

Design user friendly location based mobile application

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Introduction

- Location Based Service
- Design principles for LBS application
- Examples from MOPSI

Location Based Services

- LBSs are information services accessible with mobile devices through the mobile network and utilizing the ability to make use of the location of the mobile device. (Virrantaus *et al.* 2001)

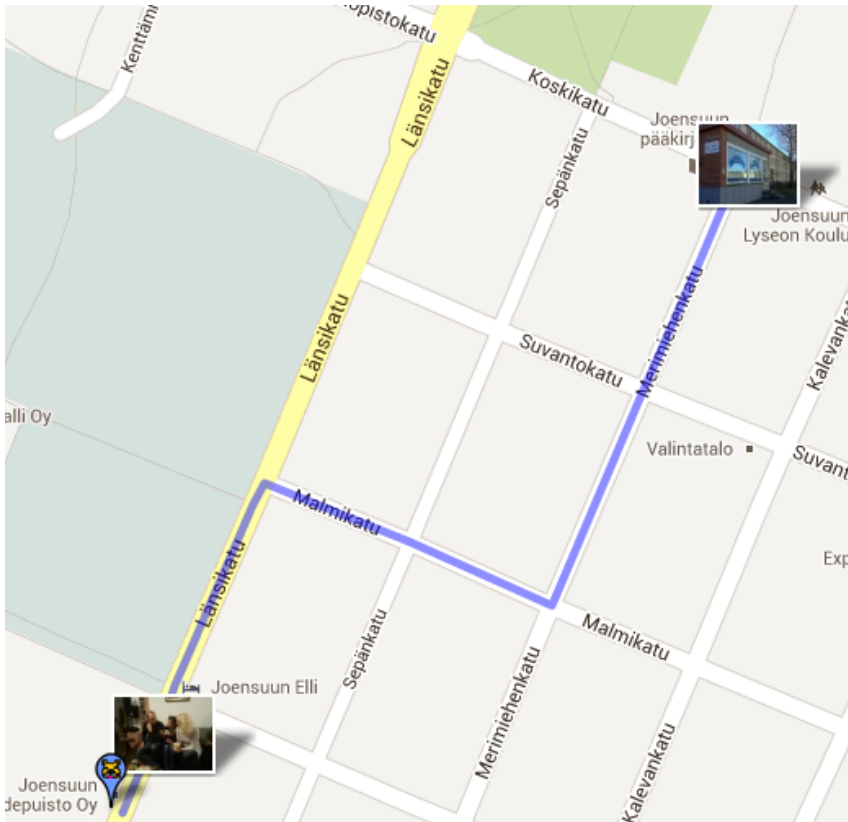
User needs from LBSs

Five elementary mobile actions with respect to user needs on geographic information.(Reichenbacher 2004)

User action	Question
orientation & localisation	where am I? where is {person object}?
navigation	how do I get to {place name address xy}?
search	where is the {nearest most relevant &} {person object}?
identification	{what who how much} is {here there}?
event check	what happens {here there}?

