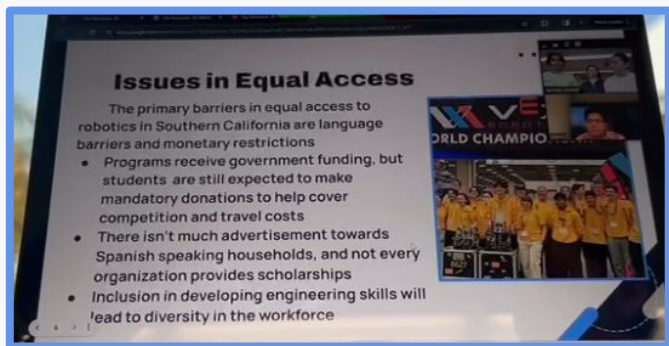
- We were very pleased with the results of our presentation. We acquired the personal email of Mayor Pro Tem Ryan Gallagher, along with a commitment to connecting us with engineering companies that have a vested interest in expanding STEM education.
- Unfortunately, our city is dealing with an emergency; a naval hangar in the area caught fire, and the resulting cleanup cost the city 54 million dollars, making monetary support impossible.
- Our goal was to extend the awareness around STEM initiatives in our local community, encouraging future investment, which we accomplished by acquiring the support of local engineering companies thanks to the Mayor Pro Tem.



Advocacy

The next step was our virtual meeting with the legislative correspondent for congresswoman Young Kim. We showcased what VEX robotics is about, and how it helps students build STEM skills. Our presentation was well received because the congresswoman has a history of supporting STEM initiatives outside of school.

We achieved our legislative goal of spreading awareness among representatives by making Representative Kim's office aware of our mission and program. Because the congresswoman is so focused on STEM initiatives, making her aware of VEX Robotics has a high chance of translating to direct governmental support based on her policy history.



A picture of our Zoom meeting with Mrs. Kim's Office.



An article in the our school's newspaper about our team.



Custom trophies and banners we made for our home tournament

Advocacy

Our efforts in advocating for STEM awareness were a motivating factor in Congresswoman Kim's introduction of a bipartisan resolution to designate April as "Mathematics and Statistics Awareness Month". Mrs. Kim stated "I am proud to lead the bipartisan effort to recognize the importance of math and encourage Americans that we need to further invest in STEM educational opportunities".

We played a role in encouraging STEM education nationwide through the establishment of Mathematics and Statistics Awareness Month. It allowed us to impact students not only in our vicinity, but around the country by increasing awareness through STEM education. Increased awareness has tangible impacts because it directly leads to an increase in funding and focus upon STEM education, allowing it to grow into low-income and non-English speaking communities.

Representative Young Kim is a well known advocate of STEM Education.



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Official Documentation

Confirmation of our efforts by
government and school officials



[PDF Link](#)

COMMITTEE ON FINANCIAL SERVICES

SUBCOMMITTEE ON FINANCIAL INSTITUTIONS
AND MONETARY POLICY
SUBCOMMITTEE ON NATIONAL SECURITY,
ILLEGAL FINANCE AND INTERNATIONAL
FINANCIAL INSTITUTIONS

COMMITTEE ON FOREIGN AFFAIRS

SUBCOMMITTEE ON THE INDOPACIFIC
SUBCOMMITTEE ON AFRICA



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January 18, 2024

To Whom It May Concern:

I am honored to write on behalf of the Foothill High School 6627X robotics team in support of the team's efforts in the Vex Robotics Competition. This team has demonstrated significant accomplishments both inside and outside the classroom, proving them to be future leaders in the STEM field. At school, they have dedicated their time and efforts to programming and building their robot while conducting outreach to encourage their classmates to join their team. Outside of school, Team 6627X also stands out after volunteering over 350 hours at the Tustin Public Schools Foundation robotics summer academy, leading two of their own tournaments, and mentoring local middle school programs. Their tremendous efforts and achievements serve as a platform for this competition and their STEM peers throughout the state.

I highly recognize Team 6627X without any reservations. They will continue to do well in their endeavors to become future leaders.

