

ABLE Project - Rehabilitation Game for Seniors

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Inspiration - Why Bowling

Two kinds of games are physically suitable for seniors, bowling and golf:

- Participating in Nintendo Wii® bowling for 30 minutes twice a week in a seated position for 8 weeks may be seen as an option to improve balance in older individuals [1].



- Wii Sports Bowling also provide a way to socialize with peers and to give opportunities to participate in activities in a new way [2].

- Playing golf among seniors can promote negative mood disturbance, because golf is more competition based game [3].

By comparing all the research results, we decided to use bowling as the strategy for exercise for ABLE Project.

Introduction

Inspired by the ABLE (Art based therapies to encourage longevity in elderly participants) project[1], an in-home art-based rehabilitation system for fragile seniors which enables the user to produce aesthetically pleasing creations using their prescribed exercises, we decided to develop a bowling game. It embodies the idea of affordable in-home rehabilitation but also emphasizes the social aspect using concepts of gamification to engage users to develop healthy habits. By using a Google Chromecast and mobile device, seniors are able to participate in an active game with their peers to creating a competitive but positive and fun spirited environment in which to rehabilitate.

[1]<https://pulselab.humanities.mcmaster.ca/projects/able-art-based-therapies-to-encourage-longevity-in-elderly-participants/>

Technologies



How it's built:

HTML & CSS
JS (incl. Three.js and Google Poly API)
Google Cast API

Did you know? Some new smart TVs have chromecast built into them already. If your tv has chromecast, you can skip this and make sure your smart TV is on the same wifi as your mobile device.

What you need:

Chromecast

Chromecast technology allows your television to be controlled with and by devices on the same wifi network. This means that wifi is a must have to use a Chromecast.

Mobile device (with Chrome Browser)
Movement sensing is done through the browser of the mobile device. The newer versions of Chrome will work better for the game. Not operating system dependent.

Project Plan

Future Work

More accurate gesture tracking?
So we will have feedback for seniors whether they are doing one exercise correctly or not
Team event. Encourage seniors to form groups and compete with another team
Leadership board/ Habit formation.
After integration of the gesture tracking, we can work on habit formation, encouraging seniors to

Inspiration - Senior and Gaming

Wii is highly accepted by seniors and works very well as a tool to help seniors interact with their friends and family, have fun and exercise[1]:

- Seniors feel more motivated and have more fun playing with Wii Fit® compared to regular exercises[2].
- Learning and interacting with technology allows seniors to connect to the current world, interact with their grandchildren, and bond with other seniors[3].



- Seniors realize they are capable of performing activities which they previously thought were impossible due to their age and well-being[3].

- Games for Seniors need to take into consideration Seniors' accessibility and guiding them through instructions as they are unfamiliar with modern technology[4].