User actions with MOPSI

Navigation

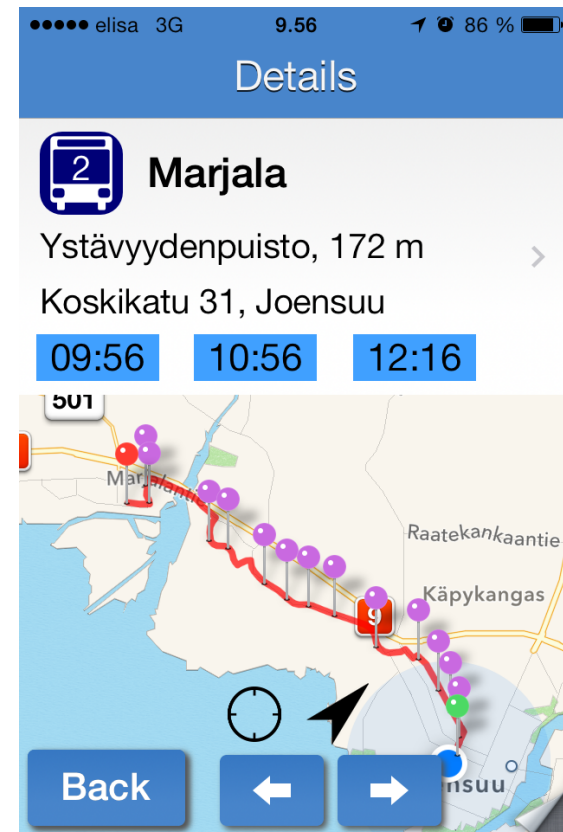
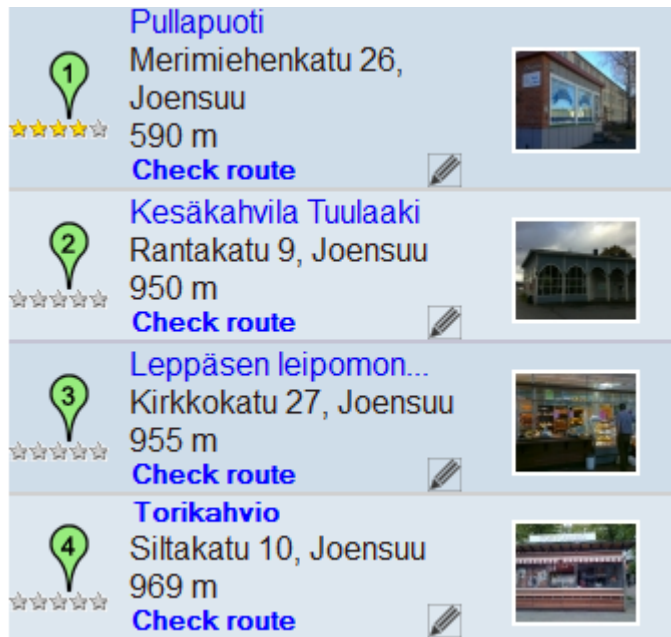


Orientation & Localisation

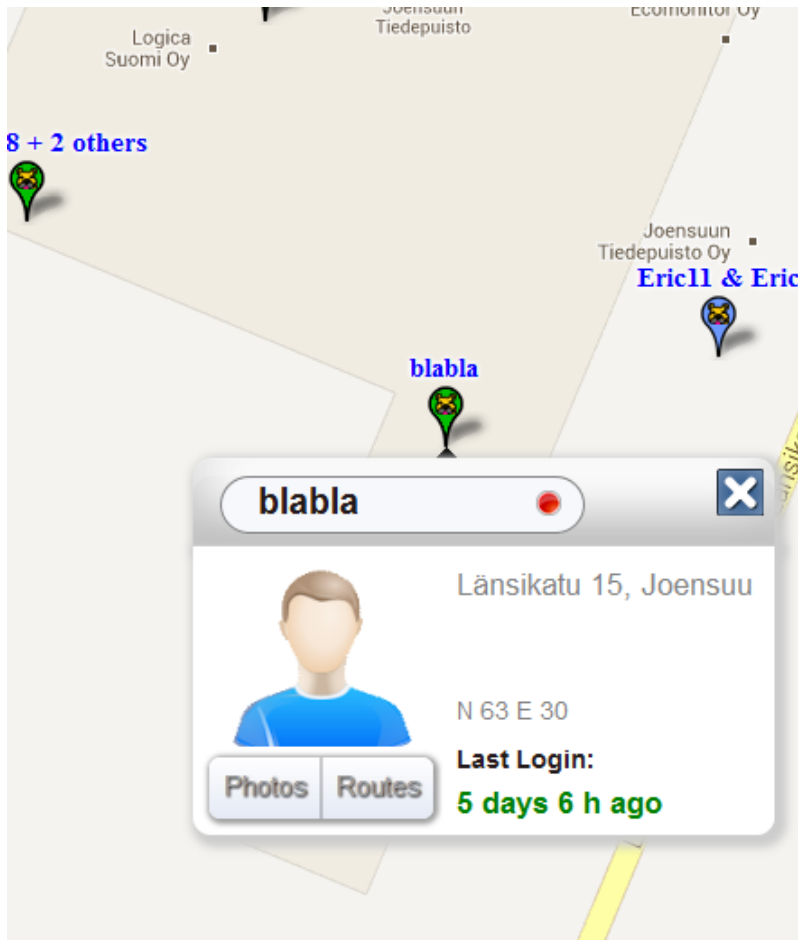


User actions with MOPSI

- Search
- Eventchecking



User actions with MOPSI



Identification

How to make a LBS app useful?

