IST-002057 **PalCom**

Palpable Computing:

A new perspective on Ambient Computing

Deliverable 46 (2.14.3)

Vers. 1 of the Product Prototype.

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Aarhus School of Architecture

Revision 1

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Integrated Project

Information Society Technologies

Information Society Technologies

1.1 Overview

The Overview prototype is part of both WP8 and WP14. For that reason the presentations of the prototype in this deliverable (D46) and deliverable D44 are identical.

The Overview prototype supports emergency responders (fire fighters, doctors, ambulance people and police) in obtaining and maintaining an updated overview of an incident and the ongoing emergency response process. The prototype brings together assemblies of local and distributed devices – geographic positioning systems (GPS), wireless bio-monitors, mobile phones, radio frequency identification (RFID) tags and readers, still- and video-cameras, various input and output devices, and many more, exploiting grid resources such as connectivity, location information, satellite photography and GIS data services. In various locations outside the immediate danger zone, these assemblies can be interrogated using the PalCom Major Incident Overview (MIO) prototype. The prototype consists of a 3D environment containing a digital terrain model of the relevant area overlaid with roadmaps, aerial photography, GIS information (emergency routes, location of fire hydrants, location of dangerous industries, etc.), depending on what is available for that area. The prototype supports freehand drawing on the 3D terrain, inclusion of pictures or other documents, inclusion of 3D objects (e.g. buildings, vehicles, representations of people), and free manipulation of those. The prototype supports collaboration via shared access to the incident workspaces from a variety of locations, and supports localized views and tools for manipulations. The MIO prototype augments collaboration done in and through talk with support for 'stretching' the materiality and scenic intelligibility of human and material behaviour. Staff is expected to continue to use radios and mobile phones, even though their use may change. MIO is designed to utilize the PalCom open architecture (PalCom 2006), which supports inspection of the computational processes and affordances involved in MIO assemblies. In Figure 10, 11, 12 below we list and illustrate what has been developed through building on top of and through extending existing elements from the toolbox and by integrating with and extending 3rd party software:

- Integration of 3rd party application, Topos, with PalCom services through a gateway service. (in collaboration with WP7)
- Overview of PalCom-enabled resources in Topos, shown geo-referenced in relation to map / GIS / 3D terrain:
    - Live tracking of GPS positions of resources via signals from PalCom GPS services. (in collaboration with WP7)
    - Active biomonitors turn up as objects and live data from biomonitor can be displayed.

- Simulation of GPS and biomonitor services for testing and use in Demo Kit setting.
- Snapshots from GPS-tracked web-cam shown at geo-referenced position in Topos. (in collaboration with WP7)

