

## **ABSTRACT**

*Applied Electromagnetics is a 3rd semester course at Telkom University. In Applied Electromagnetics there are some materials in the learning required visualization so that the material can be understood well. But in teaching sometimes encountered difficulties in visualizing a 3D object such as in Applied Electromagnetics learning for the material Coordinate System. To know in which direction a vector, if only by imagining it is very difficult to understand it. Usually the lecturer only deliver the material through the presentation slides and some depictions on the blackboard, thus making the students less understood.*

*Applied Electromagnetic Material taken as a Augmented Reality 3D object is a Plot of Coartes Coordinate Point, Cylinder Coordinate Point Plot, Plot of Ball Coordinate Point, Coarse Plot Vector Plot, Cube Coordinate Vector Plot, Coordinate Ball Coordinate Plot. Applications are created using Unity software which is then exported into a .apk file to be installed on Android Smartphone. To display 3D objects on Smartphones, it takes the object and camera marker of the smartphone.*

*The results of the application of Applied Augmented Reality-based Applied Electromagnetics learning that can be accessed via Android Smartphone. Based on testing and analysis that has been done, this application can display 3D objects on markers that have been provided with the help of Android Smartphone camera. Augmented Reality can be displayed well on the camera tilt  $45^{\circ}$  to the marker. The optimal range of the camera against the markers for 3D objects to be displayed is 10 cm - 40 cm with the smallest average delay at 0.666 s and the greatest delay at 36.306 s.*

**Keywords: Augmented Reality, 3D, Marker, Android**