
The Natural Ubiquitous Call-out

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Abstract

In this paper we propose a novel way for remote people communicate naturally like if they were in the same room. This prototype leverages the contextual and multimodal frameworks of ITEA2 project "EASY Interactions", and modern identification and voice recognition technologies to provide a user-friendly and intuitive interface.

Keywords

Communication, location-awareness, context-awareness, multimodal, natural interfaces, ubiquitous computing

ACM Classification Keywords

H5.2. User-centered design

Introduction

Although most people today are equipped with 3G-enabled mobile phones, video calls have not become popular yet. As an explanation for this usage, we believe that initiating a video call using a mobile phone is too much pain for no much gain: the quality is too low and the display too small for a comfortable experience, especially in public/crowded environments, such as conferences.

Challenge

It is natural to use our voice and hands to call out a colleague who is not too far away when one wants to communicate about something immediate and/or in vicinity. But visual communication in higher distance becomes challenging, e.g. trying to reach a colleague who is in another room/building of a conference. Our objective is to make such communication as easy and intuitive as a natural call out, without having to carry any device.

Proposition

In the frame of the EASY Interactions project¹, we are leveraging our Context Management Framework [2], Social Radar [1] and Multimodal Engine to build an Ubiquitous Video Call-out infrastructure, as a proposed solution of the previously stated challenge. This infrastructure relies on the deployment of numerous screens and cameras for localizing, identifying people and relaying their communication, as depicted on Figure 1.

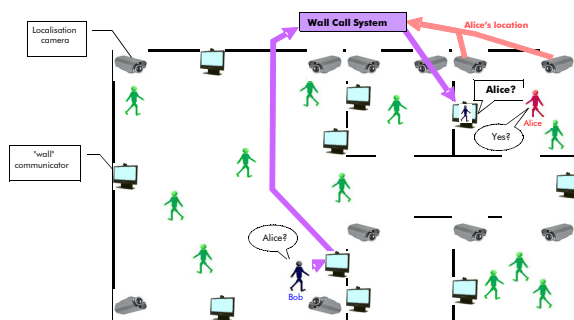


Figure 1. Ubiquitous Video Call-out deployment.

Scenario

Alice and Bob are attending demonstrations in a conference. Alice wants to attract Bob to the demonstration she is currently attending. She calls him out by saying his name to a camera-equipped screen. The screen recognizes her, and found that "Bob" is the name of her colleague that currently attends the same conference as her. A camera recognizes Bob's face, enabling the closest screen to call him out, on behalf of Alice. Bob hears his name and faces the camera-equipped screen to respond to Alice.



Figure 2. Calling out using virtual windows (in three steps).

Discussion

With support of the EASY Interactions consortium, including cognitive science and usability experts, we have designed an intuitive human-system-human interaction paradigm in which the camera-equipped screens act as proxies of called people, enabling calling out remote people like if they were close.

