

ABSTRACT

Based on the learning system that occurred in Indonesia, there are still many who use conventional methods. Even though what is happening now technology is developing very rapidly and of course it has a positive impact also on the world of education. The process of delivering material by the teacher still seems rigid and passive, so that a solution is made by using Augmented Reality technology.

Making this final project aims to assist students in understanding the material about the human body skeleton system which is implemented using Augmented Reality technology in 3D. In the application system created, the user must adjust the marker and markerless positions so that the camera on Android can be captured against the correct pattern and position. So that the system will track the shape and recognize 3D objects. The recognized object will be sent to the database for rendering by the system, then the 3D object will be sent again and will appear on the Android user's screen.

Then the application will display a 3D model using Augmented Reality technology with the optimal distance to take Markers at a distance of 10-40 cm. The application displays a 3D model using Augmented Reality technology with the best angle to take Markers at an angle of 0° and less than 45° . The effect of different room lights also affects the delay. In indoor conditions, the smallest average delay is 0.458 s, while in outdoor conditions the smallest average delay is 0.478 s. In testing the level of need for Augmented Reality applications for learning the Human Skeletal System, the best MOS results were obtained with a value of 47.5 for the statement "Does learning the Human Skeletal System require the application of Augmented Reality designs".

Keywords: *Augmented Reality, Android, Marker, Markerless.*