Enhancing Restaurant Menus Through Personalised Meal Recommendations

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RESEARCH CHALLENGES

- Most retail and hospitality venues are still yet to take advantage of mobile computing as a means for pervasive customer interaction.
- The transition from physical venue browsing to mobile venue browsing requires common information exchange standards and form factor usability research.
- This transition naturally presents a need for innovation in terms of new digital features that are made possible through the use of mobile devices.
- Products can differ greatly from venue to venue, making it difficult to correctly balance abstraction and specificity in the design of standards and features.
- Personal customer information can be involved in such digital venue browsing systems and therefore a sense of user control and privacy must be provided.

APPROACH

To explore solutions to these problems we have created an application that supports mobile interaction with digital restaurant menus, and have conducted think aloud evaluations to test this prototype.

This prototype has three main components:
- Standard restaurant menu information
- Digitally enabled features
- Personalised meal recommendations and feedback

ARCHITECTURE OVERVIEW

- Restaurant Data
  - In-house designed Venue Menu Schema (VMS). An XML schema based on the recipe markup language RecipeML. VMS is a standard that businesses and developers could use in the creation of future pervasive venue browsing systems.
- Menu Mentor Application
  - A mobile application that combines VMS menus and a user's personal information for the purposes of browsing and personalisation.
- Personalisation Engine
  - Content-based and critiquing hybrid recommender
  - Provides weights to individual meals based upon a user's likes, dislikes, allergies, meal ratings and long-term ingredient feedback.
- PersonisJ Integration
  - A client-side user modelling framework for Android devices

CONTRIBUTIONS

- Implementation of a digitally enhanced restaurant menu application.
- Design of an XML Schema standard for venue menus.
- Creation of a functional multiple-input menu personalisation engine with detailed scrutable feedback.
- Detailed think aloud evaluation results for both the digitally enhanced restaurant menu and the menu personalisation.*