

Hermes – The Next-Generation Mobile Context-Aware Toolkit

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Motivation

- Context-aware applications are increasingly important yet time consuming and difficult to build
- Existing toolkits do not address the mobile environment

Goals

Create a software toolkit which,

- provides a framework for rapid and efficient context-aware application development
- supports shared use of context information
- targets impoverished or low-capability devices (e.g. sensor nodes, mobile phones)
- includes built-in support for security & privacy
- includes support for intelligibility (e.g. explain why it did something)
- leverages the power of cloud computing

Approach

- Use a light-weight widget (a tiny program module) based approach where each device has one or more widgets



- Each widget is responsible for a type of context information



- A widget connects to other widgets to get information, thus forming a “widget-net”



- Widgets can explain how a piece of context information was derived

- Widgets only provide context information to authorized widgets via secure channels

Applications

Disaster Response Teams

- Team members' carry devices that provide & share relevant context via p2p networking
- Decides what information is given to each team member using context
- Security protects stored & transmitted information from falling into the “wrong hands”



Elder Care at Home



- Devices use and gather context information to help extend & enhance the quality of life for the elderly
- Context aids in the daily activities of the elderly & helps caregivers assess situations
- Devices from various manufacturers discover each other and complement each others capabilities
- Device can explain to their elderly users and caregivers why certain action/decision were taken or not; while protecting private & sensitive information



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