

P3S (Playful Supervised Smart Spaces)

Intellectual disability, children, smart spaces

P3S delivers ground-breaking smart space solutions to transform any physical room into a “Magic K-Room” - a multisensory interactive environment

Overview

A “Magic K-Room” is an innovative multisensory interactive environment. It integrates virtual worlds with everyday objects such as toys and lights, which become smart and interactive thanks to our technology. These objects react to children’s movements with a variety of visual, auditory, tactile and olfactory stimuli, and offer children the chance to engage in gaming activities to exercise specific cognitive, emotional, motor and social skills.

A simple authoring tool is included in the product, which enables caregivers to customise each game to address the specific needs of each child. The Magic K-Room technology also offers a set of cloud services that enable therapists to automatically collect behavioural data, share this information with the local or a larger community of specialists, and remotely monitor therapeutic sessions in a Magic K-Room.

Market potential

The Magic K-Room responds to the increasing demand, by therapists, scientists and families, for new or complementary treatments for children with intellectual disabilities. Our innovation enables a level of therapeutic treatment for such children that would not be possible with any existing technology and does so in a cost-effective, scalable manner.

Our market analysis shows that in the EU-28 zone, there are approximately 3,400 assistance centres and 270 therapy centres for children with intellectual disabilities, each staffed by an average of 25 specialists, resulting in a potential market of over 3,500 installations and reach of between 40,000-100,000 specialists.



Key facts

Project started: 2015

KIC: EIT Digital

Theme: Smart spaces and smart objects for children with intellectual disabilities

No. of partners: 6 x KIC partners and 4 x sub-granted partners



EIT Digital support

Beyond creating partnership network opportunities and offering financial support to carry out technical tasks, EIT Digital has promoted a general approach and attitude that focus on social impact and on the need to move from prototypes to robust products ready for commercial exploitation.

Societal impact

As intellectual disabilities affect a significant proportion (2.5%) of the world's population, and occur among all racial, ethnic and socioeconomic groups, the social impact of the Magic K-Room is potentially very high.

An evaluation of our first showcase installation showed that the Magic K-Room brought significant benefits to children with intellectual disabilities that might not have been achieved with more traditional practices.

With its cloud-based services and data gathering tools, the Magic K-Room also makes data collection, sharing and analysis more efficient, objective, and complete, paving the way towards increasing scientific knowledge about intellectual disabilities.

Achievements so far...

- Customisable Magic K-Room Kit brought to pre-commercialisation
- Two Magic K-Rooms installed in Milan (Italy): one at a rehabilitation centre for children with intellectual disabilities and one in the paediatric department of a hospital
- Third Magic K-Room due to be installed at a therapeutic centre in the Netherlands in summer 2016



Scenes from the Magic K-Room

Teamwork

Politecnico di Milano (Italy) is the coordinator of the project, with Telecom Italia (Italy), Fondazione Politecnico di Milano (Italy), ST Microelectronics (Italy), Philips (the Netherlands) and IMEC - Stichting Imec Nederland (the Netherlands) as partners. Our work process capitalises on the rich multidisciplinary backgrounds of all the partners including:

- Hardware boards and platforms (ST Microelectronics)
- Commercial interactive lights (Philips)
- Cloud Services for eHealth and WellBeing, Smart Ambients (Telecom Italia)
- UX design and advanced interaction paradigms for children with special needs (Politecnico di Milano)
- Educational games (Politecnico di Milano)
- Brain computer interfaces, wearable headsets, and algorithms for brain signal analysis (IMEC)

More information

Franca Garzotto (Project Manager)

franca.garzotto@polimi.it

<http://magickroom.com> (product website)

<http://i3lab.me/projects/p3s> (research website)



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