HELSINKI INSTITUTE FOR INFORMATION TECHNOLOGY

Personalised Ubiservices in Public Spaces PUPS – Coordinator: Dr. Patrik Floréen

TEKES Ubicom programme project, 1.8.2007-31.7.2009.

Partners: HIIT, VTT, Bitlips Oy, Ekahau Oy, Elisa Oyj, Idean Enterprises Oy, K-Plus Oy, Nokia Oyj, Ramblas Digital Oy, Tuulia International Oy, UpCode Oy, Finnish Federation of the Visually Impaired.

Project objective: Designing, implementing and field trialling prototype ubicomp applications that combine context-awareness with personalisation in order to provide a better user experience in everyday tasks in public spaces.

We undertake probabilistic modelling for combining personalisation with context-awareness, make user experience research with user trials, develop services and prototypes on mobile devices, and design business models.

We have two application areas: consumer support (example application: Ma$$iv€) and social mobile media (Funnelry).

Results and plans

The support of partner companies has been vital in the project. The companies have contributed not only to the funding, but have also provided software, hardware and consulting services to the disposal of the researchers. We have built a natural language search engine that is based on shopping data received from K-Plus Oy and on real shopping lists collected from customers [1, 2].

Context-dependent user modelling is used to find out what information is relevant to the user in Ma$$iv€ [3] and Funnelry. The development of Ma$$iv€ is challenging due to the integration of several technologies, and also requires interaction with multiple stakeholders. Technical challenges in Funnelry relate to the complexity of having multiple sources of information from several people at the same time, and also to implement an input to the original social media sources through Funnelry.

User studies (Ma$$iv€ feature preferences, natural language search engine, predictive text input, Funnelry) have been undertaken. Further user studies will be undertaken during the end of 2008 and beginning of 2009.

Publications

[1] P. Nurmi, E. Lagerspetz, W. Buntine, P. Floréen and J. Kukkonen: "Product Retrieval for Grocery Stores." Proc. 31st Annual International ACM SIGIR Conference (SIGIR 2008), 781–782

[2] P. Nurmi, E. Lagerspetz, W. Buntine, P. Floréen, J. Kukkonen and P. Peltonen: "Natural Language Retrieval of Grocery Products." Proc. ACM 17th Conference on Information and Knowledge Management (CIKM 2008), 1413-1414

[3] P. Nurmi, F. Boström, P. Floréen, J. Kukkonen, E. Lagerspetz, P. Peltonen and P. Saarikko: "Ma$$iv€ - An Adaptive Shopping Assistant." Adjunct proceedings of the 10th International Conference on Ubiquitous Computing (UbiComp 2008)

Project homepage: http://www.hiit.fi/ada/pups

Ma$$iv€

Ma$$iv€ is an adaptive intelligent shopping assistant for customers in K-Citymarket Itäkeskus (our collaborative shop). It is web-based and thus accessible both from mobile devices and desktop computers. Ma$$iv€ integrates multiple functionalities:

- Natural language shopping list management
- Natural language search from the store database of products
- Collaborative filtering recommendations of products
- Interface to a recipe database for easy inclusion in the shopping list
- Interface to current promotions and contextual personalised advertising
- Nutritional information with support for a healthy lifestyle
- Navigation and support to find products in the shop
- Voice output to users

FUNNELRY

Funnelry aggregates social media (in first phase Facebook and Flickr) as a mobile web application. The aggregated content is personalised and context-aware, so that the user is presented with information that is interesting in the current situation.