

**University of Stuttgart**

Institute of Parallel and Distributed  
High-Performance Systems (IPVR)

Breitwiesenstraße 20 - 22  
D-70565 Stuttgart

# The VIT-System: A Location-Aware System for the Internet



**September 2000**

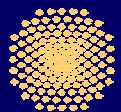
**Martin Bauer**



# Content



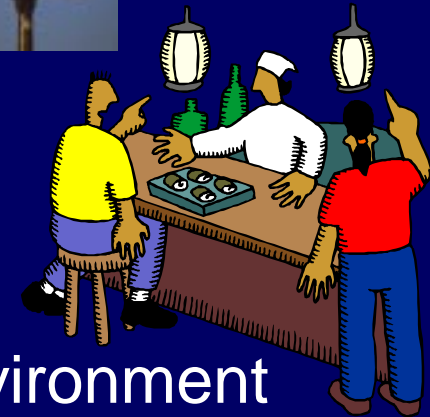
- Motivation
- Demonstration
- Architecture
- Conclusion
- Discussion



# Motivation

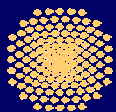


- Information interesting in local context
  - ◆ Bus schedule
  - ◆ Supermarket opening hours
  - ◆ Nearby pubs



+ Mobile devices & ubiquitous computing environment

➤ Location-aware access to information and services

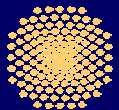


## Goals



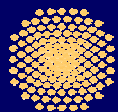
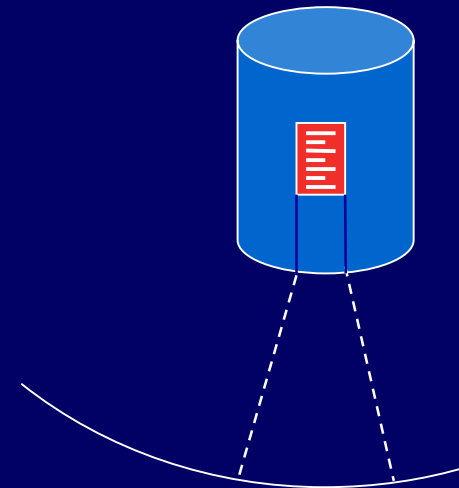
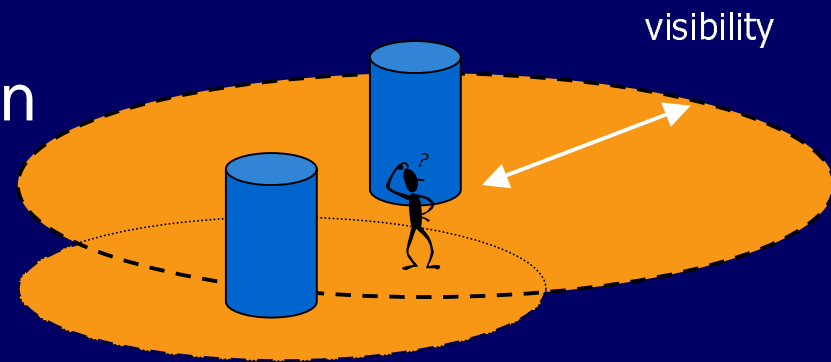
- Supporting different location-aware systems and devices
- Seamless integration with existing Internet mechanisms and protocols
- Make publishing location-aware information easy
- Overview and easy access to information
- Intuitive metaphor

## ➤ Virtual Information Towers (VITs)



# Virtual Information Tower (VIT) Metaphor

- Virtual Information Tower  
~ real-world advertising column
- Fixed geographical location
- Range of visibility
  
