

# High-tech walking therapy on video floor

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How can we make walking rehabilitation easier, more fun and more effective? This is the question that the University of Twente, De Hoogstraat Revalidatie, UMC Utrecht and LedGo have been working hard to answer in the past two years. LedGo is a world leader in interactive LED video floors and their work features in high-profile entertainment productions such as The Voice, Victoria's Secret and the Eurovision Song Contest. This collaboration has resulted in a permanent

LED video floor for rehabilitating patients to be installed in the DesignLab at the University of Twente Campus on 5 April.

UT creative technologists Dennis Reidsma and Robby van Delden (funded by the COMMIT/ research programme) focus among other things on influencing physical and social behaviour through play and experience. Their Tikkertje 2.0 application has been a great success in getting children up and moving and in enabling scientists to analyse their behaviour.

## **Exciting next step**

"Healthcare is another sector where games can greatly increase interaction with the user," says Reidsma. "We have already explored the possibilities with the De Hoogstraat rehabilitation clinic in Utrecht. Thanks to an LED video floor, not only did they see patients who had never had so much fun during their rehabilitation but they also saw patients regain the ability to walk in record time. Every extra minute that a patient devotes to their exercises results in an immediate benefit. LedGo was keen to take this project to the next level and expand our cooperation. The installation of a permanent floor in the DesignLab is an exciting next step, especially for our research. It is not just a fun floor, but a whole new way of applying interactive technology. We look forward to welcoming the first users and patients soon. Their behaviour will be influenced and measured effectively, so that we can gain a better understanding of how their therapy is progressing. In addition, the therapist will receive a wealth of data on aspects such as the pressure the patient is exerting on the floor. We also hope to convince other clinics to install a floor like this one."

## **HOW DOES IT WORK?**

The UT video floor is modular and covers an area of approximately 9

square metres. The therapist uses a tablet to make the most appropriate selection from a wide range of different games. One takes the form of a continuous path on which leaves appear. The patient's task is to step on a leaf and if they miss they are "eaten" by a shark. "There is often an element of competition to these games," says Reidsma. "That makes them more fun. We are also planning to use the floor for other research. For example, we can display children's games or a 'smart home' with furniture and equipment."

The Department of Telemedicine (part of Biomedical Signals and Systems) led by Prof. Hermie Hermens is also planning to use the video floor for research purposes. For instance, Oresti Baños, a lecturer at the Smart Technology programme within Creative Technology, is involved in a final project that focuses on analysing sensor data.

## **LEDGO: Creative intelligence**

Winnie Meijer, business director of LedGo, is enthusiastic about the collaboration. "This is an ideal form of knowledge sharing. We are eager to apply the knowledge and techniques from our entertainment market to the healthcare sector. For this we need a partner like the University of Twente. They lead the way in the use of available technology and games for medical applications, and the level of graduates is high. The researchers at UT, and Dennis Reidsma in particular, combine this expertise with our innovative techniques. In cooperation with De Hoogstraat Revalidatie and the University Medical Center in Utrecht, we are working on a major follow-up study. Making the floor available at the University of Twente is a sure way to boost creative intelligence as a whole. The collaboration offers greater opportunities for research and cross-pollination among the various specializations with links to our objective."

The interactive video floor will be installed on the morning of 5 April

and will be demonstrated in the DesignLab. From about 11.00 Dennis Reidsma and Winnie Meijer will be available for questions and discussion.

Provided by University of Twente

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