POSTER ABSTRACT

Sailgility: eGame for physical stimulation against frailty in mobile devices

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Begona Garcia Zapirain[1], Félix Colás, Iranzu Mugueta, Iñaki Bartolomé

1: Ingeniera, Universidad de deusto, Spain

This work presents a gamified technological solution focused on monitoring and minimising physical frailty. Sailgility is a module of the frAAgiLe platform (fraagile.eu) divided in 3 different levels, each with several exercises; one personalisable level and additional activities. It includes several tutorials and explanations to guide the user throughout all the experience so as to make it as safe and enjoyable as possible.

In order to provide a familiar but enjoyable environment, and one that motivates users to carry on physical exercises, the game flows around the activity of sailing a boat. This way, everything the user is required to do is aimed at sailing the boat, from unmooring the ropes to enjoying the open sea.

The Second Pillar of Integrated Care includes the following 3 key points:

• Addressing health determinants

• Improving population health

• Reducing health inequities

The Sailgility game tackles the 3 of them in a unique solution to prevent frailty in elder citizens. The system aims at improving population health and wellbeing by making personalised training available from home, reducing inequalities as well as anyone with internet access and a tablet device can work autonomously.

The following activities are included:

Radial and ulnar deviation of the wrist for unwrapping the ropes.

Pulling movements for opening the main sail.

Hip lateral displacements for controlling the direction.

Knee and balance training for opening the smaller sail.

Pushing movements for inflating the lifeguard float.

Grip strength for inflating the lifeguard float.

The project aims at including progressively new exercises, as technology develops, and as new needs are detected in the users.

A body tracking system is the main aspect of the gamification strategy, as it allows the user to control the game and collect data on his/her performance combined with a smartband, a grip strength measuring device, different sensors and MIDI Controller.

The creation has involved both elders and carers. The game is being tested with 100 participants older than 55 and with different statuses of frailty during 2 years. 40 out of the 100 are part of the control group, so the professionals are collecting data about their status and monitoring them manually, while the remaining 60 are using the game and its cloud based systems. Those who use the devices are performing tests throughout the established period of time: 2 years. These tests include UTAUT for usability, combined with Tree Testing, Attention Based Engagement and Play Testing Questionnaire for the same purpose. As for the monitoring of the participants ´ health status, these tests are included: Initial Assesment designed by health professionals for obtaining general information followed by MMSE, IQCODE, AD8, MOCA, AMT, GDS and FAQ for the mental status and SPPB, FRIED's CRITERIA and MNA for the physical status. These tests have been placed in time by the team in order to avoid overlaps and so as to collect the best quality in the data.

The key finding is related with the use of body tracking on tablet devices for gamification for elder users.