Activity sensing with software sensors

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A computer science researcher at the University of Leicester has investigated a technique which senses the activity of the user with the help of computer software systems.

The doctoral study by a Pakistani student aims to deliver the systems which change according to the situation of the user by using Software Sensors that scan the context of the user.

Kamran Taj Pathan, who is carrying out the research in the Department of Computer Science, said: "To facilitate the user with the change of environment computer systems need to be aware of the user's profile, location, time and activity, to fulfill the user's own needs in the current context.

"Ubiquitous computing refers to the invisible integration of devices into everyday life (Weiser, 1988). One of the fields of ubiquitous computing is context-aware systems which promises to capture the user's needs and hence the requirements they have on systems. With the mobility of devices this field is becoming more popular".

Currently, activity - i.e. what a user is doing - is relevant information traditionally gathered by use of hardware sensors (e.g. tracking devices).

The research aims to lessen the burden from the hardware sensors which may be more expensive and will take time to install.

Mr Pathan said: "Consider a scenario where a student wants to meet with

his supervisor according to a scheduled meeting at 9am in the office. On the day he has come to know, through the system, that the supervisor could not attend due to adverse weather.

"With the use of software, the system can obtain the information virtually by a user's own profile and surrounding systems and can infer the activity by applying rules onto it".

To deal with the software, knowledge should be structured and context sources should be reusable and extendable. In support of this a Generic Semantic Model would be presented at Festival of Postgraduate Research 2010, University of Leicester on 24th June.

He added, "This will not only help an individual to get the system to behave according to his current needs but will also be useful for Private and Public Organizations (such as Law Enforcement Agencies, Education, Travel, Shopping Centers and Banks etc.) who depend on Collaborative Working Environments to support their users with system that make the computer more ubiquitous".

Provided by University of Leicester