



CAREER READINESS

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TABLE OF CONTENTS

01 *Our Career Choice*

02 *Comparing Our's and Professional's
Engineering Processes*

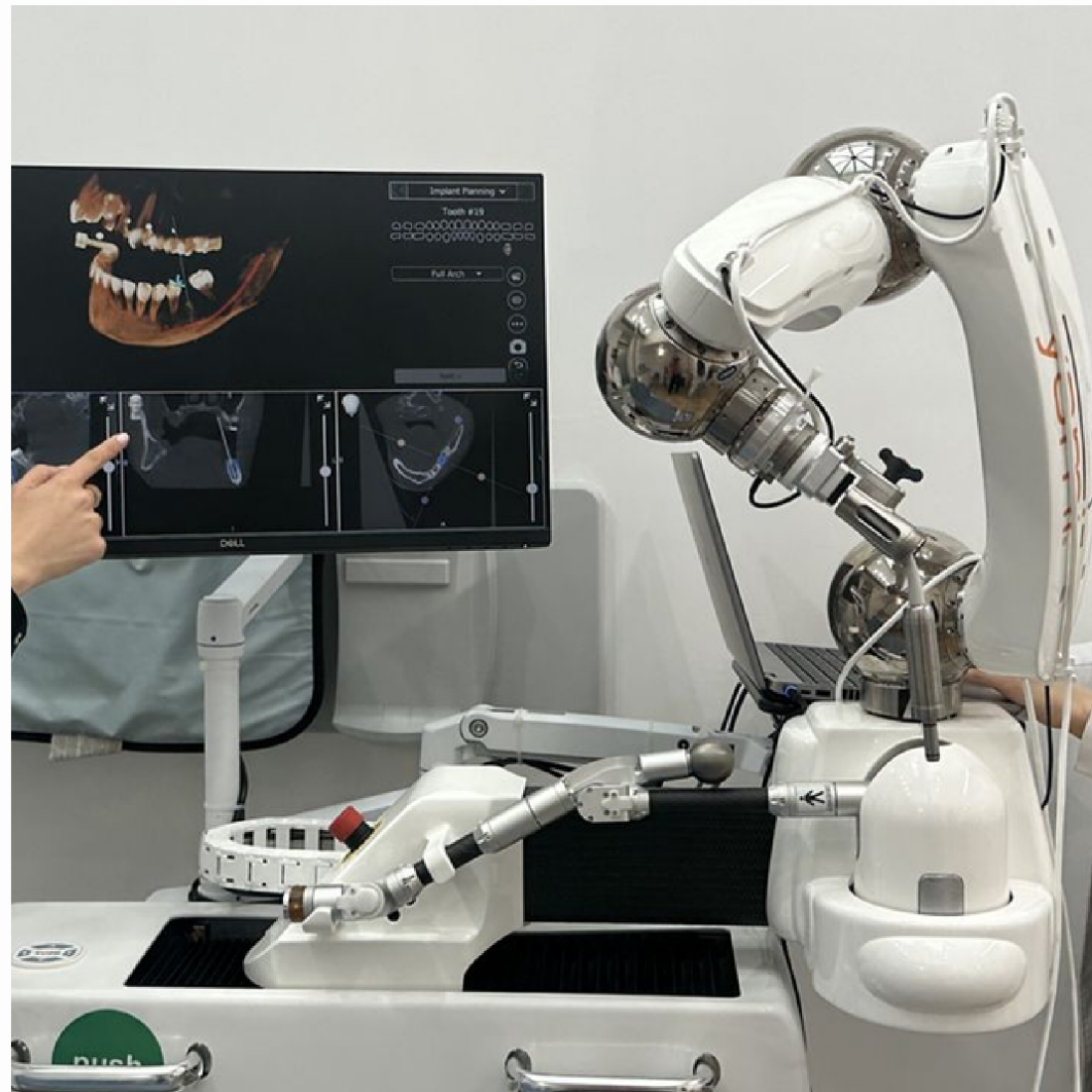
03 *Applying Steps for the Engineering Process*

