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GROSS ANATOMY USING AUGMENTED REALITY MOBILE APPLICATION

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ABSTRACT

The COVID-19 pandemic has necessitated a shift in teaching and learning methods, moving away from physical face-to-face meetings. To adapt to this new paradigm, an android mobile Augmented Reality (AR) application called Gross Anatomy Using Augmented Reality (GAAR) has been developed. This application aims to enhance the process of learning 3D human anatomy by making it more interactive and enjoyable for both educators and learners. Through GAAR, students can visualize the human gross anatomy in its actual form, while educators can explain complex scientific concepts in a more engaging manner. By incorporating 3D objects, videos, and interactive information, the application seeks to capture students' interest. The integration of AR in education plays a vital role in bridging the digital divide across generations by transforming static images into realistic 3D animations.

Keywords: Augmented Reality, Gross Anatomy, Android Mobile Application, 3D Human Anatomy.

I. INTRODUCTION

The field of augmented reality (AR) holds immense potential in revolutionizing education by providing immersive and captivating learning experiences. Through the utilization of AR technology, students can simulate physiological functions, grasp mechanisms of diseases, and visualize intricate anatomical structures, thereby enhancing their spatial awareness and understanding of interrelationships. By incorporating AR, students can gain a deeper comprehension of the human body and its operations, leading to improved healthcare outcomes. Numerous initiatives have demonstrated the effectiveness of augmented reality in teaching, enabling virtual dissections, anatomy study, and hands-on experiments. AR stimulates curiosity, enhances comprehension, and fosters critical thinking by immersing students in interactive learning environments. Active engagement with AR-enhanced materials empowers students to develop a profound understanding of the complexity of the human body, thus paving the way for advancements in healthcare.

II. OBJECTIVES

- To develop a special mark for GAAR to function along with 3D modelling, animation, video, text, pictures and augmented reality elements to make the education more interactive.
- To design an application that can make ease on teachers to educate the students about health science in human anatomy.
- To spread the technology to the rural areas and educate the technically backward people.

III. WORKING METHODOLOGY

1. **Camera Access Permission:** Open the app and turn on your device's camera by clicking on start button. When you launch the app for the first time, system will prompt you to turn on your device's camera. If you haven't previously, you must give the app permission to use your camera.
2. **Position the camera:** After turning on the camera, you must move your smartphone so that the camera can see the outside world. Depending on the demands of the app, this can entail pointing the camera at a certain thing or place.
3. **Identify the marker:** The programme will search the real-world environment for a certain marker or image using its integrated image recognition algorithms. The marker could be a printed image, a QR code, or a particular pattern that the software is set up to recognise.
4. **Overlay digital material:** After identifying the marker, the app will overlay digital content over the camera's view of the real-world environment. Depending on how the app was programmed, this digital material could be text, animations, or 3D visuals. The position and orientation of the digital material with respect to the marker will provide the impression that it is a physical component of the environment.

5. **Interact with the digital content:** Move your smartphone around and watch how the digital content changes in relation to the marker to interact with the digital material. You might be able to directly edit digital information with some apps by touching the screen or using other gestures.
6. **Sequences during the end of operation**: To end your use of the app, tap the relevant button or make the relevant motion on your smartphone. Your camera and any other resources that the app was consuming while it was running will no longer be used.

