

ABSTRACT

Optical Communication System is one of the courses contained in the D3 Telecommunication Technology department and has a laboratory to carry out practicum. In this Optical Communication System course, there are several learning modules that must be carried out in the laboratory so that students can interact directly with the devices contained in the optical communication system. However, due to the current pandemic which causes learning in the environment to switch to online learning so that the implementation of the practicum is abolished, including the practicum of the Optical Communication System course itself and because of this change in the learning system, access to the laboratory is limited.

In this final project, a markerless Augmented Reality-based application is designed using Unity software that can be installed on an android smartphone and using blender software to create 3D objects. This application is designed to assist the implementation of the optical communication system practicum in the D3 Telecommunication Technology major, this application will display the tools used during the practicum carried out in the laboratory in real time and in 3D form, while the tools displayed in this application are cleavers, fusion splicer, ODP closure, OPM, OTDR, patch cord and splitter.

From the test results, all content and systems in the application have run as expected, where the SKO Virtual Laboratory application can display objects properly when the android smartphone camera is directed towards the north cardinal direction with an angle of 0° or 360, different light in the sky. indoors or outdoors that is used as a place for object detection does not affect the results of the display of 3D objects. Based on the results of 25 respondents, the results of the survey of application needs for the best MOS results with a value of 4.84 while the survey on the benefits of the application of the best MOS results with a value of 4.8.

Keywords: *virtual laboratory, optical communication system, augmented reality, markerless, unity, blender, real time.*