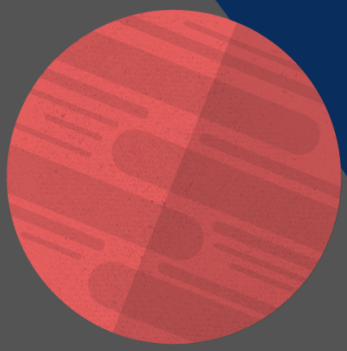
Wormhole of VEX and SpaceX

VEX ROBOTICS

SPACEX



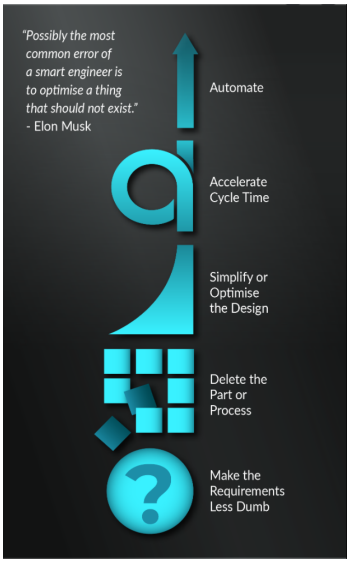
By - June Choi and Yuma Nagayoshi
Team # - 10012P
Location - West Vancouver, B.C

Ten Ton Robotics

Wormhole of VEX and SpaceX

SpaceX, one of the most exciting, yet one of the most controversial companies there is in the year 2021. As many people know, SpaceX is an American aerospace manufacturer, space transportation services, and communications corporation owned by Elon Musk. Although SpaceX is known to be one of the most successful companies, unlike others, it has brought its way here back from 2002. In the past, Elon Musk's goal in SpaceX was to revolutionize the aerospace industry and to make spaceflight more affordable. But most people were ignoring him, as it seemed impossible to do this.

We can see a drastic change as SpaceX is currently known to be one of the top-class companies that have their backs supported by other famous organizations. Elon's first goal was successful from his launch of the "Falcon 9" because it was partially reusable, and also because it had an extremely low cost. And so after this, he had created another objective which is to colonize our closest planet, Mars. Most people are saying that the idea of colonization of other planets is just preposterous and that it can only occur in a more advanced futuristic society. However like many actions, no matter how hard we believe, an idea won't exist if it doesn't have a starting point. SpaceX is the company that is creating a beginning to this, and they are the ones who are changing the idea of space colonization from science fiction into a potential plan. WeI have selected SpaceX as our company because they were able to change the mindset of all people about space travel, and because of how they genuinely believed in their idea no matter the doubts.



SpaceX has their own version of the Engineering Design Process which has been claimed to work very well for their company. The procedure looks something like this. “Make the requirements less dumb” → “Delete the so called dumb part” → “simplify or optimize the design” → “accelerate cycle time” → “Automate”. They would use this procedure whenever they want a design to be more simple, or when they want to incorporate more things onto it. SpaceX’s version of the Engineering Design Process has an improvement in comparison to the standard, as it would help accelerate the overall cycle time and eliminate the minor features that are unnecessary. It’s almost like a series of mini-cycles instead of a huge one, meaning that if an error is detected, they won’t need to design a new prototype.

Once they are done with a project, SpaceX usually use their variation of the Engineering Design Process. They would first detect the “dumb” parts of the project, and would try to eliminate it without affecting the other parts of the project. This procedure can also be applied to VEX Robotics, to avoid as much errors as much as possible. Unlike VEX though, SpaceX needs to be

even more careful when they try to do this, since even the smallest changes may lead the entire project to malfunction.

SpaceX approaches their projects in a unique way, they would try to solve all of their problems using the most simple route. The reason they do this is because complex system outbreaks, require complex solutions, and it is important for them to sustain the system without any difficulty. Simple tasks would also accelerate their overall cycle time, which is especially useful when you are running a multi-billionaire company.

We use to believe that people use the Engineering Design process in order to find the errors of a project. But SpaceX's idea of the process was to eliminate any ideas that are unnecessary, just like an idea reducing system. Their main objective is to simplify their actions, while we would constantly aim for the better version of our current state. In other words, our version of the Engineering Design Process might be affecting our design, as well as our time.

By studying the procedure that Elon Musks uses, we now understand the importance of designing. When designing a robot, we need to think about all of the possible outcomes and also figure out how to obtain the most efficiency while having the most simplicity. Without the designing stage, it will become much easier to miss certain details, and this could possibly damage the robot, as even a single mistake could lead it malfunctioning. Furthermore, going directly into the building process could causes major flaws, and so it is significant to test each new mechanism accordingly. A great example of using this is when we made our, "Mogo Lift". During Winter Break, our team made a Mogo Lift, which was supposed to raise the Mobile Goals. But, since we didn't have the availability of an actual Mobile Goal, we didn't realize that some screws were blockading the Mobile Goal from fitting inside. Without testing, small details will go unnoticed, and it can lead to difficult issues within the robot. This isn't an exception in any type of STEM companies, especially for machines that could affect the entire globe.

VEX Robotics is helping us prepare for future careers, as it is an activity that students learn by themselves. By making mistakes, the human mind is able to develop to prevent those mistakes in the time ahead. Schools and universities are stopping young students to make mistakes, and is making us believe that perfection is necessary for every action. Unlike schools, VEX supports us and teaches us that everything doesn't have to be neither perfect or complex in order to work. Simplicity is a skill that many jobs require, and I believe that VEX is assisting us to learn, develop, and improve our actions.