- Posters
- Active posters
- Notes on blackboard



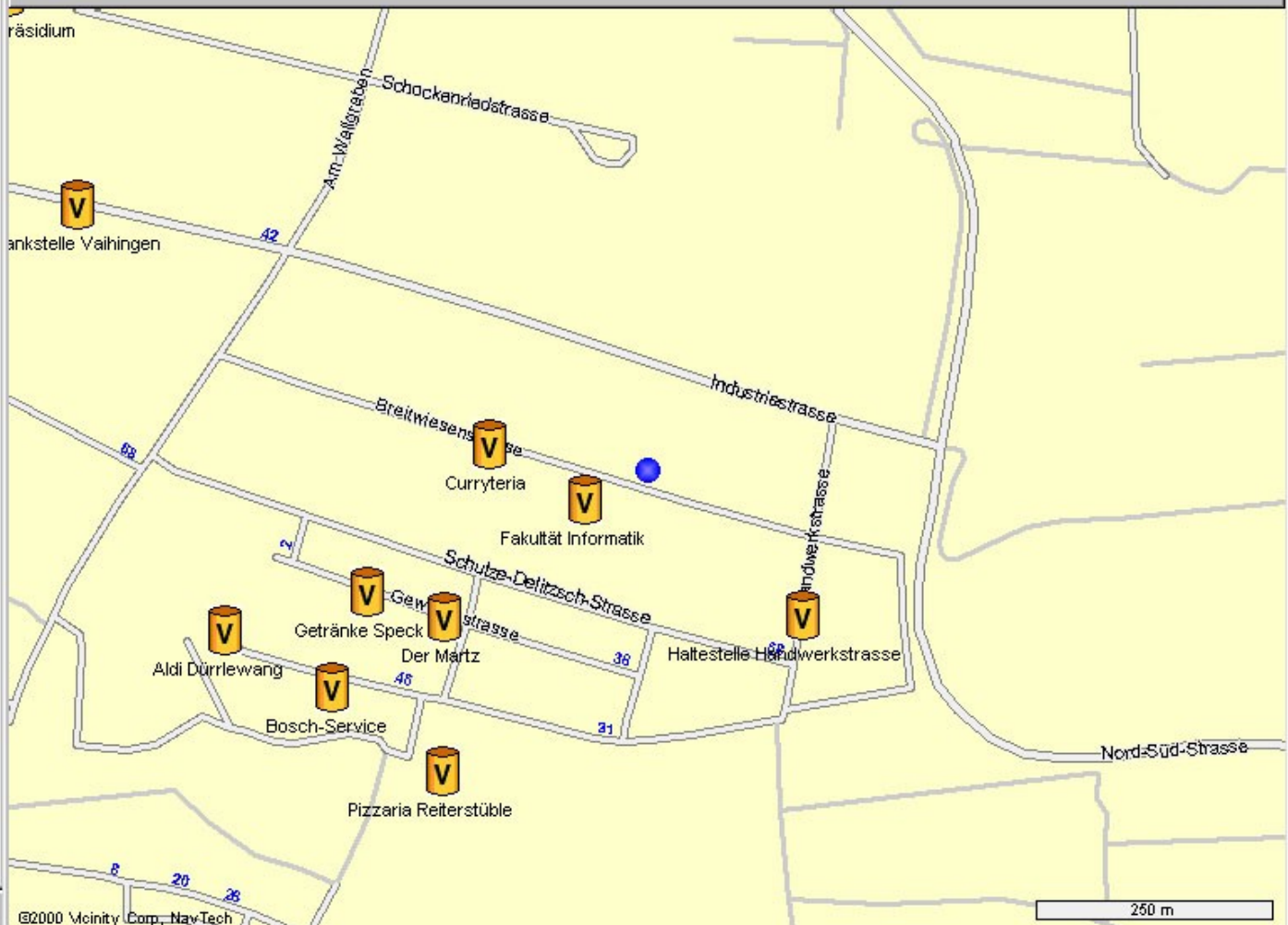
MyPosition:  Direction:    AutoPositioning



