PennState College of Engineering | BERNARD M. GORDON LEARNING FACTORY

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Orthopaedic Surgery Gaming Application

Overview

PennState Health Milton S. Hershey Medical Center

In the field of Orthopaedic Surgery, there is a significant imbalance in diversity, with women accounting for roughly one in ten surgeons in this specialty. One factor contributing to this deficiency is that many students do not become aware of this field until they are too far along in their education and career paths. By creating a gaming app that is accessible to high school students, we can reach a diverse audience at the age they begin considering potential careers, motivating an interest in Orthopaedic Surgery in an entertaining yet informative way.

Objectives

We aimed to create a gaming app for mobile devices that high school students of diverse backgrounds would enjoy. We needed to apply software engineering and design techniques and principles to accomplish the task of creating a game that was fun and engaging, as well as informative and accurate.

Approach

- Researched current popular gaming apps to understand what appearance themes were most aesthetically pleasing, finding that a cartoonish appearance would be most effective
- Analyzed existing medical and surgical games available to determine how the needs of the customer could best be met
- Worked with our sponsors, a team of Orthopaedic Surgeons, to determine which surgical procedures would be best to include in the game and what those procedures entailed
- Designed our graphics so that the color scheme was gender-neutral, and any screen depicting skin tone did not prevent representation of minority groups, to make the game inclusive for all
- Utilized Unity, a game development platform, to enable seamless collaboration and simultaneous development for multiple devices across Android and iOS operating systems
- Integrated and tested our code throughout the development process to ensure optimal software performance, accuracy of medical information, and creation of a professional product
- Designed the game so that it is playable without internet connection for maximum accessibility

Outcomes

- The sponsor now has a completed gaming app that is ready to publish to Apple and Android app stores, costing only the publishing fees.
- Future development of game will be simplified by using Unity, a free development platform
- Game is accessible for high school students of diverse backgrounds
- Game is informative while also being fun and engaging