PROVIDING COMPREHENSIVE THERAPY FOR CHILDREN WITH AUTISM SPECTRUM DISORDER BY USING A VIRTUAL REALITY APPLICATION

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Research Question

Is it possible to create an immersive virtual reality system for children with Autism Spectrum Disorder (ASD), capable of providing a sense of presence?

Introduction

We began with a fundamental study. We created an initial trial to run a virtual environment for children with Autism Spectrum Disorder

Method

A small group of participants of ages 6-9 years old, were wearing an Oculus VR system and biometric sensors during this trial (figure 1). Once in the environment (figure 2), all participants interacted with a Non-Playable Character (NPC) and were asked to pick up a red ball. Once the red ball was picked up, it was dropped on the ground, and the participants were asked how the object interacted in its environment. The same was done for a soccer ball and a toy box. Lastly, they were asked to walk around within the environment's marked parameters (figure 3).

Figure 1. Participant engaging in VR environment.

Figure 2. The virtual environment with hand-tracking software development kit.

Figure 3. Participant learning the environment's parameter.

Findings & Lessons Learned

Some participants were comfortable enough to wear the sensors, others were not open to wearing the sensor during the VR session. The sensors did not feel normal to wear, therefore making it a distraction.

Conclusion

We need to add greater details regarding the surroundings, we need to ensure the behavior between hand and objects is correct, and we need to make the NPC speak and interact with the user. All participants were very receptive towards the VR system and the environment which was created for this trial.
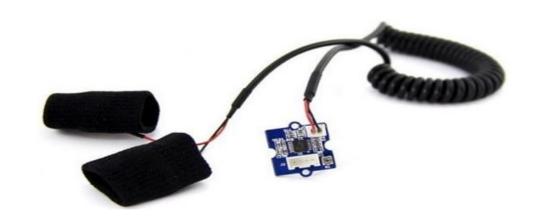
Acknowledgements

Figure 4. Heart rate (left) and GSR (right) sensors.

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