

DEVELOPMENT OF A BALINESE TRADITION AND RITE QUIZ GAME WITH TEXT TO SPEECH FEATURE

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ABSTRACT

This research aims to develop an educational quiz-based game that presents materials on Balinese traditions and rites, equipped with an automatic question reading feature using a Natural Language Processing (NLP) approach. The method used is Research and Development (R&D) with a one-cycle Agile development approach. The application was developed using Unity, with the integration of Text-To-Speech (TTS) technology through the Tacotron 2 model to automatically generate speech from question text. Testing was conducted through four stages: functional testing using the Unity Test Framework, validation by media experts, validation by content experts, and user response testing using the User Experience Questionnaire – Short Version (UEQ-S). The results showed that the application functioned properly (100% passed), received a highly feasible rating from media experts (90%), and a very high content validity score from content experts (1.00). Meanwhile, user testing resulted in an average score of 2.33, falling into the “Excellent” category. Based on these results, it can be concluded that this educational game application is feasible to use as an interactive learning medium that is both engaging and capable of providing a positive learning experience for users.

Keywords: Educational Game, Balinese Traditions and Rites, NLP, Text-To-Speech, Unity, UEQ-S

PENGEMBANGAN GAME KUIS ADAT DAN RITUAL BALI DENGAN FITUR TEXT TO SPEECH

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ABSTRAK

Penelitian ini bertujuan untuk mengembangkan sebuah game edukatif berbasis kuis yang mengangkat materi tradisi dan ritus Bali, dilengkapi dengan fitur pembacaan soal otomatis menggunakan pendekatan *Natural Language Processing (NLP)*. Metode yang digunakan adalah *Research and Development (R&D)* dengan pendekatan pengembangan Agile model satu siklus. Aplikasi dikembangkan menggunakan Unity, serta integrasi teknologi *TTS (Text-To-Speech)* melalui model Tacotron 2 untuk menghasilkan suara secara otomatis dari teks soal. Pengujian dilakukan melalui empat tahap: pengujian fungsional menggunakan Unity Test Framework, validasi oleh ahli media, validasi oleh ahli materi, serta uji respon pengguna menggunakan instrumen *UEQ-S (User Experience Questionnaire – Short Version)*. Hasil pengujian menunjukkan aplikasi berfungsi dengan baik (100% passed), mendapatkan penilaian sangat layak dari ahli media (90%) dan validitas isi sangat tinggi dari ahli materi (1,00). Sementara itu, hasil uji pengguna memperoleh skor rata-rata 2,33 dalam kategori “Excellent”. Berdasarkan hasil tersebut, dapat disimpulkan bahwa aplikasi game edukatif ini layak digunakan sebagai media pembelajaran interaktif yang menarik dan mampu memberikan pengalaman belajar yang positif bagi pengguna.

Kata kunci: Game Edukasi, Tradisi dan Ritus Bali, *NLP*, *Text-To-Speech*, Unity, *UEQ-S*