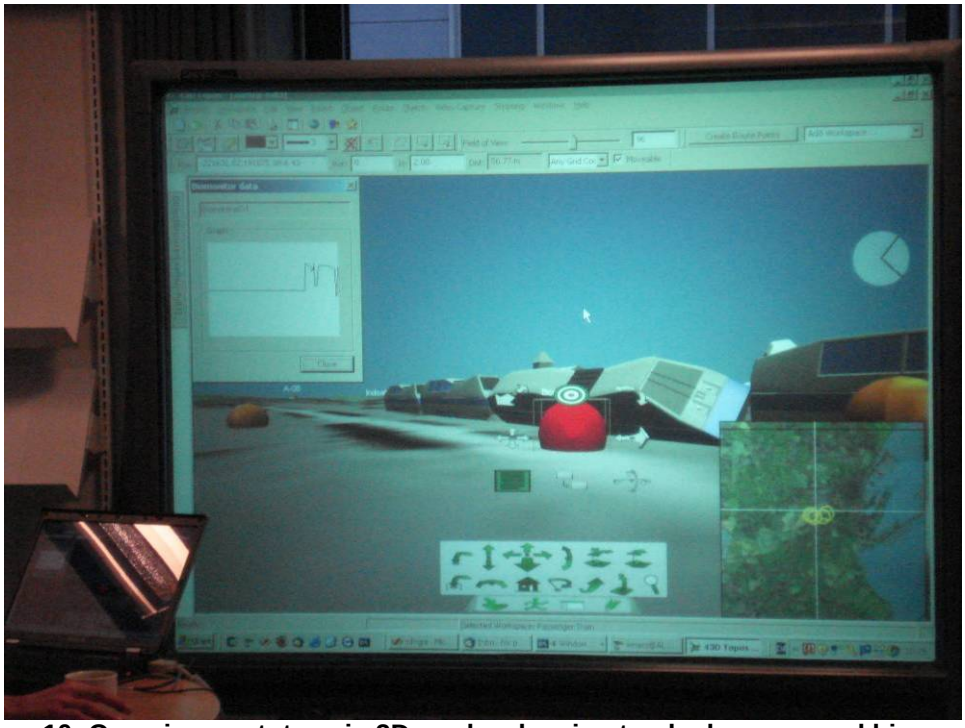

Figure 10: Overview prototype in 3D mode, showing tracked person and biomonitor data

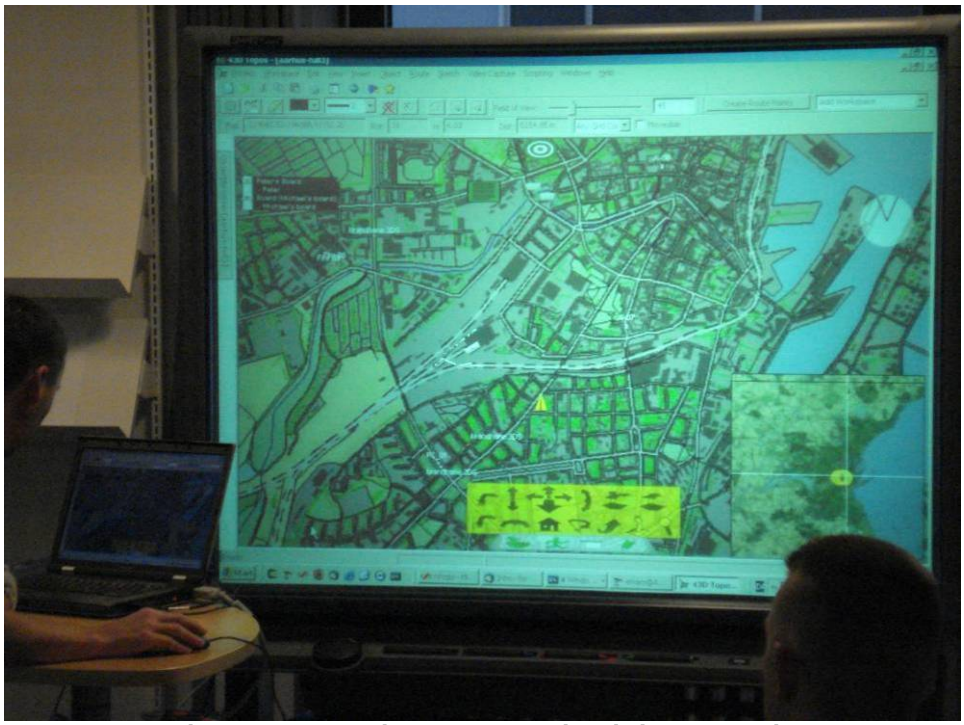

Figure 11: Overview prototype in Birds Eye mode

- To support Major Incidents Overview the Topos application has been extended with the following functionality:
  - 2D Overview
  - Bird's eye mode
  - GIS file reading (ESRI shape files, MapInfo MIF/MID/TAB,…)
  - GIS data draping.
  - A GIS inspector to browse tabular information.

