Intelligent Personal Assistant for Natural Interface to Smartphone

Sung-Bae Cho

Department of Computer Science, Yonsei University,
134 Shinchon-dong, Sudaemoon-ku, Seoul 120-749, Korea
scho@cs.yonsei.ac.kr

ABSTRACT

Recently mobile phones have become an essential tool for human communication, to the Ministry of Information Communication in Korea, in the latter half of 2002 the number of mobile phone subscribers increased by 18,540 thousands as compared to that in 1998.5 total subscribers have subscribed CDMA 1x EV-DO service that provides at maximum 2 speed. As more people use mobile phones, various services based on mobile phones and high-end devices have been developed.

Smartphone which integrates the functions of personal digital assistant (PDA) and phone earns world-wide reputation as new personal business assistant and entertainment equipment because it is all-in-one device: many technologies such as wireless voice communication, digital camera, and multi-media player are converged into one. Especially, with the rise of the concept of ubiquitous computing, the demand for personal intelligent service on mobile devices like smartphone gets higher. However, current devices have constraints of limited processing power, and awkward interaction devices. In need of AI techniques specialized in smartphone to cope with these constraints on intelligent services in real.

There are three major issues in implementing intelligent service in constrained environment. The first is to gather information which provides meaningful features for user's state. It is directly explicit information from user can never be an intelligent technique. Good technique should be able to provide sufficient information while not bothering the user and not invading the user's privacy. The second is to infer and predict user's state from collected data. Predicting user's state from data can be formulated as conventional classification task. Many AI techniques

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have been successfully applied to this problem. The third is service selection or composition. We can select one service from pre-defined service library or compose novel services appropriate to inferred user's state dynamically.