

Abstract

The development of brain tissue in children from birth to several years after birth reaches 700-1000 tissue that forms every second and is more efficient when the sensory function of children develops followed by rapid cognitive function. So, stimulation is needed to maximize child development at that age. Children who are given targeted stimulation will learn something faster than gifted children but are not given targeted stimulation, the potential of the child to develop becomes slower than that of his age. Therefore, the stimulus given to children aged 2-5 years one of them begins with introducing color. At this time, kindergarten teachers often introduce colors using color paper or origami paper. This method is less effective, considering that color learning takes place only in one direction, using media that can only be seen by some children in a large class, less motivating children and not providing a real experience in color learning. As a result, when the child is asked again about color, the child only mentions the name of the color that the teacher has mentioned without knowing the actual color. So, color recognition is needed by using the game system. A system that provides experience playing color and has the ability to store data continuously by using internet of things and gamification elements for further needs. In this study, a system that uses gamification-based IoT was developed which was tested on 20 kindergarten students. From the testing and analysis that has been done, it was found that the proposed gamification system has system functionality that is running as expected and the detection system built also has an accuracy of up to 100 % and the difference in the increase in learning in the experimental group is 12 % from the control group. So, it can be said that the system that was built succeeded in increasing learning performance twice as much as conventional learning.

Keywords: Internet of Educational Things, Gamification, Color Learning and Color Detection