04 *How Participation in VEX Robotics has
Prepared Us for Dentistry*

05 *Credits*

06 *Citations*

OUR CAREER CHOICE



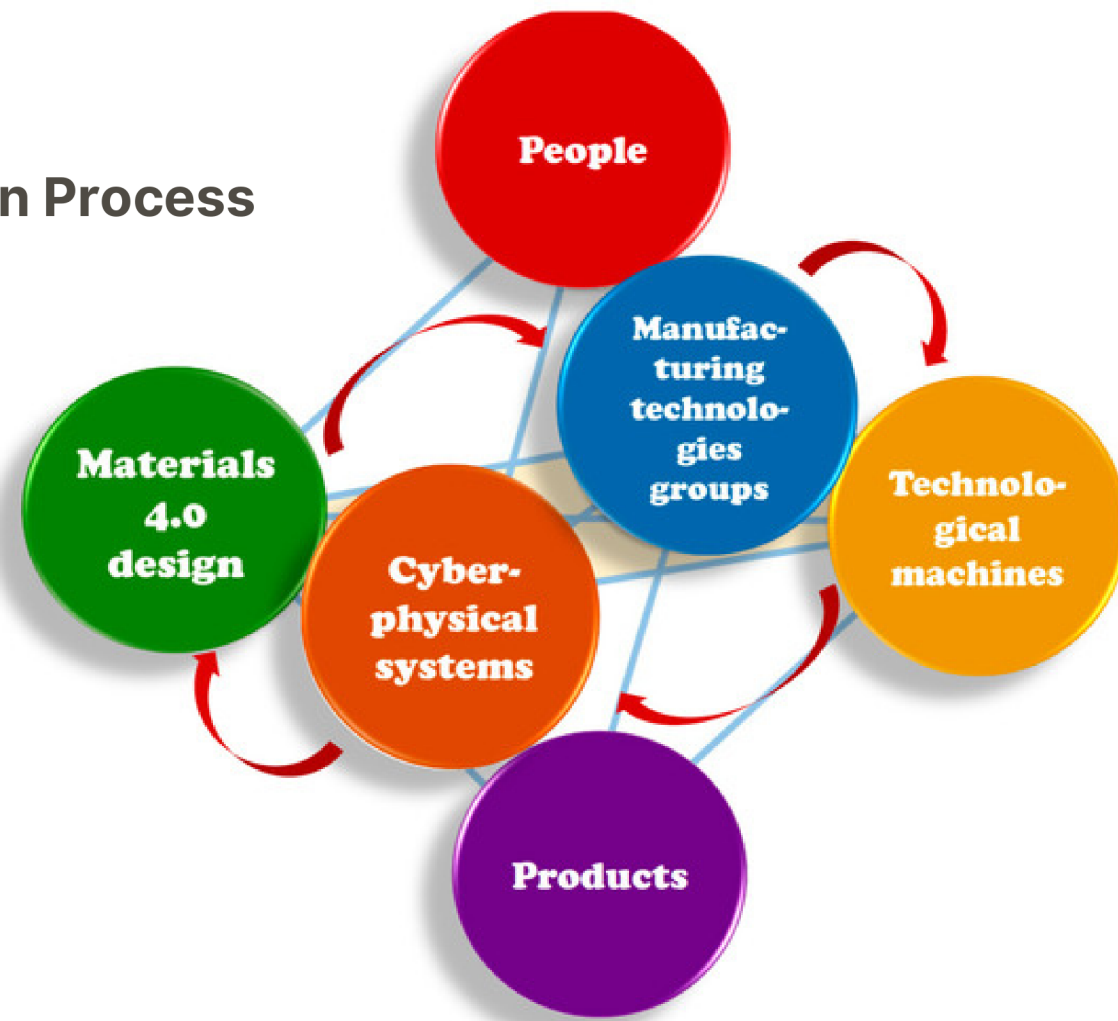
We opted for dentistry due to the importance of human health and hygiene, and the significant relation to robotics. As our world is gradually modernized, more and more STEM related methods are used in different jobs. Now, robots are an integral part of dentistry, and our participation in VEX Robotics prepares us for that.

