

ABSTRACT

Augmented reality (AR) is a technology that combines two-dimensional and three-dimensional virtual objects into a three-dimensional real environment and then projects these virtual objects into real time. The Cellular Communication System is one type of mobile communication with rapid technological developments. Learning cellular communication systems has some material that requires some visualization in order to understand cellular communication system devices because it is quite difficult to understand and study these devices because access to see these devices is not easy because they are limited.

In this final project an application is made that can display 3D virtual objects from cellular communication system devices, namely RRU (Remote Radio Unit), BSC (Base Station Controller), RNC (Radio Network Controller) and MSC (Mobile Switching Center) which are designed to use Augmented reality based Blender application using Unity software that can be installed on Android smart phones. This application was created as a learning medium for the introduction of cellular communication system devices.

This application can display devices, namely RRU (Remote Radio Unit), BSC (Base Station Controller), RNC (Radio Network Controller) and MSC (Mobile Switching Center) in three-dimensional form that has been created using the Blender application by recording a predetermined Marker use the camera on an Android smart phone. When the camera records the marker, the system in the application tracks and adjusts the marker to the 3D object. From the results of the tests carried out, the angle and distance of the camera to scan the maker is 30 to 45 and 20 cm to 30 cm, and the application delay in displaying the smallest 3D object is 0.612 s during the day, due to tracking with maximum light. . Based on the results of subjective application feasibility testing for students, the MOS results are above 4, from a scale of 1 to 5 which is in the good category. So it can be concluded that this application can be used as a learning medium for the introduction of cellular communication system devices.

Key words: Augmented reality, Virtual, Learning, Cellular communication systems.