



Engineering

IN THE MINDS OF

Tesla

“ Constantly think about how you could be doing things better. Keep Questioning Yourself. ”- Elon Musk

1021M

West Vancouver BC

Parv M and Charlie K



Parv Mathur Age: 13

1st year in Robotics

“Building with VEX, I’ve found my passion and want to compete at the Vex IQ World Championship”

Meet The Team



Charlie King Age: 13

1st year in Robotics

“My goal this year, is to learn as much as possible and make to Worlds”



Introduction

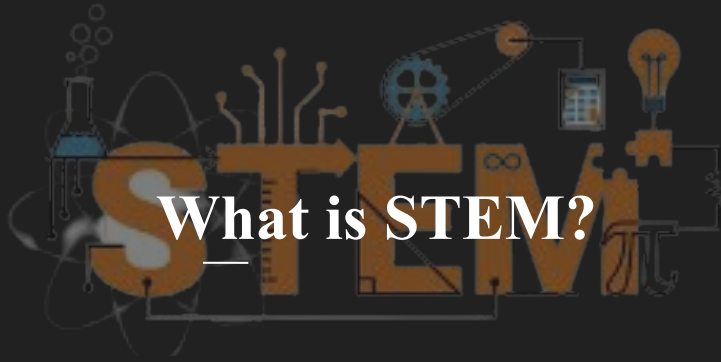
The goal of this presentation is to explore the similarities between the VEX IQ design process and the STEM design process. The company I selected to research for this challenge is Tesla, an electric car company who continues to revolutionize the world with their advancements in technology.



Why Tesla?

Why choose Tesla? What's the importance?

Tesla has brought the car industry to new heights and has transformed the meaning of innovation. Tesla's dream of changing the world with their game changing electric vehicles is unmatched and that is what sets them apart.



What is STEM?

STEM is an acronym that stands for science, technology, engineering, and mathematics. Having a job in the STEM field requires to be innovative, develop problem-solving skills, and requires critical thinking. To have a job in the STEM industry it is essential to have a desire for discovery and a passion for learning as STEM is constantly evolving.



Design Process

Brainstorm

Design

Build

Test

Improve

During the brainstorming stage is when we consider the objective of the game and develop ideas for a robot that best fulfill the requirements.

Next, during designing, we start sketching out plans into our engineering notebook. Then, we start to test ideas and cut them down till we have the one.

The build step in the VEX IQ Design Process, is where you start to build your robot. As we assemble the ideas, we are continually refining them as new challenges arise!

The test phase is arguably the most important part of the Design Process. This is when you analyze and evaluate every little thing on the robot. The test stage is a crucial step that allows us to identify areas of improvement.

Lastly, the improving stage is where we overcome challenges that we encountered during testing. Upgrading and enhancing the robot allows us to fix any flaws on our robots and prepare it for tournaments!



Design Process

Empathize

Think about what the company's goal is and what the point is of building the car. In Tesla's case it is to make the environment a better place. Their ambition is to reduce climate change and our consumption of resources to protect Earth.

Define

The Define Stage in the Tesla Design Process is figuring out what to do to solve the problem. For Tesla it is "How can we make cars that can stop the pollution problem around the world."

Ideate

Come up with solutions to the problem and any other ideas. For their solution, Tesla came up with reliable electric cars with fast electric charging stations everywhere.

Prototype

You start building, finding weaknesses and fixing them. Tesla hires only the best to get them to make prototypes and the first car Tesla came out with was the Tesla Roadster in 2008.

Test

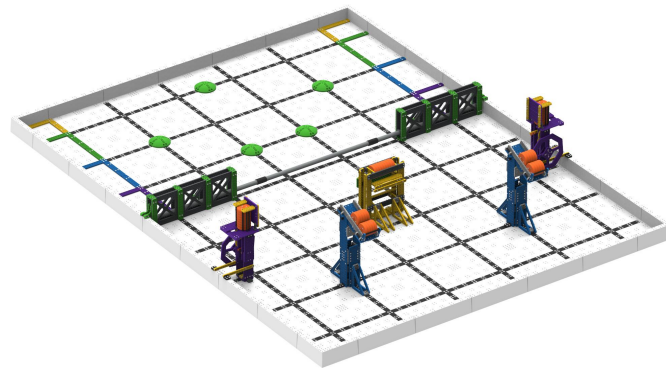
Testing and improving the robot is one of Tesla's most vital steps in their design process. This is when they cut out ideas and refine what they are doing to make the best possible car for their customers.

