

IPRO 305 – HawkTour – An IIT Campus Tour Application

Midterm Progress Report

1. OBJECTIVES

The fall 2004 IPRO 305 team will be continuing the efforts of ongoing research at IIT in the realm of Pervasive Computing. The team will be focusing on the challenge of integrating Pervasive Computing into a specific aspect of the IIT campus. The overall vision of the IPRO 305 team is to continue efforts to develop an application called HawkTour – a virtual Illinois Institute of Technology tour guide. HawkTour will provide a completely new approach to the campus tour at IIT. The application will be designed to run on Tablet PC's or other devices with similar computing capabilities, and will provide the user with general campus information while guiding the user around campus and maintaining complete awareness of the user's current location and intent, thereby adapting the tour to the user's own personal preferences. The objective for this semester's team is to build on the framework designed during the Spring 2004 semester, and increase the test bed of the system to include not only location awareness within buildings, but also outdoors. In addition, several new software features will be added, including the ability of the software to interface with hardware devices wirelessly.

Major design goals:

- Understand the current location and provide surrounding campus information. This includes respective building information and history about the building.
- Provide campus information on demand and at all times.
- User-friendly interface in navigation through the campus and in the campus buildings.
- The application should be easily extensible so that new campus tour features can easily be added.

2. REVISED GOALS

Our original goals have not been changed since the beginning of the semester, but we have added the following additional goals:

- Study actual IIT tours and determine core functions these tours provide.
- Document extensively the generated application source code and the overview of the application design.

3. CURRENT PROGRESS

The following tasks have been completed by the team thus far:

Application Development Team:

- Entire application rewritten from the ground up.
- All application subsystems complete.
- Content loading and streaming more effective.

Design Team:

- Initial user interface designed and partially implemented
- Initial analysis of actual tours complete

Hardware Interface Team:

- Design and initial implementation of interface and API complete.
- Integration with application partially complete.

4. TIMELINE

Full integration of all the application subsystems will be complete by the third week of November. User testing will commence at that point. Documentation will begin the final week in November, and continue on through the end of the semester. On IPRO Day, the finished application will be presented to the public.

5. TEAM ORGANIZATION

Currently the team is divided into three groups that will each focus on one of the major aspects of the project. Responsibilities are not defined on an individual level; rather, the activities are assigned to a sub-group as a whole. The sub-group is assigned a leader who is responsible for delegating tasks among the sub-group members, and ensuring assigned tasks are accomplished. As the goals for each group are accomplished and the needs of the project change, members may be reassigned to different groups, old groups may dissolve, and new groups may be formed.

- *Application Development Team* – This team is responsible for the actual design and implementation of the actual HawkTour application, including the main application and its subsystems, and both the location and content services.

Members of this team: Robert Brozyna, Tyler Butler, Nicu Ilea, Nicholas Lee, Michael Sepsot, Kamil Sobczyk, Dan Wolkenfeld, Yap Yen

- *Design Team* - The design team is responsible for analyzing actual tours to determine useful application functionality, and also designing the application user interface.

Members of this team: Chris Cais, Won Chung, Andrew Kim

- *Hardware Interface Team* – The hardware interface team is responsible for developing, implementing, and documenting the HawkTour hardware interface, and also testing it and integrating it into the application.

Members of this team: Aaron Collver, Santhosh Meleppuram, Henry Oyuela

6. PROBLEMS

The largest issue the team has encountered thus far is the difficulty of being able to adapt the code that was written in previous semesters to fulfill our goals for this semester. This has partially been solved by looking back at preexisting documentation and redesigning the application from the ground up. Some major problems that have already been solved are designing an extensible and fast mapping subsystem and devising a way to integrate Bluetooth devices with the application.