

Spatial Augmented Reality as enabling technology for collaborative design

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Abstract

Co-design, meant as the active involvement of clients (customers, end-users), designers and other relevant stakeholders in a collaborative design session (Ulrich et al., 2003), is gaining attention both in academic research, where it is often associated with users-centred or participatory design, and in industrial practices. Indeed, it promises to direct design activities towards the fulfilment of well-focused needs, with intrinsic attention to usability issues and with the potential to take into account functional as well as emotional expectations of involved clients.

An essential aspect for exploiting the potential of collaborative design is the natural exchange of information and ideas among the participants; this turns out to be not so obvious when dealing with actors characterized by different background, motivation and expertise.

In this context, this presentation proposes a specific form of Augmented Reality, namely Spatial Augmented Reality (SAR), as a means to support and foster collaborative creative thinking in the design process by reducing language barriers due to diversity of background and sketching skills of the design team members. Spatial Augmented Reality is here conceived as a technology to enable a more efficient communication between design team members, to foster ideas circulation and exploitation and ultimately to facilitate brainstorming and early assessment of design solutions in a Co-Design environment.

The SAR platform here presented has been developed within a European project, namely SPARK "Spatial Augmented Reality as a Key for co-creativity" (www.spark-project.net), funded by the European Union's Horizon 2020 research and innovation programme (Grant Agreement No. 688417). The presentation will share the main features of the SPARK platform and the first experimental activities carried out to compare SAR, "traditional" Augmented Reality applications and conventional approaches to collaborative design. Two design agencies, Artefice from Milan and Stimulo from Barcelona, participated to real co-design sessions that were analysed in detail to elicit advantages and current limitation of the SAR which turns out to be a candidate enabling technology to radically improve collaboration between difference actors in co-design sessions.

Keywords: Design Creativity, Collaborative Design, Augmented Reality, ICT for creativity

References

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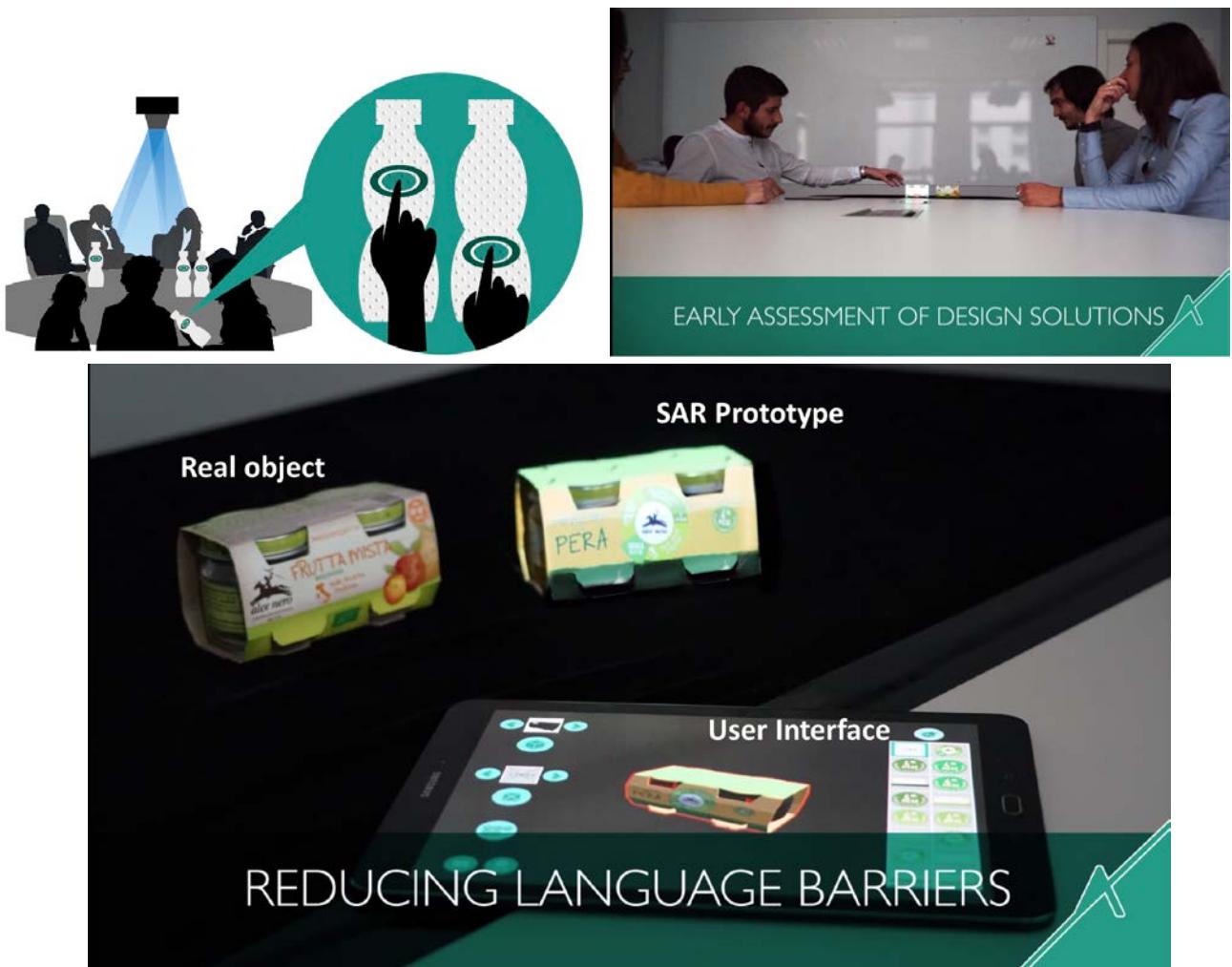


Figure 1. Collaborative design session supported by the SPARK technology.