

PENGEMBANGAN TEKNOLOGI AUGMENTED REALITY BERBASIS ANDROID PADA PEMBELAJARAN IPA KELAS V MATERI ALAT PERNAFASAN PADA HEWAN

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ABSTRAK

Penelitian ini bertujuan mengembangkan aplikasi Augmented Reality (AR) berbasis Android sebagai media pembelajaran IPA kelas V pada materi alat pernapasan hewan. Pengembangan aplikasi menggunakan metode Multimedia Development Life Cycle (MDLC) yang meliputi tahap concept, design, material collecting, assembly, testing, dan distribution. Aplikasi dikembangkan dengan memanfaatkan Unity 3D, Blender, dan Vuforia Engine untuk menampilkan objek tiga dimensi secara interaktif. Pengujian dilakukan menggunakan Usability Testing dan Functional Suitability Testing melalui metode Black-box Testing dengan melibatkan guru sebagai responden. Hasil pengujian usability memperoleh nilai rata-rata 82,1% dengan kategori sangat baik, yang menunjukkan bahwa aplikasi mudah digunakan, mudah dipelajari, menarik, dan mampu mendukung proses pembelajaran. Sementara itu, hasil pengujian fungsional menunjukkan bahwa seluruh fitur aplikasi berjalan sesuai dengan rancangan tanpa ditemukan kesalahan fungsi. Dengan demikian, aplikasi yang dikembangkan dinyatakan layak digunakan sebagai media pembelajaran interaktif. Aplikasi ini diharapkan dapat membantu siswa memahami struktur dan fungsi alat pernapasan hewan secara konkret, meningkatkan minat belajar, serta memberikan alternatif media pembelajaran yang inovatif bagi guru dalam menyampaikan materi IPA di sekolah dasar.

Kata Kunci: Android, Augmented Reality, Media Pembelajaran, Multimedia Development Life Cycle, Unity 3D, Vuforia Engine

DEVELOPMENT OF ANDROID-BASED AUGMENTED REALITY TECHNOLOGY IN SCIENCE LEARNING CLASS V RESPIRATORY APPARATUS MATERIAL IN ANIMALS

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ABSTRACT

This research aims to develop an Android-based Augmented Reality (AR) application as a learning medium for science class V on animal respiratory apparatus material. Application development uses the Multimedia Development Life Cycle (MDLC) method which includes the concept, design, material collecting, assembly, testing, and distribution stages. The app was developed by utilizing Unity 3D, Blender, and Vuforia Engine to interactively display three-dimensional objects. The test was carried out using Usability Testing and Functional Suitability Testing through the Black-box Testing method by involving teachers as respondents. The usability test results obtained an average score of 82.1% in the excellent category, which indicates that the app is easy to use, easy to learn, engaging, and able to support the learning process. Meanwhile, functional test results show that all application features run according to design without any functional errors found. Thus, the application developed is declared suitable for use as an interactive learning medium. This application is expected to help students understand the structure and function of animal respirators concretely, increase interest in learning, and provide innovative alternative learning media for teachers in delivering science materials in elementary schools.

Keywords: Android, Augmented Reality, Learning Media, Multimedia Development Life Cycle, Unity 3D, Vuforia Engine.