

ABSTRACT

This study aims to integrate speech recognition and augmented reality based on markerless in fitness applications, test the functional markless of light intensity in fitness applications with the aim to measure the level of markerless sensitivity, test the functional speech recognition of proximity to the microphone and test the level of sound noise in fitness applications with the aim of this test it is important to see the accuracy of the accuracy of speech recognition. Based on the results of the use of markerless functionality in testing the light intensity and camera angle in the appearance of 3D objects, the ideal number for using the application seen from the test is with light of more than 150-200 Lux shooting angle of 60°, based on the results of Speech Recognition testing performed on proximity with the Microphone the speech recognition system is obtained running well and can give commands, the speech recognition system works effectively at a proximity of the microphone under 60 cm, while above 60 cm above the system is less effective. Speech recognition testing is performed on the noise level obtained by the speech recognition system running well and can give commands, the speech recognition system works effectively at noise levels below 80 dB. whereas above 80 Db and above the system has worked less effectively. Based on the results of alpha and beta testing, all application functionalities are running well and the results of beta testing use 7 aspects namely visible aspects 84.375%, interesting aspects 80.83%, simple aspects 80.625%, useful aspects 82.5%, accurate aspects 85 , 2%, 81.7% legitimate aspects, 79.75% aspect structure in augmented reality fitness, the overall percentage value of 82.4% of users is interpreted that the application can be accepted by the user.

Keyword— *Fitness , Augmented Reality, Speech Recognition, Luther-Sutopo, Animation 3D.*

ABSTRAK

Penelitian ini bertujuan mengintegrasikan *speech recognition* dan *augmented reality* berbasis *markerless* pada aplikasi fitness, menguji fungsional *markerless* terhadap intensitas cahaya pada aplikasi fitness dengan tujuan untuk mengukur tingkat sensitivitas *markerless*, menguji fungsional *speech recognition* terhadap jarak kedekatan dengan microphone dan pengujian terhadap tingkat kebisingan suara pada aplikasi fitness dengan tujuan pengujian ini penting untuk melihat tingkat akurasi ketepatan pengenalan suara. Berdasarkan hasil pengujian fungsionalitas *markerless* pada pengujian terhadap intensitas cahaya dan sudut kamera pada pemunculan objek 3D, angka ideal untuk penggunaan aplikasi tersebut dilihat dari uji coba adalah dengan cahaya lebih dari 150-200 Lux sudut pengambilan gambar 60°, berdasarkan hasil pengujian *Speech Recognition* dilakukan terhadap jarak kedekatan dengan *Microphone* diperoleh sistem *speech recognition* berjalan dengan baik dan dapat memberi perintah, sistem *speech recognition* bekerja efektif pada jarak kedekatan *microphone* dibawah 60 cm, sedangkan diatas 60 cm ke atas sistem sudah bekerja kurang efektif. Pengujian *speech recognition* dilakukan terhadap tingkat kebisingan diperoleh sistem *speech recognition* berjalan dengan baik dan dapat memberi perintah, sistem *speech recognition* bekerja efektif pada tingkat kebisingan dibawah 80 dB. sedangkan diatas 80 Db ke atas sistem sudah bekerja kurang efektif. Berdasarkan hasil pengujian alpha dan beta, semua fungsionalitas aplikasi sudah berjalan dengan baik dan hasil pengujian *beta testing* menggunakan 7 aspek yaitu aspek visible 84,375%, aspek interesting 80,83%, aspek simple 80,625%, aspek useful 82,5%, aspek accurate 85,2%, aspek legitimate 81,7%, aspek structure 79,75% pada *augmented reality fitness*, hasil nilai persentase keseluruhan sebesar 82,4 % dari pengguna diinterpretasikan bahwa aplikasi dapat diterima oleh pengguna.

Kata kunci— Fitness, *Augmented Reality*, *Speech Recognition*, *Luther-Sutopo*, Animasi 3D.