Local Search

Poster Active Poster Map

- | Name                              | Dist. ▲ | Date |
|-----------------------------------|---------|------|
| [-] Fakultät Informatik           |         |      |
| [-] Fakultät Informatik           |         |      |
| [-] Studienprojekt VILIS          |         |      |
| [-] IPVR                          |         |      |
| [-] IPVR                          |         |      |
| [+] IFI                           |         |      |
| [-] Curryteria                    |         |      |
| [-] Haltestelle Handwerkstrasse   |         |      |
| [-] Der Martz                     |         |      |
| [-] Getränke Speck                |         |      |
| [-] Pizzeria Reiterstüble         |         |      |
| [-] Bosch-Service                 |         |      |
| [-] Aldi Dürtlewang               |         |      |
| [-] Jet-Tankstelle Vaihingen      |         |      |
| [-] U-Bahn Haltestelle Wallgraben |         |      |
| [-] Regierungspräsidium           |         |      |
| [-] Bahnhof Vaihingen             |         |      |



GPS

©2000 Mcininty Corp., NavTech

250 m

MyPosition

Direction

GO

48.721745N, 9.126486E

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AutoPositioning



Local Search

Name	Dist. ▲	Date
Fakultät Informatik		
● Fakultät Informatik		
● Studienprojekt VILIS		
[-] IPVR		
● IPVR		
[+] IFI		
Curryteria		
Der Martz		
Getränke Speck		
Haltestelle Handwerkstrasse		
Pizzeria Reiterstüble		
Bosch-Service		
Aldi Dürlewang		
Jet-Tankstelle Vaihingen		
U-Bahn Haltestelle Wallgraben		
Regierungspräsidium		
Bahnhof Vaihingen		

Poster Active Poster Map

Address: <http://www.informatik.uni-stuttgart.de/>

Home Organisation  
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Suche Forschung  
English Wer? Was? Wo?

Universität Stuttgart  
Fakultäten

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- [Mitarbeiter](#)
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GPS



MyPosition

GO

48.721745N, 9.126486E

Direction



AutoPositioning



Local Search

Name ▲	Dist.	Date
Alld Dürrelewang		
Bahnhof Vaihingen		
Bosch-Service		
Curryteria		
Der Martz		
Fakultät Informatik		
Getränke Speck		
Haltestelle Handwerkstrasse		
SSB		
VVS		
Jet-Tankstelle Vaihingen		
Pizzeria Reiterstüble		
Regierungspräsidium		
U-Bahn Haltestelle Wailgraben		

Poster Active Poster Map

Address:



## Mobil mit Bussen und Bahnen

- Fahrplan EFA VVS
- Fahrplan EFA BaWü
- Fahrausweise und Preise
- Pläne P+R Angebot
- Aktuelles
- VVS Service
- Schlagwort-suche

### Bereich **VVS Service**

Die Rubrik VVS Service umfasst Freizeittipps, Verkaufsstellen, Fahrgastservice, Verbundpassausstellung, Liste mit Links, Antworten auf oft gestellte Fragen sowie die E-Mail-Adresse des VVS im Impressum.