Sincerely,

Young Kim
Member of Congress

[PDF Link](#)



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NORTH TUSTIN CA 92705

PHONE: 714. 730. 7464
FAX: 714. 573. 9376

Monday, January 29, 2024

Mr. Troy Fresch
Assistant Principal, Foothill High School
714-730-7464
tfresch@tustin.k12.ca.us

To Whom It May Concern:

I am writing this letter on behalf of Foothill High School Robotics team 6627X, which includes students Zain Karamally, Sydney Hodge, Alexis Chew, Arianna Ruiz, and Andie Rustad. These students have done an outstanding job in fulfilling their mission to increase access to robotics for those who struggle with financial and language barriers.

The team has invested time, energy, and resources to mentor local middle school students, introducing them to the excitement and complexity of highly competitive robotics. They volunteered at our district's Summer Academy, which serves students in grades four through eight. Team 6627X guided students through the construction, programming, and documentation process.

In addition to their volunteer work, they are advocates for robotics in public education. They have spoken on the local level at city council meetings to educate policy makers on the benefits of robotics as well as through written correspondence with California Senator and Representatives.

Foothill High School is extremely proud of these students as they serve as excellent role models for their peers and positive advocates for robotics. I am more than confident their efforts off the robotics field will be equal or more successful than their efforts on the field. Foothill High School fully recognizes team 6627X as worthy of your organization's Student Advocacy Award.

Sincerely,

Troy Fresch

Robotics Volunteer Hours

Total: 606 Hours

Student Name: Zain Karanitsky
TOTAL: 128 hours
Supervisors Signature: *[Signature]* Date: 11/30/24
[Signature] Students Signature: _____

DATE	TIME IN TIME OUT	SUPERVISOR SIGNATURE
6/11/2023	8:00-3:30 x 16	<i>[Signature]</i>
6/12/2023	9:00-2:00	
6/20/23	9:00-2:00	
10/11/2023	9:00-5:00	
11/08/2023	3:00-5:00	
12/08/2023	7:00-8:40	
1/14/2024	9:00-7:00	
1/20/2024	9:00-6:00	
1/25/2024	10:00-2:00	
1/27/2024	9:00-6:00	

Student Name: Andie Ruetzel

TOTAL: 97.6 hours

Supervisors Signature	Date	Supervisor Signature
<i>[Signature]</i>		
	TIME IN/ TIME OUT	
6/12-7/7/2023	8:00AM - 12:00PM (1st)	
11/4/2023	7:30AM - 3:30AM	
12/6/2023	6:30AM - 3:00PM	
12/5/2023	8:00PM - 3:00PM	
1/20/2024	6:30AM - 3:00PM	

Student Name: Arpana Ruiz			Date: 11/12/22	
TOTAL 25.8 hours			Teacher Signature: _____	
Supervisor Signature: _____			Date: 11/12/22	
DATE	TIME IN	TIME OUT	SUPERVISOR'S SIGNATURE	
9/12/22	777-0223	800-1238 x 16		
9/12/22	0223	800-800		
11/12/22	730-400			
11/12/22	800-400			
12/12/22	1000-200			
12/12/22	800-530			
12/12/22	530-800			
12/12/22	800-1000			

Student Name: Sydney Hodge
 TELL 351-2000
 Supervisors Signature _____ Date _____
 Student Signature _____ Date 1/28/2023

DATE	TIME IN DATE	SUPERVISOR SIGNATURE
6/11/2023	8:50-12:30 x 16	<i>Sydney Hodge</i>
7/20/23	3:50-5:00	
7/11/2023	10:30-5:00	
7/14/2023	10:30-5:00	
8/30/2023	9:50-2:00	
9/20/23	9:50-2:00	
9/14/2023	3:50-5:00	
9/21/2023	3:50-5:00	
10/5/2023	3:50-5:00	
10/17/2023	2:50-5:00	
10/26/2023	8:50-5:30	
11/11/2023	8:50-5:30	
11/28/2023	2:00-5:00	
12/01/2023	12:00-4:00	
1/14/2024	8:50-7:00	
1/20/2024	8:50-4:00	
2/10/2024	10:30-5:00	
1/26/2024	4:50-9:00	
2/27/2024	8:50-6:00	

[illegible]