Robots assist in tasks like implant placement, and dental surgeries, ensuring a higher level of precision than traditional methods. Robots are also used to scan and create an image of our teeth. This could show problems with our oral hygiene or structure, which allows a solution to be implemented to improve health and appearances.

In conclusion, the three of us selected a career that incorporates robotics into human wellness in order to help people in efficient and technical ways. Learning about and joining a world of robotics really inspired us to choose this career.

COMPARING OUR'S AND PROFESSIONAL'S ENGINEERING PROCESSES

Dentistry Design Process

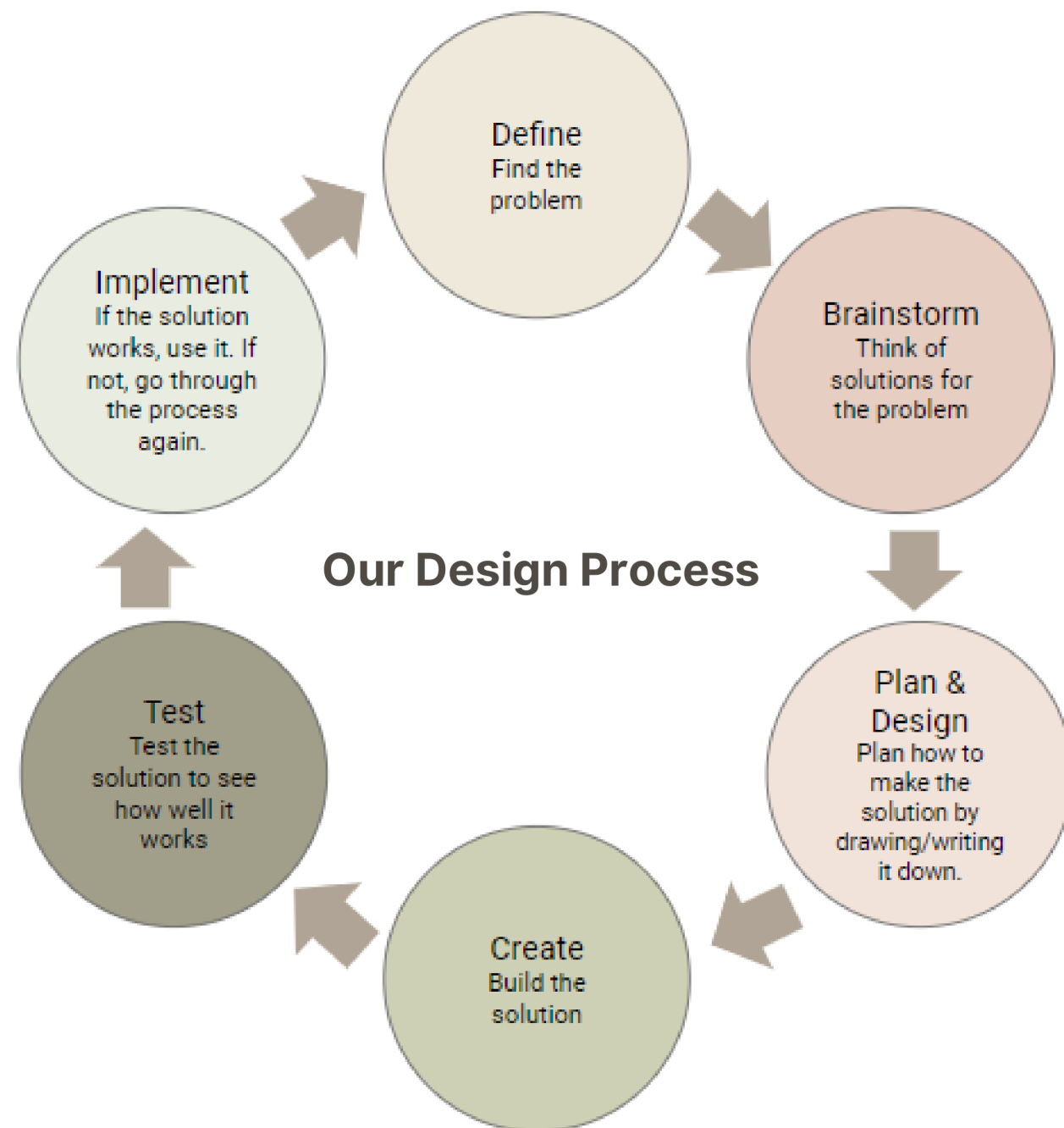


In the engineering process of a dentist, they check and examine the patients first. Next, they send out information to the manufacturing technologies groups, where they analyze the problem and solve it. The dentists later move on to the technological machines where they scan teeth to create things like crowns, dentures, and aligners, etc. They repeat this process many times until they are satisfied before they use these solutions to finalize and create products that may benefit their patients and improve the efficiency of their work environment.

“The process of design starts with exploration, but ends with refinement. The best designers carefully move from one to the other, making sure they spend enough time exploring before locking themselves into a design approach.”

— Jared Spool

COMPARING OUR'S AND PROFESSIONAL'S ENGINEERING PROCESSES



Firstly, in our engineering process, we define the problem. Next, we come up with solutions to the problem. We then plan and design how we will create the solution by drawing or writing it down. Then, we create the solution that we designed. When construction is finished, we test the solution multiple times to see how well it works. If the solution is efficient and durable, we implement it on our robot. If not, we go through the process again until we find a solution that works.