Useful= **usability** + **utility**

Utility= whether it provides the features user needs

Usability= How easy and pleasant these features are to use

Usability

"the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use." - ISO 9241-11

Usability Components

- Easy to learn
- Efficient to use
- Easy to remember
- Few errors
- Pleasant to use

User centered design

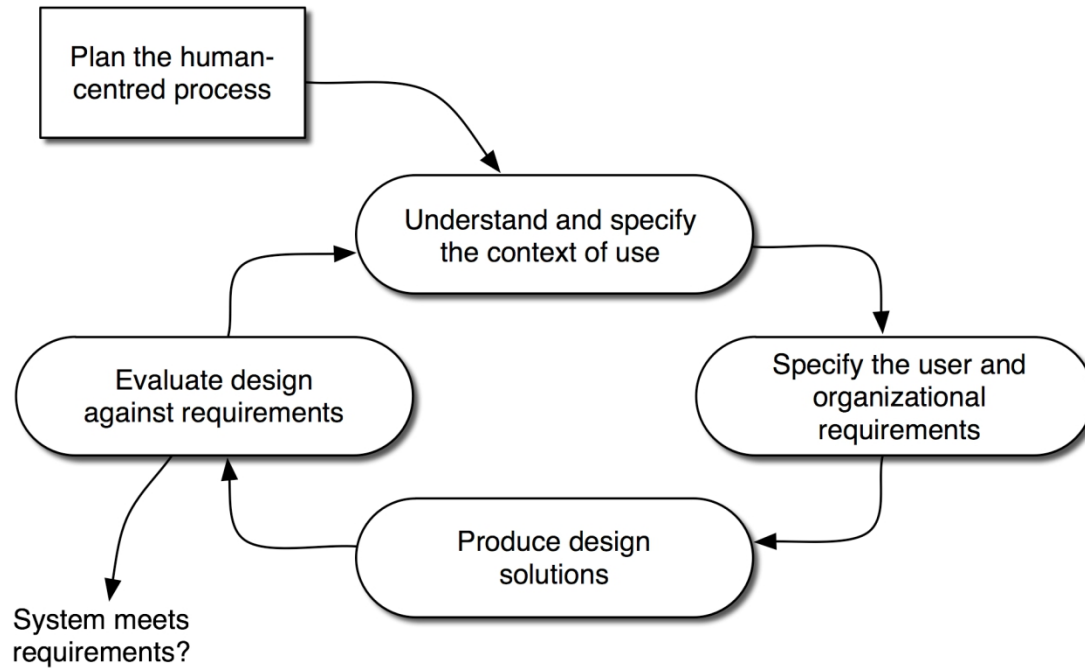
- User-centered design (UCD) is a design philosophy where the end-user's needs, wants and limitations are a focus at all stages within the design process and development lifecycle

User centered design principles

The ISO (9241-210) describes 6 key principles that will ensure a design is user centered:

- The design is based upon an explicit understanding of users, tasks and environments.
- Users are involved throughout design and development.
- The design is driven and refined by user-centered evaluation

