

Development of a switch accessible software for the children with severe physical disabilities

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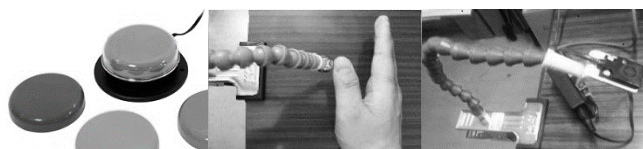
I. Introduction

In this study, we target severely physically handicapped children. Severely physically handicapped is a child who has severe dysfunction such as paralysis or deficit of limbs and failure to freely move body due to dysfunction of trunk. Therefore, difficulties arise in learning activities and communication activities in daily life.

Then we use switch teaching software at special support schools as learning contents that can be used even for children with severe physically handicapped.

II. System for the switch activities

Switch teaching software is software that operates by operating switches instead of mouse and keyboard. There is also an advantage that it can be selected from various switches according to the learner. Learning to understand causal relationships Learning motivation will be improved by moving oneself.



Jelly Bean Switch

Point touch switch

Proximity sensor switch

III. Development of a switch accessible software

I developed a switch accessible software by JavaScript and HTML5 with Enchant.js framework for creating game. Therefore, it also available on various device such as smartphone, tablet, PC.

This game has two modes, Endless and 10 times. We have to take main character avoid collusion with enemy by jumping. It's can control by switch, touch or tap the screen, left click for mouse and press 1, 3, enter or space

keyboard keys. There are scores that increase by timing and it will be plus 5 points when jumping. Absolutely if main character intersects the enemy, it's will be game over! There are 3 themes we can change main character, enemy and background. The children can select it at the first scene. It will automatic scanning. In addition, can set more option by use setting button. Turn on/off sound, change size main character or enemy, change speed of enemy and select game's mode. Endless mode will be finished when collusion but in 10 times mode it will victory when you jump over enemy 10 times.



IV. Conclusion

Children with severe physical disabilities should have access to help them for strengthen and improve the learning process of the brain and body. The Game is a great way to increase more fun and insert some skills to children and not make them bored too fast.

V. References

1. Takashima's laboratory member. *Switch teaching material software*. Learning software for children with severe physical disabilities. Available at: <http://htake-lab.moo.jp/switch-apps>. Accessed June, 2017.
2. UEI Corporation / enchant.js Inc. *API document*. enchant.js. Available at: enchantjs.com. Accessed June, 2017.