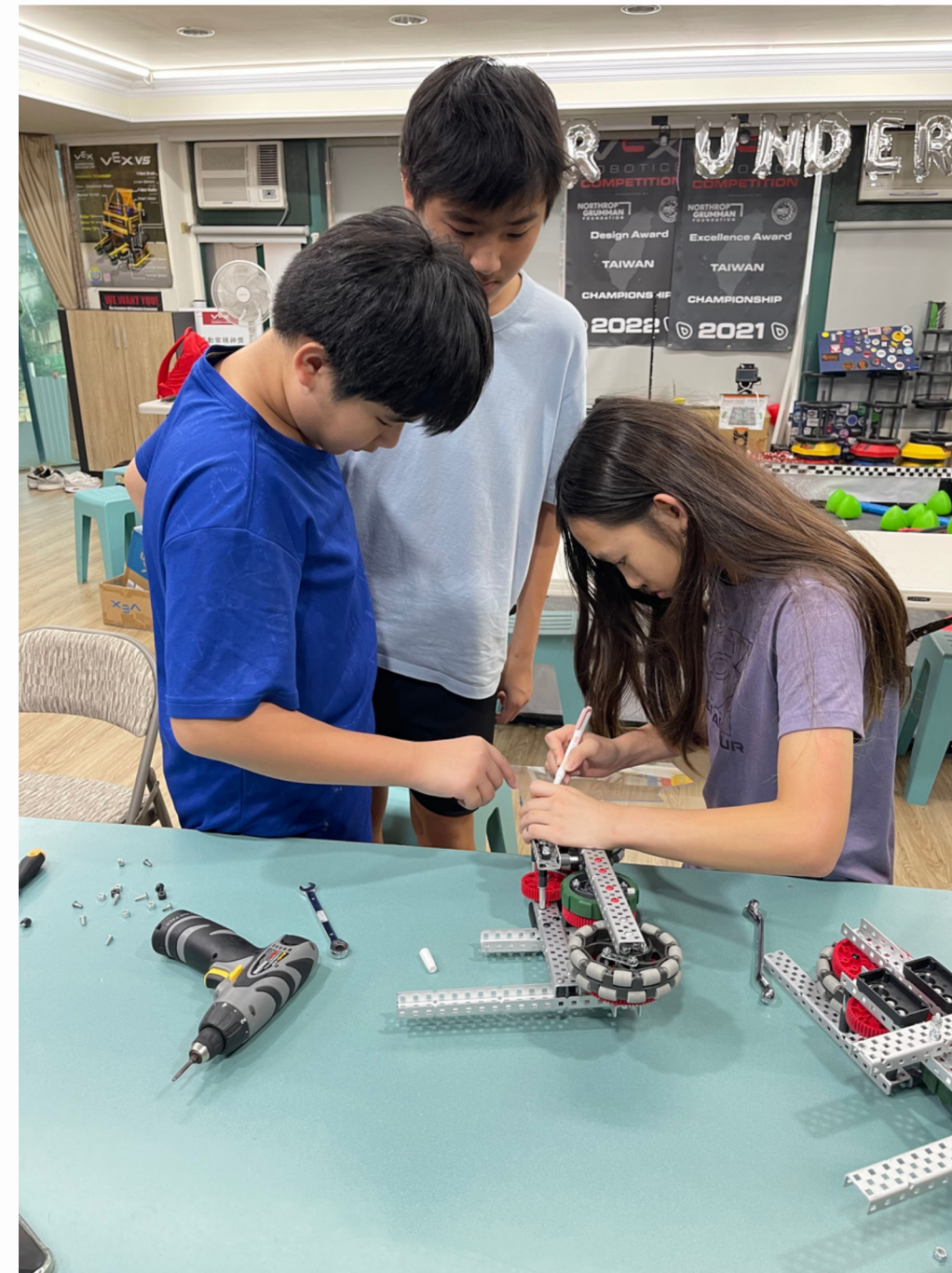
"There's nothing I believe in more strongly than getting young people interested in science and engineering, for a better tomorrow, for all humankind."

— Bill Nye

COMPARING OUR'S AND PROFESSIONAL'S ENGINEERING PROCESSES



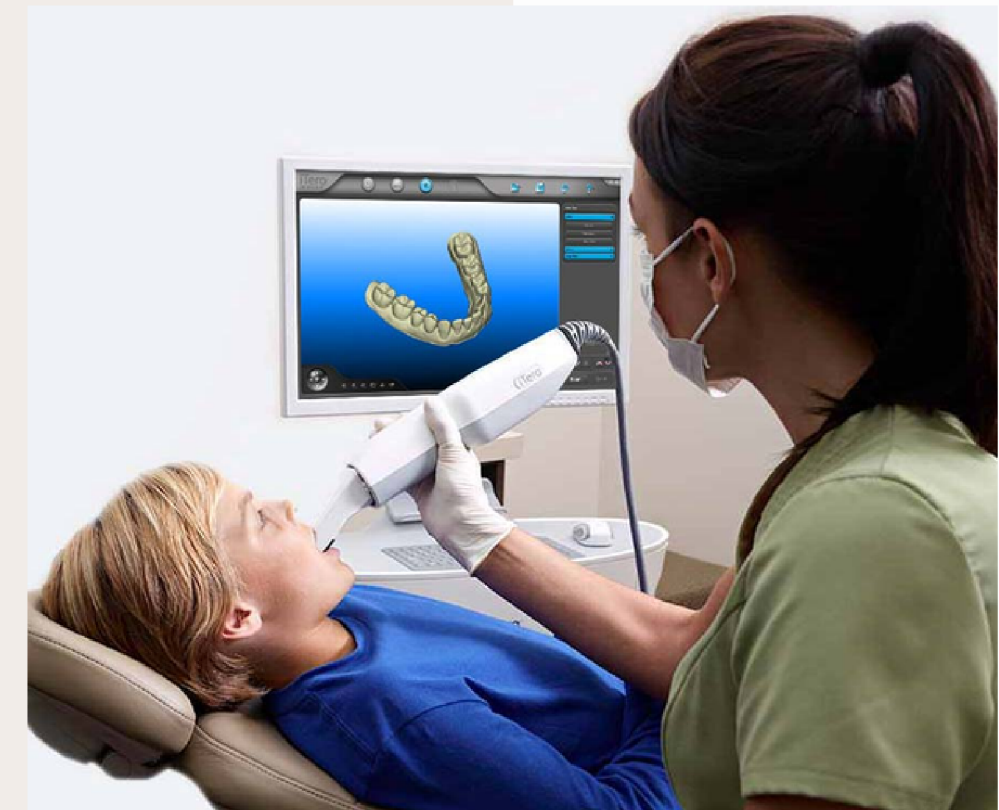
With dentists first analyzing the patient to figure out the problem, we first define our problem. We discuss, what the problem is, and see what is affecting our robot to create this problem. Next, for dentists, they usually already have a procedure to take on when coming across a certain problem. Meanwhile for us, we spend time discussing, analyzing, and figuring out solutions for our problem.