Design process



**The human-centered design process,
ISO-13407**

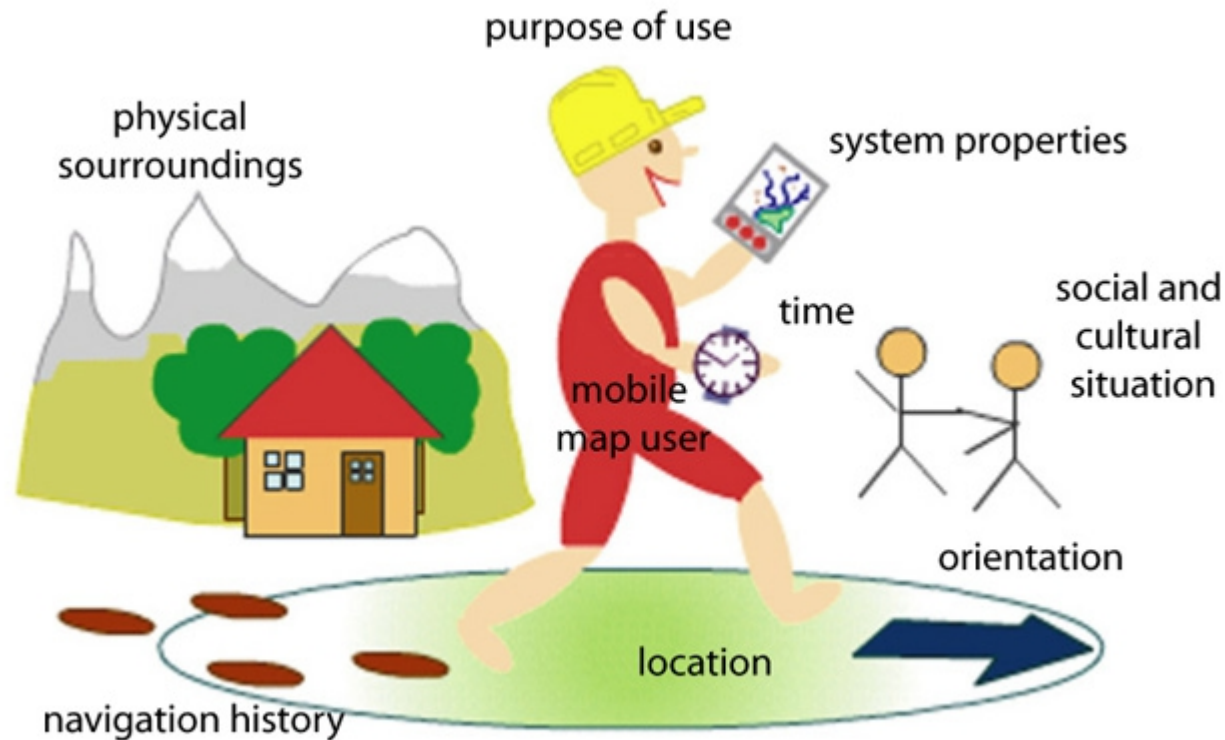
Common mistakes

- Unrealistic goals
- Poorly defined requirements
- Poor communication among user, designer and developer

Context of use

- What makes Location based services different? **Awareness of the context**
- Context is any information that can be used to characterize the situation of an entity.
- An entity is a person, place, or object that is considered relevant to the interaction between a user and an application.

Context of use



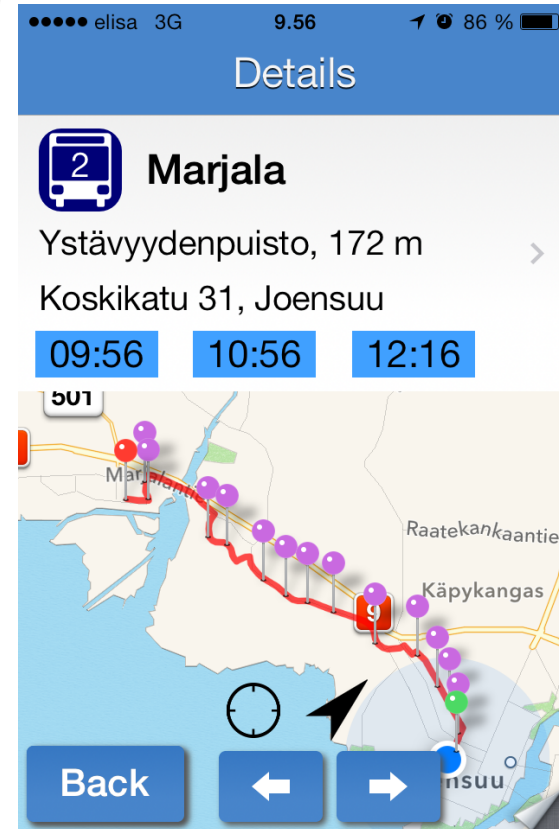
Different types of context after Nivala et al.
(2003b)

