

# Co-designing a Collaborative So- bot Co-creation Toolkit (Co<sup>3</sup>)

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Participatory Design of a Social Robot (So-bot) Toolkit for  
and with Adults with Autism

Suhaib Aslam

In supervision of dr.ir. Edwin Dertien (Robotics and Mechatronics Group) & dr. Jelle van Dijk  
(Human Centred Design Group)

University of Twente

# Abstract

According to Autism-Europe, autism impacts around 5 million people in the EU. Recent research has shown that social robots, due to their deterministic nature, simplified appearance and technological capabilities, can enable robot-assisted therapy or act as assistive technology for empowering autistic individuals with daily household activities. As such, toolkits have emerged to enable researchers to prototype assistive social robots. In the design and research regarding such toolkits, there are gaps regarding robot designs, fundamental customization possibilities and especially the methodologies for operationalizing and scaffolding the co-design of social robots with vulnerable groups. In order to take a first step towards overcoming these research/design gaps and towards uncovering the right questions about them, the Co<sup>3</sup> Project deals with an exploratory study involving the participatory design of a social robot toolkit for and with autistic adults. The project's components have been co-designed, evaluated and tested with autistic adults at an autism care institute.

The exploratory project has carved a toolkit of linkable social robot building blocks centered around which is a holistic, novel process for conducting social robot participatory design with cognitively impaired individuals. That process has artefacts meticulously designed with the participants in mind—giving the artefacts sufficient scaffolding to make co-design navigable by bridging the imaginative or social impairments of involved participants. The project aims to inspire a movement of scalable, democratized social robot co-design, which can evoke questions on what human-robot interactions to design in the first place and which can empower egalitarian inclusiveness in (co-)design of all users.

# Artefacts

The photographs from next page onwards represent various artefacts that were generated through and were a part of the process of Co-designing a Collaborative So-bot Co-creation Toolkit (Co<sup>3</sup> Project). Before being exhibited, the aesthetic value of some of the artefacts will be improved in “designerly” ways and those artefacts will be chosen to be exhibited (in collaboration with the research committee of the project) that possess the greatest value in terms of demonstrating the project’s aims, prototypes, ideas and results. Possibilities include: Social robot co-creation cards, social robot building blocks, social robot embodiments or prototypes generated by co-design participants (with autism) etc. Particular attention will be paid to also include those artefacts (like the pictured books, “Book of Inspiration” and “So-bot Co-creation Facilitator Guide” in the photographs section) that can be of intellectual value to the attendees and that can offer new praxes or frameworks to think with and through.

# Photographs

The following photographs capture some aspects of the process of co-designing social robot concepts and a social robot toolkit. They only capture early iterations of the project, and before being exhibited and publicly communicated they will be made more appealing. The first picture represents two booklets that are a direct result of the Co<sup>3</sup> Project. The rest of the pictures represent: setup of the social robot co-creation process, social robot co-creation cards, social robot building blocks and social robot embodiments or prototypes generated by co-design participants with autism.











