HUMANOID

Team Number: 12

Team Size: 2

Team Members: Sri Sai Narayana Ram Gopal Mangena
Achyuth Reddy Nalamadgu

Project Goal and Objective:

This project aims to simplify the study of medical students which enables them to view human anatomy through Microsoft HoloLens. Microsoft HoloLens is a pair of mixed reality smart glasses. By using HoloLens, user can not only observe 3D models but also can interact with them. With this application, one can observe the 3D model of human anatomy and can interact with 3D model through voice command, gazes and gestures. This enables every individual to get good understanding of human body in their required perspective.

Motivation:

For students, it is difficult to visualize 2D images in text books as 3D images. Every individual can learn about applications by experiencing them practically in real life. It's very useful if we can provide real world experience to students while learning itself. We can do so by creating virtual environment for their learnings. Virtual Environment provides spatial view with 360-degree rotation and interaction with application. Our main motivation behind developing this application is to provide real life view of human anatomy with basic interactions with the application.

Significance/Uniqueness:

The significance of this application is that it provides real life view of human anatomy and it also features the interactions with the application. This application helps in exploring more features of human anatomy in simple way using voice commands, gestures and gazes from the user based on deep learning concepts, through which we train the machine.

System Features:

- Experience the spatial view of human body.
- Users can easily understand the complex human system.
- Can access instantly, just by wearing the head mounted device.
- Users can control the application by using gestures.
- Users can interact with application by voice commands.

Related Work

- There are many applications in the field of medicine using Augmented Reality. Following are some of them.
    - AccuVein: Helps doctors to identify patients' veins.
    - VR Dentist: dental app for educational purposes.
    - Anatomy 4D: Visualizes detailed bone structures.
- By understanding the working of these applications, we want to develop an application that provides real time experience and interaction features to application.

Backup Project

A basic interaction application using Microsoft HoloLens. This application will include a model which consists of multiple 3D objects and user can interact with either gestures or voice commands.

Bibliography

- https://www.biodigital.com/developers
- https://www.eonreality.com/portfolio-items/virtual-anatomy-simulationv
- https://developer.microsoft.com/en-us/windows/holographic/holograms_101
- Github.com
- http://www.medpagetoday.com/practicemanagement/informationtechnology/59072
- http://anatomy4d.daqri.com/
- http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0091276
- http://www.accuvein.com/home/
- https://developer.microsoft.com/en-us/windows/holographic/documentation