ACM HotMobile 2013 Demo: Bringing In-situ Social Awareness to Mobile Systems: Everyday Interaction Monitoring and its Applications

Chulhong Min[1]
chulhong@nclab.kaist.ac.kr
Chanyou Hwang[1]
chanyou@nclab.kaist.ac.kr
Taiwoo Park[1]
twpark@nclab.kaist.ac.kr
Yuhwan Kim[3]
yuhwan@nclab.kaist.ac.kr
Uichin Lee[5]
uclee@kaist.edu

Inseok Hwang[1,2]
inseok@nclab.kaist.ac.kr
Chungkuk Yoo[1]
ckyoo@nclab.kaist.ac.kr
Changhoon Lee[3]
changhoon@nclab.kaist.ac.kr
Younghyun Ju[1]
yhju@nclab.kaist.ac.kr
Junehwa Song[1,3]
junesong@nclab.kaist.ac.kr

Jaeung Lee[3]
leejai@nclab.kaist.ac.kr
Miri Moon[3]
miri.moon@nclab.kaist.ac.kr
Haechan Lee[1]
haechan@nclab.kaist.ac.kr
Youngki Lee[4]
youngkilee@smu.edu.sg

Affiliation
[1]Dept. of Computer Science, KAIST, Daejeon, Republic of Korea
[2]Center for Mobile Software Platform, KAIST, Daejeon, Republic of Korea
[3]Division of Web Science Technology, KAIST, Daejeon, Republic of Korea
[4]School of Information Systems, SMU, Singapore
[5]Dept. of Knowledge Service Engineering, KAIST, Daejeon, Republic of Korea

I. Introduction

Does our smartphone help at a variety of social gatherings in our everyday life, for instance, having dinner with family and meeting friends? For a few recent years, smartphones have been rapidly penetrating to our everyday lives. Yet, it is still at an early dawn that the smartphone applications and systems are closely immersed into everyday social activities. We share so many moments and activities with other people right here, right in front of us, and so will smartphones [4]. We argue that, many, in-situ co-presenting smartphones serve as a newly emerging substrate to accommodate whole new in-situ social applications. These applications have huge opportunity in every facet in our daily lives, e.g., providing new user experiences or facilitating social interactions during shared social activities. They could also take advantage of the larger, more capable union of computing devices and resources.

In this demo, we introduce a novel initiative toward everyday face-to-face interaction monitoring system. Among diverse verbal, aural, visual cues expressed during face-to-face interaction, we first focus on capturing diverse meta-linguistic information from conversations and providing it for interaction-aware applications on-the-fly. Undoubtedly, conversations are a key channel for face-to-face interaction. Specifically, monitoring conversational turns, i.e., alternation of different speakers (including none speaking), is the first crucial step to derive diverse interesting aspects of conversations, e.g., who is talking right now, how long and often one talks, how quickly one responds to another, and so on. More interestingly, various social indicators can be found in many real-life situations, such as inferring the performance of a group meeting in terms of idea generations and problem solving [1], deriving one's leadership and role in a discussion or a problematic situation [2] and enriching everyday children monitoring [3] with their peer interaction patterns of educational implications.

II. Demonstration

To premier, we present an experiential showroom; the guests are invited to not only watch and discuss our demo but also experience the live monitoring on their conversation with us while visiting our showroom.

We first show our initial application deployment and conceptual extension in real-life situations. Then we organize the interaction feature space – individual, relational, and sessional – where the conversation turns serve as key primitives. To demonstrate the
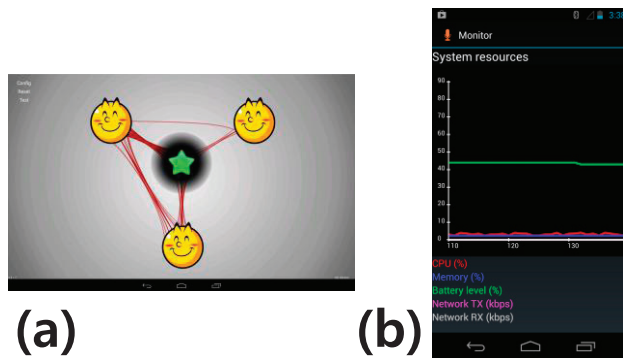
Figure 1 Screenshots of applications

underlying technical operations, we setup a live visualization of the on-going turn-takings in the natural conversation between the guest and our staffs.

Initial applications: First, we present a short video of everyday speech therapy for autistic children. This video delivers a concise digest of our field study at a local kindergarten with an autistic child. It begins with our motivational observation and expert interviews. Following that, we show an initial deployment of our application designed to promote desirable conversation practices. Then, we also introduce our extended vision in a group dating scenario as well.

Underlying operations: We demonstrate the in-situ turn-taking monitoring by our system. This specific demonstration is entirely fed by the natural conversation between the guest and our staffs. Figure 1 (a) shows a screenshot of our tablet-based visualizer, denoting who are taking a turn from whom. To demonstrate the resource feasibility to realize everyday monitoring, Figure 1 (b) shows our live resource monitor showing CPU usage, battery status, and network bandwidth.

III. Acknowledgement

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