

## ABSTRACT

### ***DESIGN AND BUILD AUGMENTED REALITY APPLICATION USING MARKER BASED TRACKING AND MARKERLESS BASED TRACKING METHODS AS AN INTRODUCTION TO MENDUT TEMPLE CULTURE***

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*The temple is one of the cultural heritages which is currently a tourist spot. In Magelang there are various kinds of temples, one of which is Mendut Temple. But with the current spread of the virus due to the inability of the authorities not to close certain tours or limit the number of visitors, as well as ignoring health, social distancing and staying at home regulations because of the impact on wider life. Therefore, the occurrence of this pandemic is the main cause of the lack of adaptation of society to technology which was previously only game applications, therefore with the application of new technology, namely Augmented Reality, it uses the marked based tracking method and markerless based tracking as the method that is applied even the two methods this has its advantages and disadvantages. In Augmented Reality, this is very well used as an introduction to the culture of this temple which displays a 3D object in the form of the Mendut Temple which contains information about the temple. This application can increase the insight and adaptation of new technology for users to the Mendut Temple Culture during a pandemic and new normal even to normal conditions while using Augmented Reality technology. The application uses the Agile Development development method and for modeling it uses the Unified Modeling Language (UML) and uses the Black box Testing, Usability, Validity and Reliability testing methods. The results of this study indicate that the results of observations through questionnaires on the AR-Mendutin application as an introduction to Mendut Temple culture meet the usability criteria with a result of 78.42% or categorized as "good".*

***Keywords: Mendut Temple, Augmented Reality, marker-based tracking, marker-based tracking.***