Empathise



These two steps in both design process are very similar to each other. You need to think about what you are doing and what your goal is.

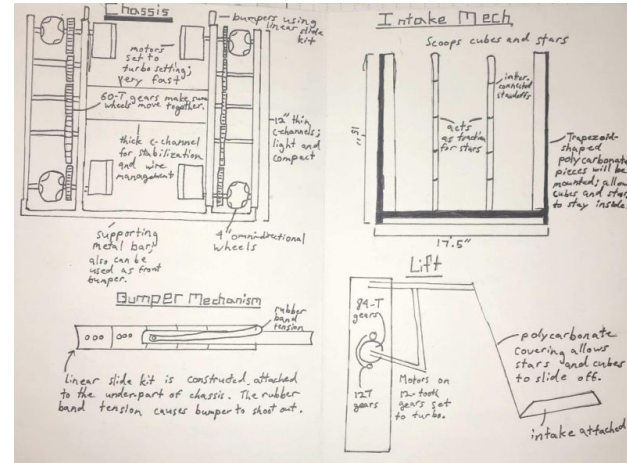
Brainstorm



Define

The Define and Design Stages in both Design Processes is where you think about designs to solve each obstacle you have to overcome. It allows you to practice innovating and creating unique builds.

Design



Ideate



This phase of the Design Processes are similar in some ways. You come up with more ideas, refine them and start to build them. Improving your build is the main factor during this step.

Build

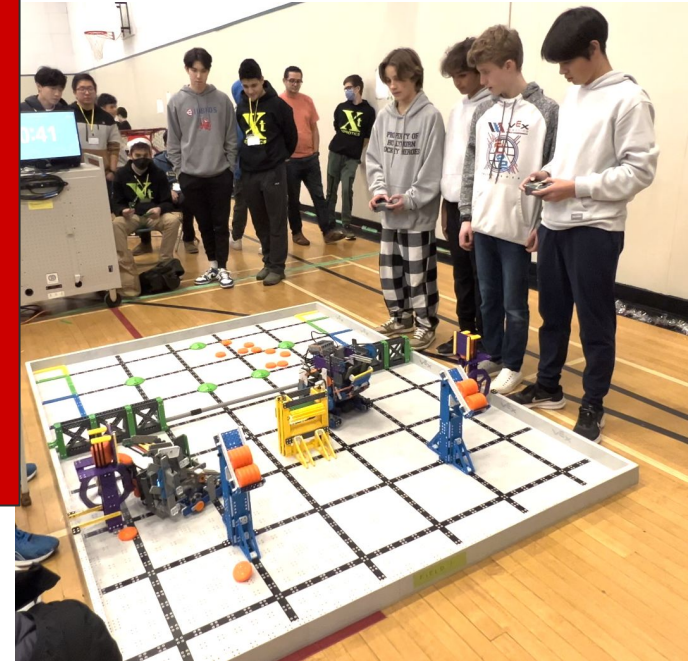


Prototype

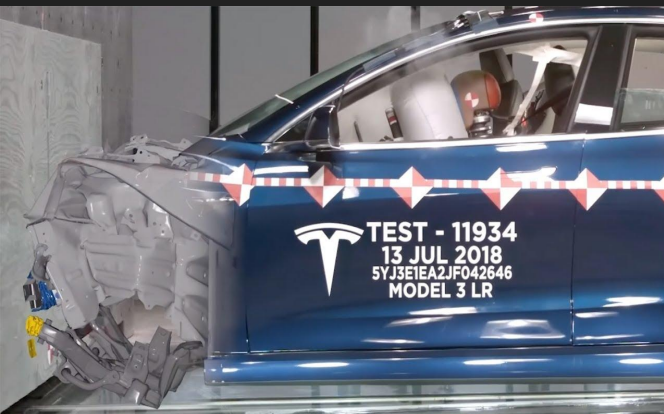


This stage during the Design Process is very important. It reveals flaws and mistakes that need adjustments. Testing helps you make a reliable robot (or car) that you can count on.

Test



Test



The final stage, making improvements (or testing for Tesla) is the most vital step. It allows us to continue perfecting our design and recheck for any weaknesses before competitions!

Improve





How Does Vex Benefit us?

Vex IQ benefits us with invaluable STEM skills through active engagement. It equips us as future leaders and innovators with quick thinking abilities and understanding. Vex IQ teaches us that things might always not be the way you want them to be and the importance of trying again and again.



“If things
aren’t failing,
you aren’t
innovating
enough!”

- Elon Musk

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