Career Readiness Challenge

By Team 2929B

To create their products, most big businesses including Apple use the engineering design process. The engineering design process consists of a series of steps that let you create anything you can imagine. This same design method is used in the Vex Robotics program to create robots that can perform tasks. There are several similarities between the design processes used by Apple and Vex, including the use of brainstorming, prototyping, and testing before finishing. Our decision to go with Apple was influenced by the unique designs that each of their good's feature, as well as the sheer volume of gadgets and other things that Apple has produced.

Apple designers start by presenting their concepts. They all exchange ideas and doodle the basic iPhone design. Additionally, Apple employees brainstorm via a method known as "Random Entry," which is very inventive. This resembles how the brainstorming sessions, meetings, and conversations happen in our Vex Robotics team. Each of us first draws our ideas or prototypes on engineering paper before we proceed. To get an idea of a mechanism we can employ for a specific task. We first explore several mechanisms on the Vex V5 mechanisms page before sketching down our thoughts. Then we put our efforts into trying to improve it or make it more functional and effective. Additionally, drawing our sketches before the meeting occurs helps keep us on task during meetings so that we don't waste time drawing up our sketches. The engineering design process moves on to the following level once we choose which design will serve as our

mechanism and develop it. Once we decide which design we'll use as our mechanism, the engineering design process advances to the next stage.

One of our team members sketching out their design for the prototype.

During the prototyping phase of the engineering design process Apple engineers construct and test their concepts to make sure they work correctly and without any issues. Apple designers also expect feedback, a lot of feedback according to Apple designer Julian Missig who says, "If we're not getting feedback on something, we're just not showing it to the right people." We design the mechanism prototypes in Vex, document them accordingly, and if we discover an issue with them, we form a team meeting and record at least three fixes in our engineering notebook. The next step is to put all our ideas to the test to see which one performs the best. To ensure they function properly, we test each prototype three times. The prototype that is 100% sure to work the first three times is what we seek. Once we do all this, we place the finished design in our robot. We iterate the design if we run into issues with these mechanisms or discover a better method to include them in our robot. That is the next step in the engineering design process.

Jonathan Ive shows the prototype for the iMac software.

Professional Apple designers don't only iterate the product's design in one way, they change the whole thing. When the design is being manufactured, if a flaw is discovered or a better solution is discovered, the original design is discarded, and the manufacturing process is restarted. Unlike Apple, we only alter the elements of the design that we discovered to be incorrect or that may have the ability to improve the prototype or design. Iterating is particularly crucial during prototyping since without it, we wouldn't be able to better both our own ideas and those of our team members. In Vex, we never stop iterating and designing in order to strive and make the finest possible robot, yet in Vex, a robot is never truly flawless.

Apple uses their own proprietary engineering design process creatively to produce inventive designs for technological items. What we use in Vex is similar yet distinct from this. Teamwork and communication are essential components in both Vex teams and Apple teams, despite possible differences. Without them, none of the designs, prototypes, or solutions we come up with will be of any use. This is due to the absence of feedback, which is crucial in both Vex and Apple, as Julian Missig said.

By teaching me how to collaborate with others in a team and how to come up with innovative solutions to challenges, taking part in Vex robotics has helped me prepare for my future job. It has also taught me how to communicate with individuals you've never met before and how to dazzle

people when you talk about your product, and in the instance of Vex robotics, a robot.

Credits:

Author: Christian

Editor: Jayden

Editor: Sebastian

Miami FL, USA