Then, we create and test our solution on our robot. This step is common in the process of a dentist. They test and create a product that is most suitable for their patient. If the product fits their criteria they may recommend the product to their patient. The same thing goes with our building process, after coming up with a solution, we implement it onto our robot to see if it solves our problem.

APPLYING STEPS FOR THE ENGINEERING PROCESS

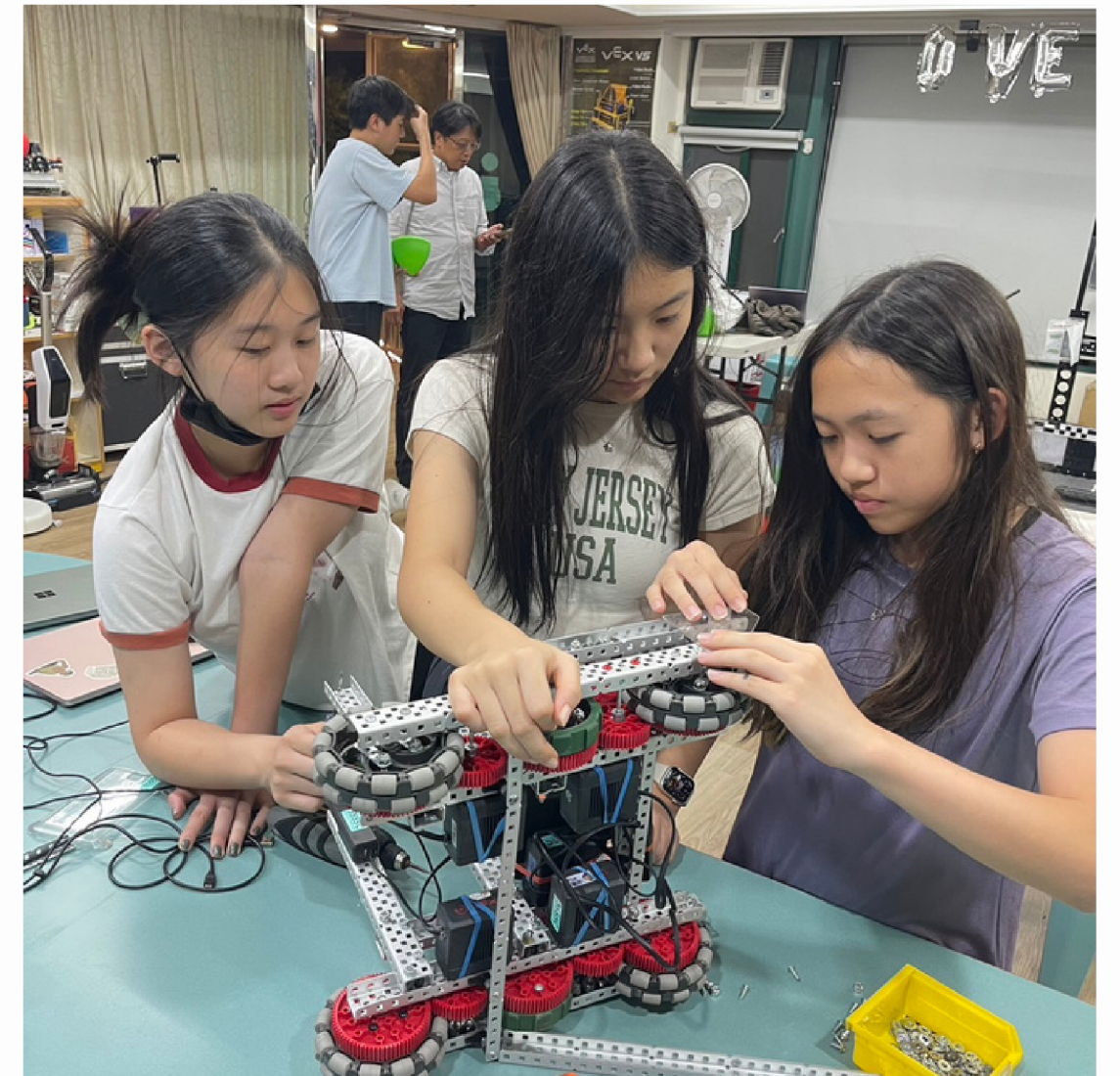
We reached out to a dentist at a local dental clinic and asked her some questions. Professional dentists begin by examining their patient's teeth, using an examiner or x-rays. Then, dentists send out the problems to different groups/branches dentistry is separated into, as each group has a different specialty, making the whole process much more efficient. They detect within the patient's mouth for further analyzing. After analyzing and discussing with other groups, they create products that help their patients as well as the efficiency of their work environment.