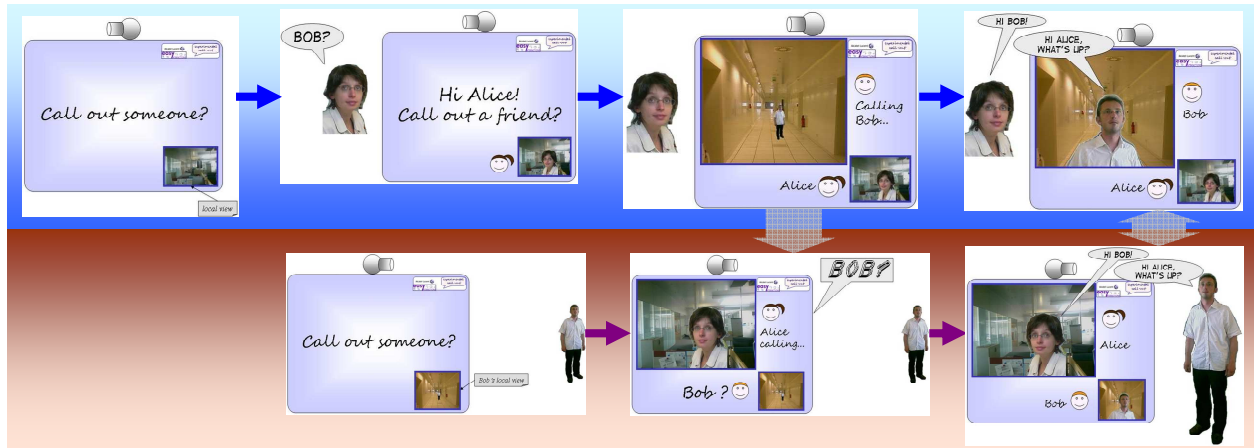
References

- [1] J. Daigremont, R. Skraba, P. Legrand, V. Hiribarren, and M. Beauvais, "Social Communications: Applications that Benefit from your Real Social Network", *ICIN* 2008.
- [2] R. Kernchen, D. Bonnefoy, A. Battestini, B. Mrohs, M. Wagner, and M. Klemettinen, "Context-awareness in MobiLife", *IST Summit* 2006.

¹ <http://www.itea2-easy-interactions.org/>

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Telecommunication without any device or skills



Innovation Perspectives...

User focus
close to real-life

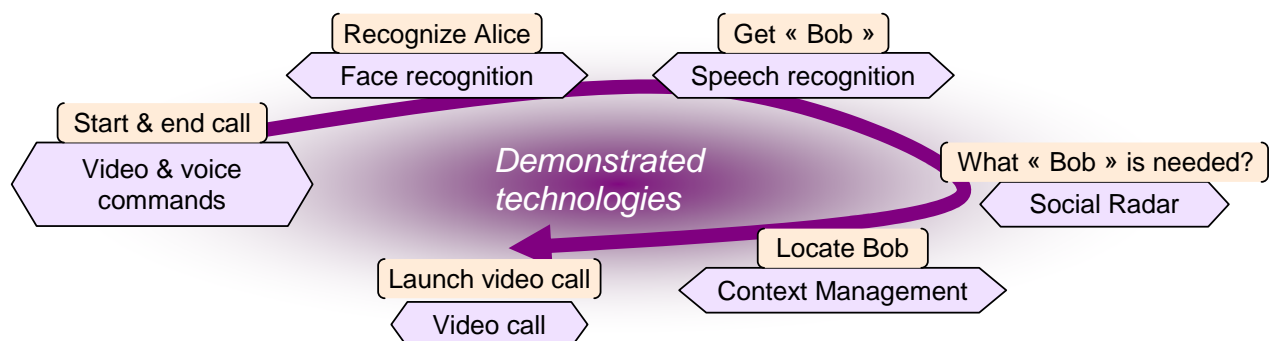
Technology Integration
apply technology to new domain (*open innovation*)

Technology Research
progressing towards product enablement

The **EASY Interactions** project is about leveraging new technologies to make it easier to communicate with machines. More specifically, this demonstrator aims to bring telecommunications closer to real life.

In certain situations it is more natural to call out someone we want to talk to than use a mobile phone, choose a contact or phone number and be dependent on radio networks. We extend this communication, that we call natural call-out, to remote interlocutors. Our challenge is to make the technology as invisible as possible to the end-user, notably excluding the needs for user skillset and portable device.

The issues raised (see following figure) are addressed in the scope of our research topics: Context Management [1], Social Networking [2] and Multimodal HMI (including user adoption). Our results make it possible to demonstrate an Ubiquitous Video Call-out infrastructure: a set of video-call devices that provides the means to call out anyone anywhere.



References:

- [1] R. Kernchen, D. Bonnefoy, A. Battestini, B. Mrohs, M. Wagner, and M. Klemettinen, "Context-awareness in Mobilife," Mykonos, Greece: 2006.
- [2] J. Daigremont, R. Skraba, P. Legrand, V. Hiribarren, and M. Beauvais, "Social Communications: Applications that Benefit from your Real Social Network," Bordeaux, France: 2008.

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