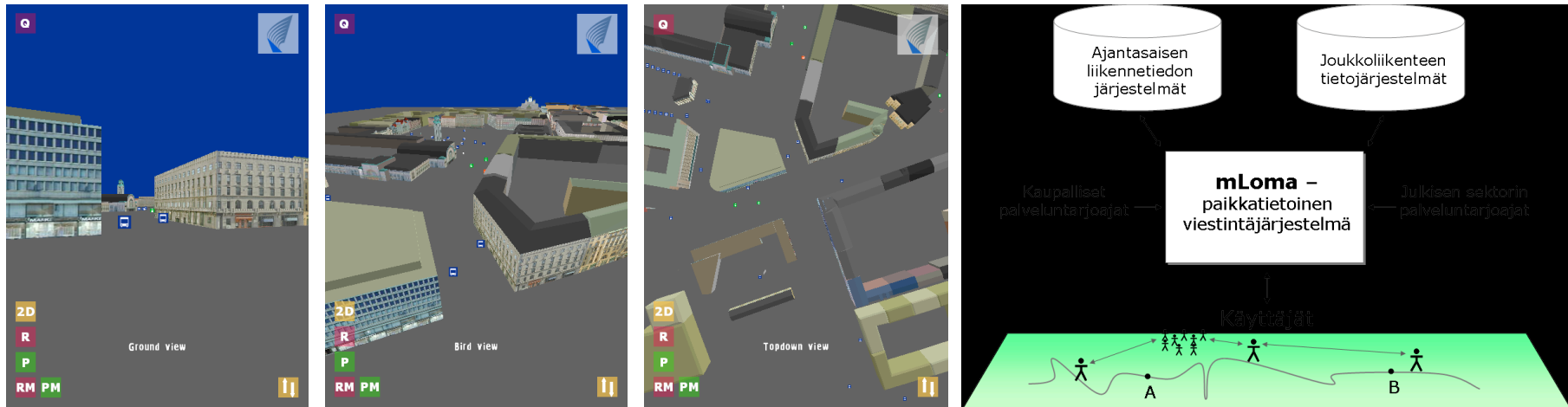# MoveOn – Prototyping mobile integrated location-based services in public transportation

A proposal submitted to TEKES' VAMOS program

Helsinki University of Technology TKK (INIT-Lab)
Helsinki Institute for Information Technology HIIT

Aims and Approach

Investigate technological and human preconditions for succesful mobile location-based services in public transportation and active citizenship

- Research and development objectives
  1. **Integration** of relevant actors' service models and databases
  2. Designing **usable** interactions for complex services
  3. Abstraction and **generalization** from cases to the features and functionalities of the platform
  4. (Elaboration of **meaningful** service and business models)

- Approach
  - **user-centered** design (user studies, interaction design, iterative development, field trials with 2 close-to-real prototypes)
  - **participation** of stakeholders (through seminars, workshops, expert reviews and lectures, and informal practices)
  - **case-based** approach (2 close-to-real, concrete prototypes, developed together with partners and tested on the field)

mLoma capabilities in 2005

- We do not start from an empty table!
- Graphical, real-time rendered 2D and 3D user interfaces
  - 3D particularly suitable for proximal orientation, a needed *option* for users at times
- A robust messaging system, where messages can be attached to any point in space or map objects
- Real-time, fast wireless access to content databases (for example, tourist information, public transportation and restaurants)
- Dynamic content updates for local data caching
- Scalable real-time tracking capability (other users with GPS tracking enabled, public transportation with tracking support, etc)
- Data transfer and compression protocols for mobile use
- Native C code, support for rapid use in multiple platforms
  - Symbian Series 60&80, Linux, Windows, MobileWindows and Mac OS X
- Acknowledged UI design for mobile use together with HIIT/UERG

2 Cases, 2 Prototypes

1. Matkakortti++

- Services pre, during, and after mobility: trip payment and management, real-time stop information and route guidance
- "Transportation-aware" adaptive services like commercials and entertainment, destination-related services (restaurants, museums, shops), location-based opportunity search

2. Citizen media

- Vertical messaging; e.g. comments, questions, feedback to authorities

- Horizontal, user-to-user activism through location-based multimedia; e.g., votes, messages, communities

- Location-adapted time-killing media and entertainment

Project outline

- 200 000€ / year
- 2-2,5 years
    - 60% TKK (platform and prototype R&D)
    - 40% HIIT (user-centered design, trials)
    business and service model evaluation done if wanted
- One iteration cycle for each prototype per 8 months
- Workpackages
    WP1. Technology development (40%)
    - Platform development: support for RFID, cell locationing etc.
    - Integration formats and protocols
    - Multiplatform support
    - Performance and conformality development
    WP2. User-centered design (40%)
    - User research
    - Interaction and UI design
    - Prototype field trials
    WP3. Service integration (20%)
    - Concept development
    - Business and service models
    - Databases

Deliverables

- Third generation functional prototypes
- Performance tests
- Data integration results
  - Conformality tests for standards
  - Recommendations for suitable formats
- Results of user trials
  - Opportunities and restrictions for use in general
  - Suitable user groups
  - Implications for UI design
- Emerging ideas and lessons learned for business and service models

Status

- Proposal submitted 7.10.2005
- Negotiations
  - Agreed to fund
    - Nokia
    - Elisa
  - Expressed interest, negotiations this week
    - HKL
    - WM-Data
    - Tieliikelaitos
    - SysOpen
  - Your company?
- If we are successful, the project starts 1/2006