

## ABSTRACT

*Practicum is one of the learning activities carried out by students with the aim of honing skills and deepening certain subject materials using practical equipment. The implementation of this practicum refers to the practicum module which contains practicum material and the steps for its implementation. Technological developments allow this practicum module to be packaged in an attractive form and make it easier for students to understand practicum material, one of which is by using augmented reality technology as a learning medium.*

*Augmented reality is a technology that combines real and virtual objects into a real environment that runs interactively in real time. At this level project an augmented reality application for Android smartphones is made which is intended as a learning medium in the microcontroller and interface workshop module. This application will display 3D objects from the microcontroller device there are, ArduinoUNO, nodeMCU, STM32, as well as the SPI circuit and I2C circuit by pointing the camera at the predetermined marker. The marker is an image of the displayed 3D object.*

*The test results of the application at this level project, all existing systems in the application can run as expected. Taking marker images at a certain distance and angle with light intensity can affect applications in displaying 3D objects. Markers can be read at an angle below 45 ° and a distance of less than 100 cm. According to the questionnaire distributed to 178 D3 Telecommunication Technology students, 97.8% of students thought that the application made could help in microcontroller learning.*

**Keywords:** *Augmented reality, practicum, microcontroller applications and interfaces, Unity, Vuforia, Blender*