Due to neurological disorders and injuries such as a stroke, a spinal cord injury or a traumatic brain injury, children’s locomotive ability can be affected. In treatment patients rehabilitation process includes gait training, where it is recommended that each movement is trained in a task-specific program. Research has shown that robot-assisted training can increase the intensity and duration for the patients. ‘Gabarello’ is a playable prototype of a physiotherapeutic serious game which combines the robot-assisted gait therapy with virtual reality. Including the virtual reality game increases patient’s motivation and joy while training and allows therapists to include video assistance, immediate feedback and real-time interactive experience. The game is controlled by the patient’s motion in Hocoma’s gait-driven orthosis Lokomat, which provides biofeedback values of the patient’s physical performance. In the first prototype “Gabarello v.1.0” the patient takes the role of an astronaut, who has landed on a planet. On the planet there are lighting flowers that the astronaut has to encounter in order to set them free on collision. In this prototype the patient can move the astronaut and control the walking speed if they train their locomotive functions. In a second prototype “Gabarello v.2.0” some changes were made in the game, the astronaut has to hit red clouds with a rocket-enhanced backpack which is controlled by the patient opening and closing a “PITS” glove. Also the second prototype contains a dual task option that aims to shift the patients focus of attention from the gait locomotion to the upper extremities in order to further automate and improve the gait training.

The rehabilitation games “Gabarello v.1.0 and Gabarello v.2.0” create possibilities to turn locomotive therapy into a stimulating, self-motivated, fun experience, supporting both patients and therapists. The “Gabarello v.1.0” prototype was nominated for the Unity Award 2010 and won the European Innovative Games Award 2010.

**REFERENCES**