Disclosure Management in Context-aware Mobile Social Awareness Systems

Umar Rashid, Woontack Woo, *Member, IEEE*

I. Introduction

Context-aware mobile devices are increasingly used for social communication. This phenomenon raises serious concerns for privacy of users [1]. In this paper, we present Personal Disclosure Management Assistant (PDMA), a conceptual framework for managing the disclosure of personal information in context-aware mobile social awareness systems (CAMSAS).

II. Conceptual Framework

The underlying assumption behind our conceptual framework is that CAMSAS is capable of acquiring user's personal information at finest level of detail. The goal of PDMA is to empower subjects (i.e. users which personal information is about) to determine which subset of their personal information is to be made available to recipients. In other words, the central notion of this construct is transformation of "known to the system" to "disclosed to recipients" on "need to know" basis determined by none other than the subject per se. The transformation process is illustrated in the Fig. 1.

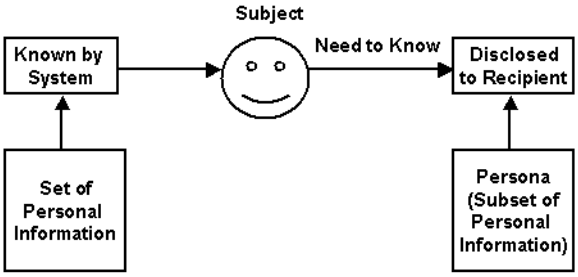

Fig. 1. Central Notion of Conceptual Framework

Disclosure Manager acts as the central processing unity (CPU) of PDMA. It is this very component that is responsible for transforming the information "known by the system" to the "disclosed to recipient". The data flow in different components of disclosure manager is shown in Fig. 2.

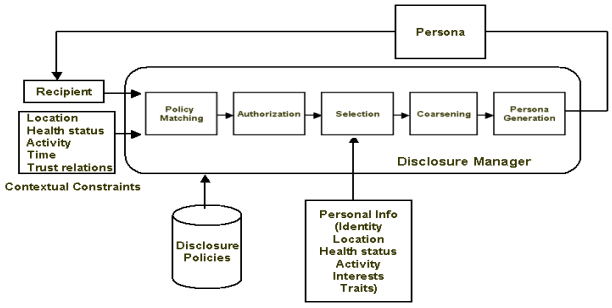

Fig. 2. Disclosure Manager in PDMA

If contextual constraints at the time of disclosure match those specified in any disclosure policy for a particular recipient, then "Authorization" module does further processing to check the "Availability" status specified in that particular policy. If "availability" status is "yes", then "Selection Module" specifies the type of information to be shared with the recipient. Afterwards, coarsening module selects the proper granularity level of the selected types of information. In later stage, "Persona Generation" module generates the persona containing selected information types at their selected granularity levels and discloses it to the recipient.

III. Conclusions

We propose a conceptual framework for selective sharing of personal information in CAMSAS. In future works, we intend to integrate it with UCAM, a middle-ware for context-aware ubiquitous computing application. We also plan to implement a prototype and conduct usability evaluation of PDMA.

Acknowledgment

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References

[1] Counts, S., Hofte, H. and Smith, I. (2006). Mobile Social Software: Realizing Potential, Managing Risks. CHI 2006 Workshop on Mobile Social Software.

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Umar Rashid is a graduate student at Gwangju Institute of Science & Technology, Republic of Korea (corresponding author to provide phone: 82-62-970-2284; fax: 82-62-970-2204; e-mail: urashid@gist.ac.kr).

Woontack Woo is Associate Professor at Gwangju Institute of Science & Technology, Republic of Korea (e-mail: wwoo@gist.ac.kr).