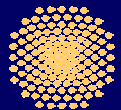
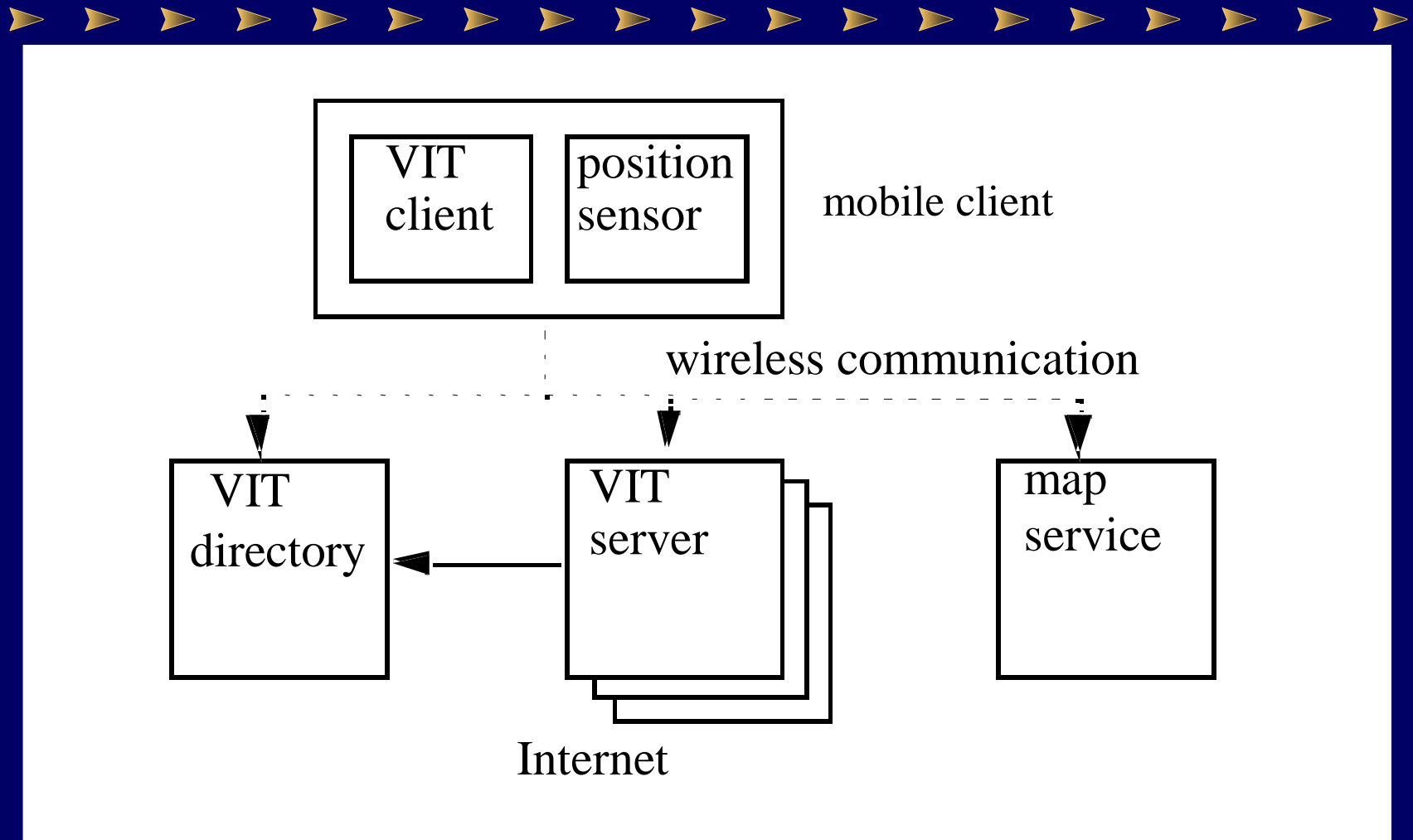


In Bereich wechseln

GPS



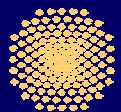
# Architecture



# Possible Applications

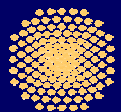


- Tourist guide, city information
  - ◆ VITs describe important sights
  - ◆ Guided tour
  - ◆ Leaving notes for other tourists on a blackboard
- Information about public transportation
  - ◆ VITs show time-table for bus or subway stations
  - ◆ Time-table updated according to current delays
- Extension to car navigation systems
- Cooperative field work



## Conclusion & Future Work

- ➤
- First Step: VIT providing location-aware information
  - ◆ Easy to make existing information available
  - ◆ Information from different providers can be integrated (like WWW)
  - Basis for a global system, general infrastructure
- But:
  - ◆ No handling of information regarding mobile objects
- Next Steps: Nexus Project
  - ◆ Global platform for spatial-aware applications
  - ◆ Project URL: <http://nexus.informatik.uni-stuttgart.de>



# Discussion

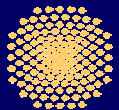


Thank you very much for your attention!

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Project URL: <http://nexus.informatik.uni-stuttgart.de>



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University of Stuttgart

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