Context of use

Relevant contexts

Current address
Time
System
property

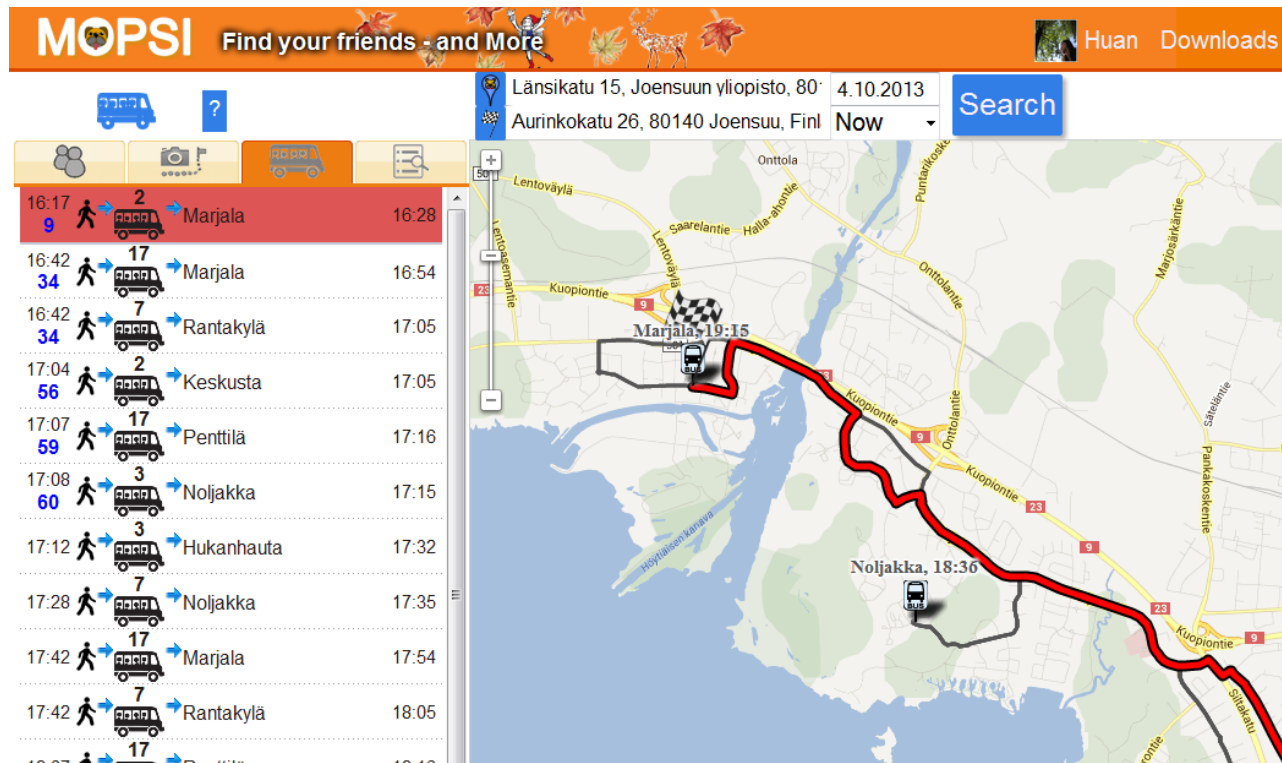
Bus check on Mopsi mobile app



Usability evaluation

One of most common usability evaluation method is **user testing**

- Get representative **users**
- Ask them to perform representative **tasks** with the design
- **Observe** what users do



Usability evaluation

Some of the problems we find

- Lack of self-explanation
- Lack of flexibility in inputting address

We found what else user would expect

- Navigation to bus stop
- Eventcheck for what is happening around

Questions?