

Visiting Supermarket through Virtual Reality: an Opportunity for Rehabilitation of People with Disability

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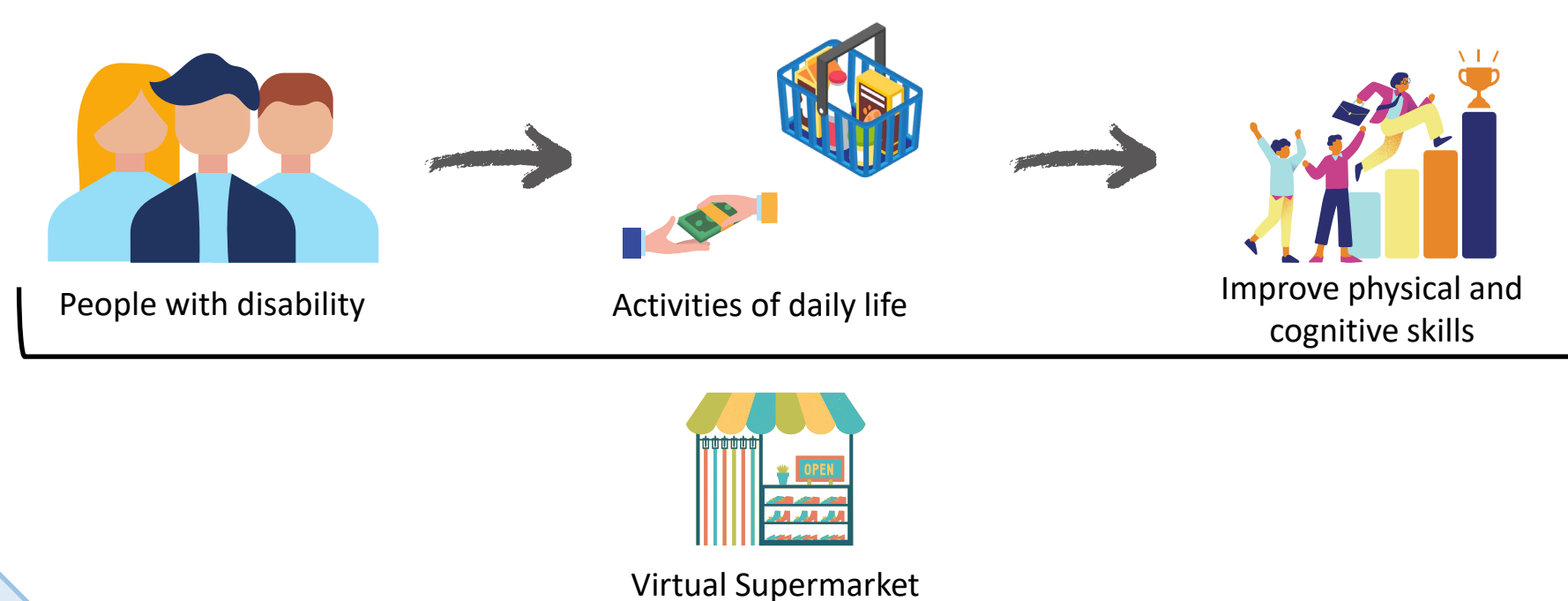
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Introduction

Virtual reality (VR) is a type of technology that allows the generation of virtual environments with a certain degree of immersion. VR equipment consists of a VR headset or glasses composed of a screen for displaying 3D environments and a set of sensors capable of capturing a person's movement and translating it into the virtual world. It is common to associate VR with entertainment, specifically with video games. However, it can also be a powerful tool in the rehabilitation process of people with disabilities [1, 2]. This paper proposes to continue this line of research but developing virtual environments that are based on the performance of activities of daily life.

Objective

The objective of this work is the development of a virtual supermarket with different activities of daily life that allow working on physical and cognitive skills in people with disability.



Materials and Methods



Meetings with organizations in the field of disability to define the activities to be carried out.

HTC VIVE Pro to create the virtual environment and Leap Motion to implement the interaction.



Unity, OpenXR and Leap Motion Modules to develop the virtual reality application.

A qualitative study to evaluate and improve the application.



VR Scenarios



Scenario 1

Activities

- Take products at different heights and place them on a trolley.
- Buy products from a shopping list.

Objective

- Work on upper and lower limbs.
- Train memory and concentration.



Scenario 2

Activities

- Place the products in the checkout and then put them in a shopping bag.
- Make the payment for the purchase made.

Objective

- Work on upper and lower limbs.
- Train mental agility.

Conclusions

The use of virtual environments in the process of physical or cognitive rehabilitation for people with disabilities could be a safe, motivating and enjoyable way to carry out different physical and cognitive activities. The fact that the tasks are based on activities of daily life helps to transfer the results of the training sessions to the person's contexts. In addition, it may also mean greater adherence to the prescribed exercises.

References

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