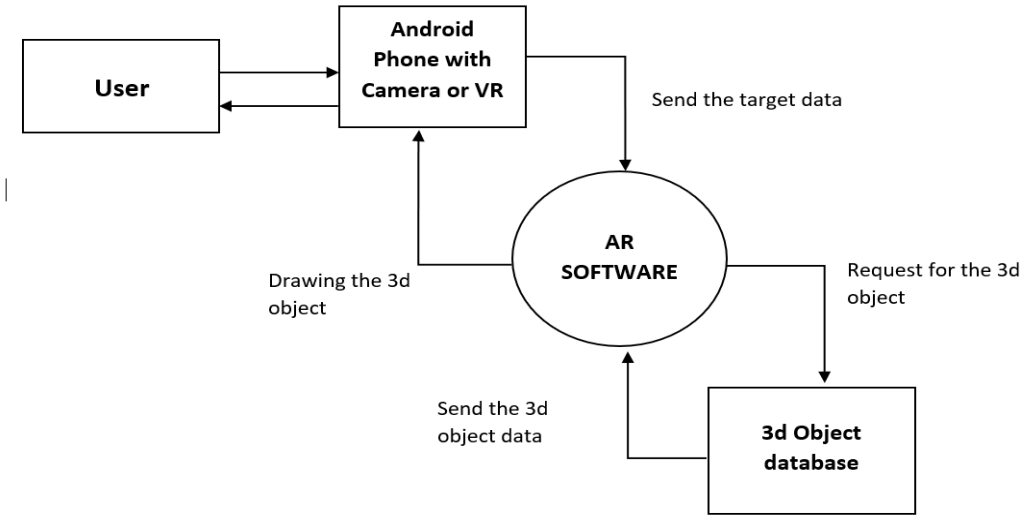
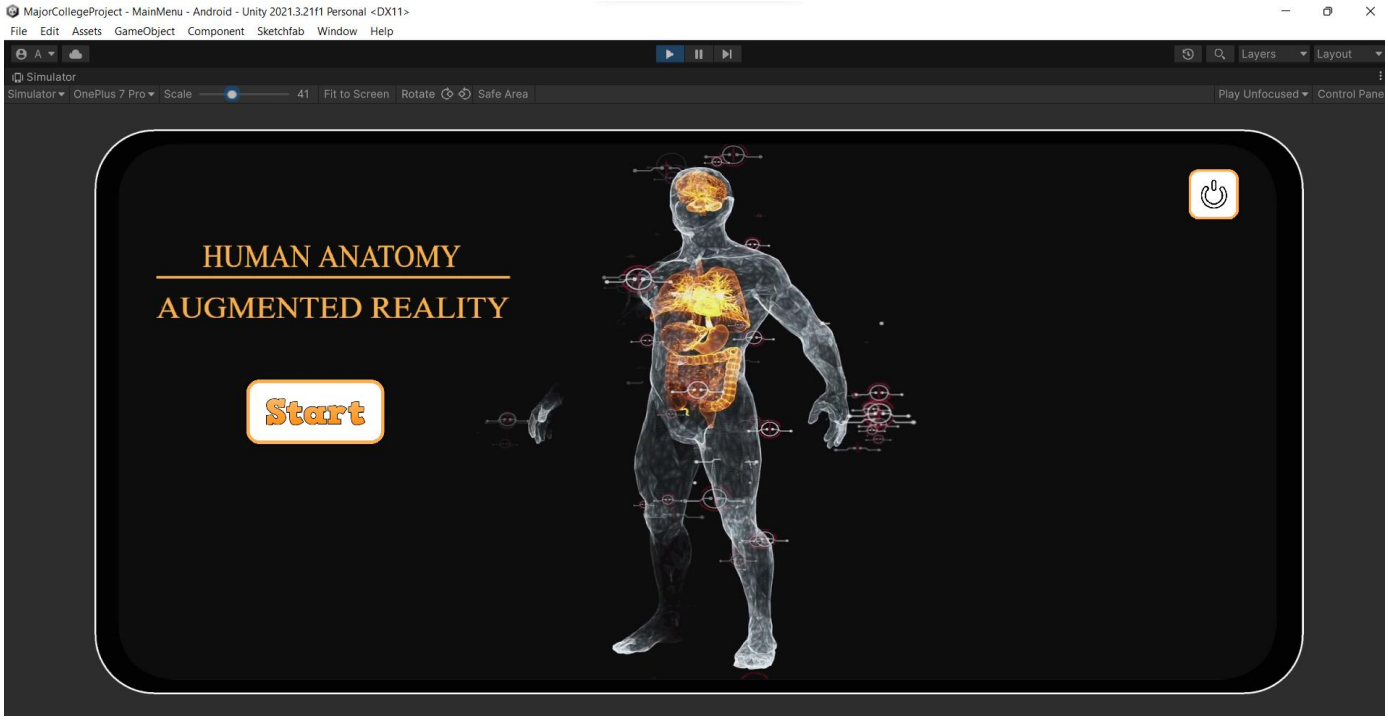


Fig1.Data Flow Diagram

VI. Results



IMG:2 APP USER INTERFACE

Img: 3 Project Outcome

V. CONCLUSION

In conclusion, the Gross Anatomy Augmented Reality (GAAR) movable use specifies a unique and creative approach to education about human body parts. By promoting the capacity of improved reality science, GAAR can form a more charming, mutual, and immersive education experience for scholars and instructors. With GAAR, Students can survey the human organs in 3D models, and teachers can reinforce their lectures accompanying 3D realistic human organs, making education more interesting and effective. Overall, GAAR has the potential to transform the habit we approach instruction and form knowledge about human body parts and organs more accessible and comprehensible for all.

VI. FUTURE SCOPE

Future applications of augmented reality in human anatomy will allow for remote learning and cooperation, surgeon assistance during procedures, patient empowerment through visualization, advancement of medical research, and improvement of therapy and rehabilitation programs. AR has the potential to transform patient care, surgical procedures, anatomical teaching, and research developments in the field**.**