VR PROGRAM TO IMPROVE SOCIAL SKILLS OF CHILDREN WITH ASD

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OVERVIEW

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What is Autism Spectrum Disorder?

Autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, and restricted/repetitive behaviors.
The Autism Spectrum

The Three Functional Levels of Autism

ASD Level 1
Requiring Support

ASD Level 2
Requiring Substantial Support

ASD Level 3
Requiring Very Substantial Support

- depression
- fixations
- abnormal/flat speech
- noise sensitivity
- social difficulty
- abnormal posture
- anxiety
- tics and fidgets
- poor eye contact
- aggression

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Why This Needs Immediate Attention

- 222 per 10,000 children in the United States had autism spectrum disorder, one of the highest prevalence rates in the world.
- People in the United States diagnosed with autism increased from 1 in 150 (2000) to 1 in 68 (2010).
- Over a million Americans live with autism today.
Our Goal

To build a Virtual Reality based application for enhancing social and communication skills in children diagnosed with the Autism Spectrum Disorder.
How This Program Will Work
(Front End)

Children will interact in a virtual representation of different areas like libraries, shops, etc that require good social skills in the real world.
How This Program Will Work

(Back End)

A Natural Language Processing (NLP) AI will be used to extract keywords from the user to adapt and challenge them over time.
Technical Challenges

● Issues to do with interaction since different systems come with unique tracking technologies to track user movement.
● Dealing with probability and AI as words can have different meanings depending on the scenario or sentence structure
● Trying to implement an environment which mimics the real world setting.
● Teaching the bot how to understand the differences in speech patterns of different users with ASD
The Plan (Front End)

- The development environment. Develop an adaptable environment in a virtual reality.
- Using a rigged unity model
- Creating the virtual environment
The Plan (Back End)

- Evaluate existing systems and how they function with young people on the autism spectrum
- Study Python programming language associated with keyword some extraction programs
- Create a bot using existing systems or from the ground up
- Train the bot to understand the patterns of autism patients via machine learning