Why?

If robots are to be truly integrated in humans' everyday environment in order to provide services such as company, caregiving, entertainment, patient monitoring, or aids to therapy, they cannot be simply designed and taken off the shelf to be directly embedded into a real-life setting. Adaptation to incompletely known and changing environments and personalization to their human users and partners are necessary features to achieve successful long-term integration. This integration would require that, like children (but on a shorter time-scale), robots develop embedded in the social environment in which they will fulfill their roles.

What?

The overall goal of this project is the interdisciplinary investigation of socially situated development from an integrated or global perspective, as a key paradigm towards achieving robots that interact with humans in their everyday environments in a rich, flexible, autonomous, and user-centred way.

How?

To achieve our general goal we set the following specific objectives:

- Identification of scenarios presenting key issues and typologies of problems in the investigation of global socially situated development of autonomous (biological & robotic) agents.

- Investigation of the roles of emotion, interaction, expression, and their interplays in bootstrapping and driving socially situated development, which includes implementation of robotic systems that improve existing work in each of those aspects, and their testing in the key identified scenarios.

- Integration of the above capabilities in at least two different robotic systems, and feedback across the disciplines involved.

- Identification of needs and key steps towards achieving standards in methods, design, technology, and evaluation.
Who?

University of Hertfordshire, UK – www.herts.ac.uk
Role in FG: Modelling emotion in robots (internal mechanisms for hedonic processes, development of affective bonds through interaction) and its (non-verbal) expression. Evaluation of affective developmental robots. Leader: Lola Cañamero, http://homepages.feis.herts.ac.uk/~comqlc

Centre National de la Recherche Scientifique, FR - www.cnrs.fr

Ecole Polytechnique Federate de Lausanne, CH - laса.epfl.ch
Role in FG: Modelling the cognitive development of human-human interaction in robots, with particular emphasis on imitation and cooperative learning. Use of expression as feedback to guide task learning in social interactions. Leader: Aude Billard.

Role in FG: Modelling the mechanisms necessary for long-life learning and the development of interaction capabilities, in particular the design and robotic implementation of simple mechanisms can be used to bootstrap at the same time learning and communication capabilities. Leader: Philippe Gaussier.

University of Portsmouth, UK - www.port.ac.uk
Role in FG: Definition of scenarios and evaluation metrics. Expertise in FACS, BabyFACS and ChimpFACS that can be used for the analysis of facial expressions in adult and infant humans and chimpanzees, and robots. Leader: Kim Bard.

Institute of Communication and Computer Systems, GR - www.image.ntua.gr
Role in FG: Automatic emotion recognition from different modalities, particularly recognition from expressive faces and estimation of user attention based on head pose/eye gaze. Contribution towards standardization of FEELIX GROWING results. Leader: Stefanos Kollias.

Entertainment Robotics, DK - www.e-robot.dk
Role in FG: Development of robotic systems to promote emotionally positive social interaction through physical action. Develop modular robotic platform for studies of interaction and emotional resonance. Leader: Henrik H. Lund.

SAS Aldebaran Robotics, FR - www.aldebaran-robotics.com/eng