HOW PARTICIPATION IN VEX ROBOTICS HAS PREPARED US FOR DENTISTRY

Participating in VEX robotics prepared us for the engineering process that the dental industry may experience, such as identifying problems, brainstorming solutions, and going through trial and error to find a suitable solution. VEX has taught our team how to break down difficult problems and thoroughly research and test solutions, an ability that can be implemented in several different careers. We are able to effectively manage our time, and persevere no matter the outcome. We now have a better sense of collaboration, and are also able to work independently. Through robotics we have all developed critical thinking skills and analytical perspectives, which are highly sought after in dentistry.

These fundamental skills can be applied in any STEM career, and thanks to VEX Robotics, we are prepared earlier on. We hope to improve ourselves as we continue on this path, and perhaps one day reach our goal and help others through use of robotics.



CREDITS



Tiffany Hsu

Tiffany is our team's programmer and driver. She is always willing to try new things and helps out whenever needed. She is an integral part of our team, has a strong passion for robotics, and makes sure everyone is on task.



Audrey Chu

Audrey is our team's main programmer, finding ways to most efficiently score points on the field. She is a dedicated member and is always coming up with unique solutions, incorporating the design process in each step she takes.



Mia Guo

Mia is our team's notebook organizer. She takes everyone's thoughts and ideas as well as progress and puts it in the engineering notebook in a clear manner. Her attention and dedication make her a crucial member of our team.

CITATIONS

<https://ny1.com/nyc/manhattan/news/2023/05/25/two-dentists-lead-the-charge-in-robotic-dentistry>

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<https://quotefancy.com/quote/1694870/Jared-Spool-The-process-of-design-starts-with-exploration-but-ends-with-refinement-The>

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<https://www.hechler.com/treatment-info/digital-dental-impressions>

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