- Ghost objects for distinguishing between tracked and intended position of objects/resources

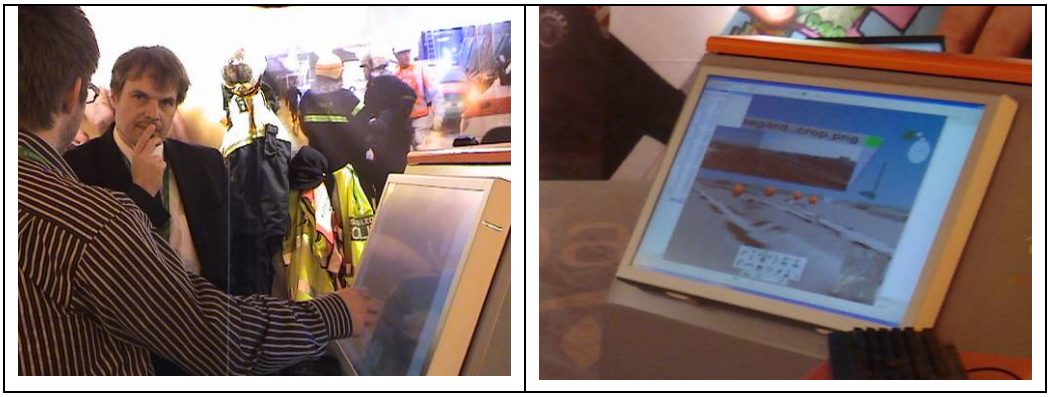

Figure 12: Overview prototype at IST (right picture shows GPS tracked pictures)

The Overview prototype utilizes the PalCom open architecture to allow people to assemble a vast array of devices and services – palpably. Palpability is supported through the way in which the architecture facilitates construction/deconstruction as well as local and remote information, rich feedback and inspection tools, like the Assembly Browser.

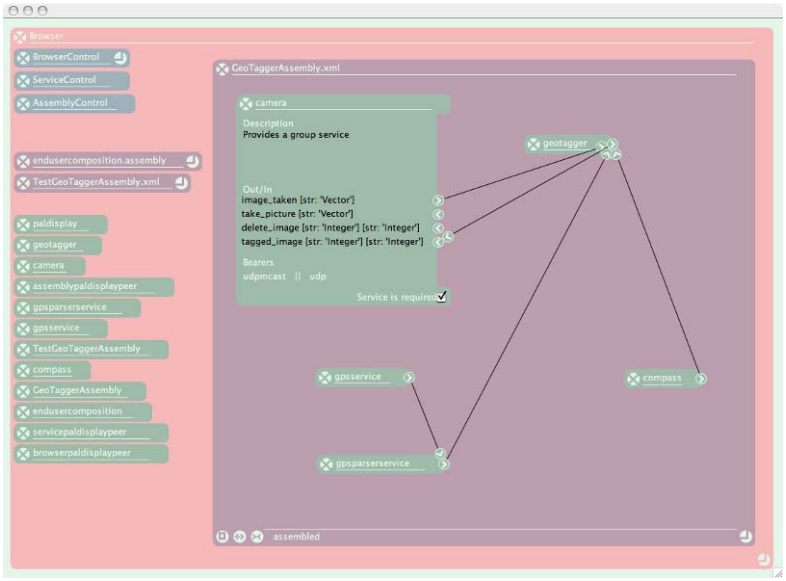

Figure 13: Remote assembly inspection by means of the Assembly Browser.

1.2 Future Work

The Biomonitoring prototype will be treated as a lesser priority in the future with the exception of their positioning as they are to be tracked in the Overview prototype. The Overview prototype will serve as the main basis for testing and further advancing many aspects in relation to the Palcom open architecture. Furthermore we will focus on elements for the toolbox, necessary for the Demo and Dissemination Kits version 2. Exploration of especially understandability and the balance between user-control and automation, when use of palpable applications and assemblies scale up in MI settings, will be in focus.

1.3 Major Incidents references

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