

Abstract

Every movement that has connection to stability and coordination between each body part were accounted as the gross motor skills system. If gross motor skills development were interrupted especially for 3-5 years old, their activities would be negatively affected. Foot-based games such as jumping and stepping can be used to train a child's motor balance. One example of a famous traditional game is hopscotch. Hopscotch is a game that demand high flexibility of foot movement an coordination skills thus proved scientifically can train children gross motor skills system. Various types of hopscotch games have the potential to improve children's dynamic balance. But in traditional hopscotch games it is difficult to see how the mechanism of improving children's dynamic balance is established. The development of a child's dynamic balance cannot be constantly tracked by teachers or parents. Therefore we make hopscotch with an automated system that can overcome these limitations with digital records, data stored safely, system requirements easily duplicated, and more accurate. Footstep based capacitive sensor and LED feedback, the improved gameplay not only fun for children but also used for training and measuring child's gross motor skills system by their time completion and true/false footstep ratio. As the result the IoT based Hopscotch game with randomized lane are successfully mimic hopscotch gameplay with its added gameplay feature, the player subject performance has increased adaptability performance through each level the capacitive sensor-based footprint system has shown 100% accuracy, the system fully response to the footstep with average 456 milliseconds reading time per step, the system interface can fully control the gameplay level and can show players performance.

Keywords: *Hopscotch, Keseimbangan dinamis, motoric kasar, Sensor Tekanan, IoT*
