ABSTRACT

Education is the most important part of life, from childhood we are taught about many things through parents to formal education. One of the lessons that are usually applied to children is about shapes and colors in English. Normal children will generally find it easy to understand the material provided, but it is different for children with hearing impairment. Deafness is the inability to hear a sound, this is because the hearing system does not function properly in the ear.

In the learning process for them, it will be difficult to understand the material provided and this has an impact on the process of child development in the field of education, therefore we need a technology that can help them to learn. The result of this research is the creation of an application to learn about basic shapes and colors for children, especially people who are deaf. The method used is Gamification, full word syntax, and Augmented Reality as a medium to inform the material in the form of 3D animation.

To determine the quality of the application, four tests were carried out, namely the level of accuracy in Augmented Reality, Quality of Service (QoS), Software, and User. The first results of Augmented Reality testing for the three distances of 50 cm, 100 cm, and 150 cm obtained the best accuracy rate of 93.3%, namely at a distance of 50 cm with a height of 50 cm and an angle of 60 degrees. In the second result for the Quality of Service (QoS) test of the two Throughputs, the largest value is found at the User load of 1000 Users and the smallest is 1150 Users, then for the average latency the largest is at the User load of 1150 Users and the smallest is 1000 Users and there is no Packet Loss. In the third result for testing Software / Black Box Testing the buttons on the application run as expected. Finally, in User testing, there is an increase in the results of the Pre-test and Post-test scores. Based on these tests, the authors hope that deaf children will be helped to continue learning and adding knowledge.

Keywords: *Augmented Reality, Education, Deaf*