# People, Places and the NewsPilot

**Per Dahlberg, Johan Redström and Henrik Fagrell**

The Viktoria Institute

Box 620, SE-405 30 Gothenburg, Sweden

{dahlberg, johan, fagrell}@viktoria.informatics.gu.se

http://viktoria.informatics.gu.se

**ABSTRACT**

This paper reports from a project, called NewsPilot, where we explore how context aware computing can be used to support mobile collaborators. An empirical study of journalists at a local radio station in Sweden has informed the design of a prototype system. The system is built using a personal digital assistant (PDA) fitted with a radio transceiver and filters information based on the users physical location in relation to geographic places and other users.

**Keywords**

CSCW, Context aware computing, Field study.

## INTRODUCTION

The perhaps most common "filter" in everyday life is information selection based on location. So trivial, it is almost difficult to appreciate we tend to place information tags where they are most appropriate. We place the shopping-list on the refrigerator or the front door, but rarely in the bedroom. If we are looking for books on Software Engineering at the library, we will go to the section on computing to filter out all other types of books.

However, the past years development of information technology has been used to bridge the (physical) distance between people. Mobile phones give us a number that can be seen as tied to a person, rather than to a specific location. Portable computers let us read mail and have access to information networks at almost any location. When information are available at certain locations, there is a "natural" filter mechanism and by exploring the context of IT usage –such as the user's location- is a promising strategy when trying to cope with information overload.

This paper describes a prototype -called the *NewsPilot*- that filters information based on the users physical location in relation to geographic places and other users.

## CONTEXT AWARE COMPUTING

To frame our project with other work, we here summarize the concepts and usage of a few predominant systems for context aware computing.

Firstly, Shopper's Eye [1] is a context aware application that was developed for physical shopping at an outside mall. The shopper only gets information from the nearest shops. The user can specify a number of relevant interests when shopping, which are then used in a filter mechanism. Based on preferences and location the user thereby gets a limited amount of relevant information. Shopper's Eye was implemented using a GPS-receiver and a Windows CE PDA. The system does not use any mobile data communication. All information is stored locally, and has to be downloaded with a stationary computer.

GUIDE [3] is a tourist guide system that shows information about places at a city. At each moment, the user gets dynamic information about his or her current location. The user interface is based on a web browser and at each location, the user is presented a number of links to relevant information resources. The system is designed for a citywide setting rather then in a local in-door setting and is based on a number of network cells that broadcasts information, but also functions as a normal network. As a client a notepad PC, with touch screen is used.

Finally, in the Thinking Tags (TT) project [2] the focus is on enhancing face-to-face communication between people. The tag is configured with the user's interest profile. When two persons are in front of each other, the tag indicates how much in common the users have by lighting up a number of LEDs. The TT is limited to communicating with only one tag at a time, rather than being aware of all persons –or tags- at a location. The only information exchange between the tags is submission of the users profile.

To summarize, Shopper's Eye and GUIDE are based on the geographically location of the user, while the Thinking Tags are based on the physical location of other people, related to the user.

## THE NEWSPILOT PROJECT

The aim of the project was to explore how context aware computing could be used to support mobile collaborators. To inspire our work we conducted fieldwork at a local radio station in Sweden (RS). We have focused on how dissemination and filtering of information can be connected to the users' mobility.

### The Prototype

The NewsPilot system consists of three parts: clients called NewsPilots, local transmitters and a central server. The server collects and distributes mails, headlines and other pieces of information. These are repackaged into NewsPilot-messages and encoded with meta-information

about at what locations and/or for which users the information is relevant. The local transmitters are small radio transmitters installed at each location (e.g. offices, meeting rooms and lunchrooms). The function of the local transmitters is to inform the NewsPilot of where it is located.

The client is based on the 3Com Palm III. The PDAs were fitted with radio transceivers in order to be able to communicate with each other and with transmitters in the surroundings. The client periodically sends out an ID-tag that other clients can pick-up. Hence, NewsPilots may be aware of the presence of other NewsPilots. The client also sends the current tasks of the user to the central server that processes and searches for related work.

### Empirical Base

On the editorial staff at RS people continuously engage in informal discussions about how news stories may be reported and who might contribute. When a journalist gets a story to investigate it is a necessity to find out background information. From a journalistic point of view this is very important, because the story has to have originality, i.e. if the story has been under coverage before it need to be approached from a new angle and if the story is new it needs to be put in an appropriate context. Another important issue is that the journalist does not always know if other RS journalists or news channels (e.g. the local newspaper) have worked on the story or related stories before.

A typical working day for a journalist could be described as a bit chaotic. Each minute the journalist has to perceive new information and re-prioritize what to do next. The constant shift of focus is mainly based on which persons that are present at each situation, on what news ideas that are coming up. The office landscape is open-plan and most co-workers work at different desks depending on which task they are doing.

The design implications for context aware computing in this setting would be:

- Facilitate contacts between journalist that could contribute to each other's task when they are geographically close to each other.
- Filter information that is relevant in the geographical place where the journalist is working currently.

#### *Context Awareness of People*

One of the most important information resources for the journalists is their colleagues. They discuss the potential news and relates it to the RS mission. The journalists always try to get comments from each other. This is partly supported by the architecture of the open-plan office since it is easy to locate someone that can give assistance.

Here, the NewsPilot could support the journalist with the following information:

- Which other persons are present near the journalist (Because the NewsPilot uses radio, this is possible when there are obstacles, like walls in the way of our ordinary senses).
- What they are currently working on.
- That a certain interesting person, given the users current task, is present

#### *Context awareness of Places*

In the center of the office, there is a table and a shelf with newspapers. This place is used for reading and annotating recent newspapers. When a journalist is at this location he or she is interested in getting information about related stories produced both internally and externally.

The NewsPilot should in this case:

- Filter out information from the RS broadcasting report archive.
- Filter out information from other news channels, e.g. web-based newspapers.

## DISCUSSION

Although pre-trials have been done, a formal evaluation made in the same setting as the fieldwork will have to be done in order to conclude whether the system is useful to the group of collaborators it is designed for. Such as study, would also make it possible to investigate the relation between information tied to persons and information tied to places. Using NewsPilot to find out more about what information to route where and when in a dynamic environment, will give new insights in how we should create useful context aware computing applications.


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