

Allen Rabinovich

CS377a
Project Proposal

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Spatial Wiki / HHG2E: Combining the notion of user-editable knowledge base with location-aware mobile devices to aid tourists and travelers with exploration and navigation.

Abstract

Tourists and sightseers frequently run into a problem of not knowing enough about their location – not in terms of address, but rather in terms of interesting historical, cultural and geographic facts. While such data is readily available for famous landmarks, those who prefer less traveled areas have virtually no information sources at their disposal.

Building up such a database with a centralized group of editors is an extremely inefficient method of doing it, since it is impossible to send guide editors to such a large number of locations; in addition, many characteristics of various locations frequently change (new buildings, new statues, changing landscapes, etc.), and keeping such a widespread guide updated would become a very complex process.

I thus propose to create a spatial wiki, aka Hitchhiker's Guide to Earth: a location guide that would be directly and immediately editable by its very users. Accessible from smartphones, or Wi-Fi / Wi-Max enabled PDAs, the HHG2E would use the GPS location data to provide user with the relevant information about their location. The key point is that the user will be able to immediately edit and append this information, and create new pieces of data if none is provided. If the device has a camera, the user will have an additional option of adding photos to the wiki entry.

The wiki will be also accessible as a web portal, allowing stationary Internet users to browse what essentially amounts to annotated maps.

Potential users:

- Tourists who prefer less-traveled destinations
- Writers/Artists who make and record observations
- Field workers / geo-surveyors, etc.

Research Questions:

1. Is the concept of user-editable knowledgebase appropriate when used from a mobile workstation?
2. What are the appropriate input/output modalities for the device linked to a wiki database?
3. What is the best way to determine the location of the user? Is that sufficient information to adequately tie the data available in the wiki to the viewport of the user?
4. What is the best method of interaction to combine receiving and editing information?

Interface Ideas:

1. If there's data available about the user's current location, the device produces a discreet signal (vibration, blinking). The user can fine-tune whether the device automatically brings up the information on the screen / plays it through an earphone.
2. The information is instantly editable: i.e., if the information is on-screen, it is presented in a textbox – the user can make changes to the data and send it back right away.
3. A nearby locations feature allows the users to look for interesting sightseeing opportunities in their immediate vicinity.
4. Advanced trip planner / navigation possibilities?

The Project Deliverable:

1. If a PDA with GPS is available, then the deliverable is a functioning prototype that allows users to associate data with locations. The prototype will be limited to the Stanford campus, since that would give the device easy access to the Wi-Fi infrastructure. If a PDA with GPS is not available, then the deliverable will be a mockup device that will allow to perform user tests.

2. User tests

References

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Using and determining location in a context-sensitive tour guide. N. Davies, K. Cheverst, K. Mitchell, and A. Efrat. *Computer*, 34(8):35–41, 2001.

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Ward Cunningham. **WikiWikiWeb**. <http://c2.com/cgi-bin/wiki>.

Weekly Schedule

April 19th, 2005 – Finalize Proposal

- Discuss the possibilities for getting a PDA + GPS
- Other device possibilities
- User testing avenues

Week of April 18th, 2005

- Contextual inquiry
- Interview people who did some backpack / less popular traveling
- Observe tourists in San Francisco, interview service representatives in tourism/information centers (in San Francisco and Stanford)
- Identify technologies necessary

Week of April 25th, 2005

- Produce lo-fi prototypes of the system
- Identify precise user needs and modify lo-fi prototype accordingly

Week of May 2nd, 2005

- Begin a Hi-Fi on-device prototype of the system.

Middle of May: User tests with Hi-Fi prototype, data collection

May 17th, 2005: Poster session at HCI workshop

End of May: Final modifications to the prototype, result analysis, first draft of the CHI paper.

Early June: Submit paper / presentation