

ABSTRACT

Javanese language is one of the important cultural heritages to be preserved, but learning Javanese characters still faces various obstacles, such as learning methods that are less interesting and less interactive, making it difficult for students to understand Javanese characters effectively. To overcome these problems, this research develops Augmented Reality (AR)-based Javanese script learning media with Speech Recognition method as an innovative solution that can improve the ability to learn Javanese. The method used in the development of this application is Multimedia Development Life Cycle (MDLC), which includes needs analysis, design, implementation, and testing. This Android-based application combines AR marker-based technology and speech recognition features to provide an interactive and engaging learning experience through 3D visualisation, learning videos, and evaluation quizzes. Application testing was conducted through marker recognition distance and angle tests, speech recognition function testing, black box testing, and usability evaluation using the System Usability Scale (SUS). The test results show that the application is able to detect markers well at a distance range of 10 cm to 50 cm and an angle of 10° to 90°, and speech recognition functions normally with an average response time between 3.3 to 7.1 seconds. The overall SUS score reached 80.3%, categorised as 'Excelent' and 'Acceptable', indicating that the application was able to detect the markers well.

Keyword: *Learning Media, Javanese Script, Speech recognition, Augmented Reality, Multimedia Development Life Cycle.*