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Video Games and Vex

Nowadays, almost all kids play video games. From ages ranging from as young as 5 years old to adulthood, many people use video games as a source of entertainment and fun for themselves and their friends. This includes ourselves. In our free time, we call each other and play video games for hours. To us, video games provide us with an environment that enables us to become closer and connect. Because of our love for video games, it would be a great experience and idea for us to compare the design processes of video game designers and ourselves for the career readiness challenge.

Firstly, we had to research how video game designers use their design process when creating a game. We used Nuclio's "The Fundamentals of Video Game Design" article because it gives a general overview of how video game designers create a new game. Before even thinking about how they are going to develop their game, they first decide what the game is going to be about and the main aspects of the game. There are a plethora of game elements that the designer has to brainstorm before they can start working on the design; these include gameplay, world-building, characters, user interface, and the storyline. Most designers usually jot their ideas down, which contain sketches, storyboards, and concept art. After the main idea is generated, the designer creates a game design document (GDD); "a software design document that serves as a blueprint from which your game is to be built." It gives a detailed guide on the important aspects of the game, which when developing is used to determine what needs to be in the game. The first creation of the GDD usually includes the game concept, the target audience,

requirements, schedule, and budget estimates. After the GDD is finished, games go into the pre-production phase, where they prototype with different game elements to see how certain parts of the game will fit into the overall concept the designer is trying to achieve. Some designs in this phase do not make it to the final product of the game. Once all the pre-production designs are selected, the game then goes into the production phase where the game designers create the game elements in higher quality, connecting with artists, writers, and voice actors to complete their concepts. After the production phase is finished, the game is finished and ready to be played. Once the game is published, the game designers have to constantly update the game to provide new content to the players or fix bugs that people find when playing the game.

Next, we had to bring up our design process and see how the design process for building vex robots differentiates from the design process of creating a video game. In the first step of our design process, we give a broad overview of what we want to accomplish by building the specific part. For example, our design statement with our chassis was “create a chassis that can drive over the middle bar and interact with the game elements.” When compared to the first step in the design process of game designers, it is very similar; even though there are a lot more aspects in creating a video game, they both generate a statement on the general idea of what they want to create. After coming up with the main concept, we brainstorm a bunch of different solutions that we could build to achieve our goal. In the case of the chassis, we came up with 3 main solutions that we could use to accomplish our design statement, H chassis on 2.75 inch wheels, X drive, and H chassis on 3.25 wheels. The brainstorming process is very different to those of video game designers since they already have a clear idea of what they want their game to represent before developing it. After thinking about the pros and cons of each solution to our design statement, we select the idea that seems best geared towards the game and plan out our

building process. The pre-production phase in game design combines aspects of both the brainstorming and selection processes, but other than that, the pre-production phase is very similar to the 2nd and 3rd steps of our design process. We come up with various different solutions to the problem, and then select which one(s) would fit the best. After planning out our building phase, we build the solution, focusing on great build quality in our building. Parallel to this, after game designers select their best designs from the pre-production phase, they work with others to create and finish their game. Once we finish building the solution, we test it on the field to see if it meets the requirements we want. The ways game designers test their games varies between each one. Some designers play the game themselves while others publish the game to the community and use their gameplay as testing. After we finish testing, we reflect to see if the solution accomplishes all of our set goals and decide if we can use the solution or if we have to improve it. In the case of the chassis, after testing, we realized that the 2.75 wheels on the H chassis were too small to go over the middle bar, therefore we changed our wheel size to 3.25 inch, which helped us in getting over the bar. Game designers are in a constant state of reflecting and improving after they publish their game because they have to make updates to fix bugs and introduce new content to the game. Even though vex robotics and video game design are very different subjects of engineering, they both use a similar engineering design process to solve or present new ideas. As you can see, vex is giving us the opportunity to develop useful engineering skills that we can use in future jobs that we might partake in the future.