



Call FP7-ICT-2011-7  
SEVENTH FRAMEWORK PROGRAMME  
ICT-2011.5.1 :  
Personal Health Systems (PHS)



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## Partnership



Scuola Superiore Sant'Anna (Italy)



Fondazione Stella Maris (Italy)



STMicroelectronics srl (Italy)



Univerza v Ljubljani (Slovenia)



Universität Hamburg

Universitaet Hamburg (Germany)



Fonden for Helene Elsass Center (Denmark)



Marketing Research & Development SPA (Italy)

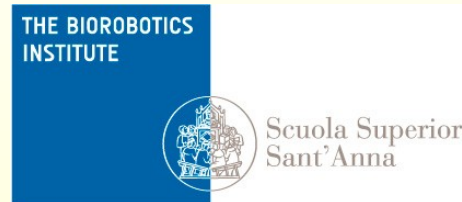
## Project information

**Project Coordinator**

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**Project Manager**

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**Starting date:** November 1st, 2011

**Project Duration:** 36 months

**Project cost:** 3.000.076,00€

**EC contribution:** 2.292.972,00€

[www.caretoy.eu](http://www.caretoy.eu)

# CareToy

A Modular Smart System  
for Infants' Rehabilitation  
At Home based on  
Mechatronic Toys



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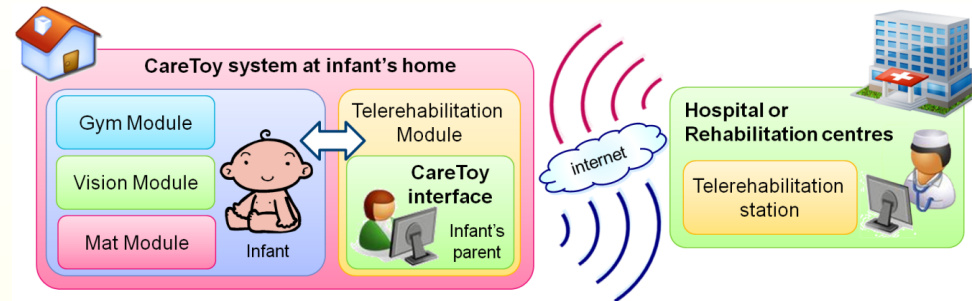
## Objectives

Stroke and other neurological conditions affect the population of infants in percentages that cannot be considered marginal. Preterm infants are the infants at highest risk for neurological damage.

Currently, infants have rehabilitation sessions few times a week in rehabilitation centres but according to basic neuroscience it would be necessary to provide them with an early, intensive and multi-axial intervention.



One option to reduce the cost of the entire European Healthcare System while increasing the practice of rehabilitation is to devise therapies and technologies that can be administered at home by caregivers and telemonitored by rehabilitation staff.



## The proposed platform

The **aim** of the CareToy project is:

- to exploit new ICT and mechatronic technologies to **promote early intervention** in the first year of life;
- to develop an **innovative smart system** based on smart tools, like toys, usable in natural settings, such as the infants' home, in a non-invasive and transparent way, to stimulate, monitor and measure infants' rehabilitation.
- to **reinforce therapy** initially performed in a high-competence medical institution;
- to enhance the medical effectiveness of the therapy while **reducing the cost** for the Healthcare Systems.

The smart system is based on a common baby gym, composed of different modules:

- an instrumented **baby gym** with mechatronic hanging toys, so that the infants' actions on the gym can be measured and stimulated,
- a **vision module**, for measuring and promoting infants' attention and gaze movements and
- a **sensorized mat** for measuring and promoting postural control.

Each module also incorporates built-in signal processor, memory and wireless communication.

A fourth **telerehabilitation module** completes the system that allows the system to remotely communicate with the rehabilitation staff for monitoring and assessing the rehabilitation techniques. The system can be personalized, by adding/removing modules, according to the specific child and his/her specific evaluation and rehabilitation needs.