

Sm@rt Logistics

Usage of RFID technologies in production logistics

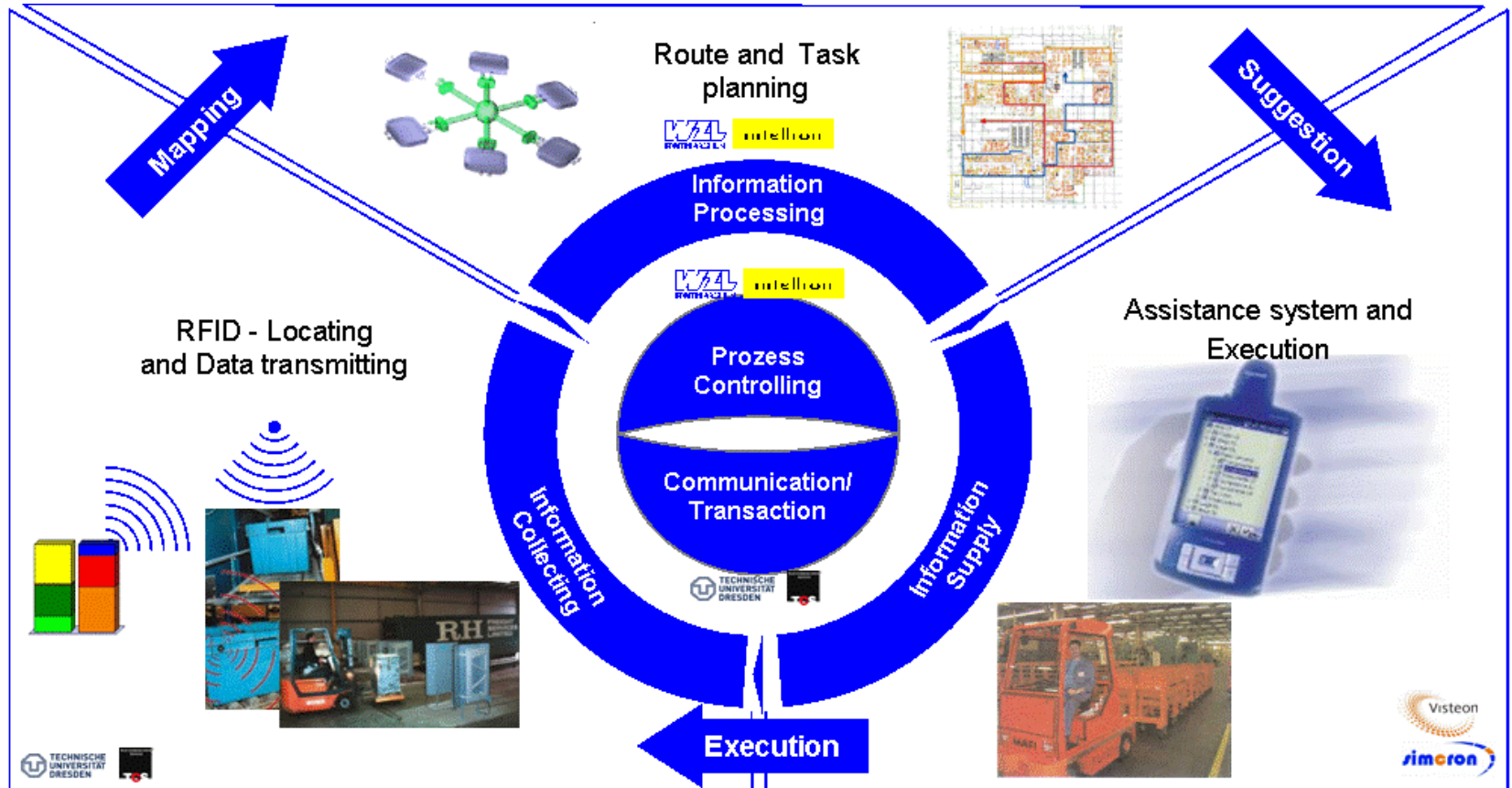
Dipl.-Ing. Klaus Richter

RFID SysTech

3rd RFID Workshop for RFID Systems and Technologies

Duisburg, 12.-13.06.2007

■ Members of the consortium and tasks

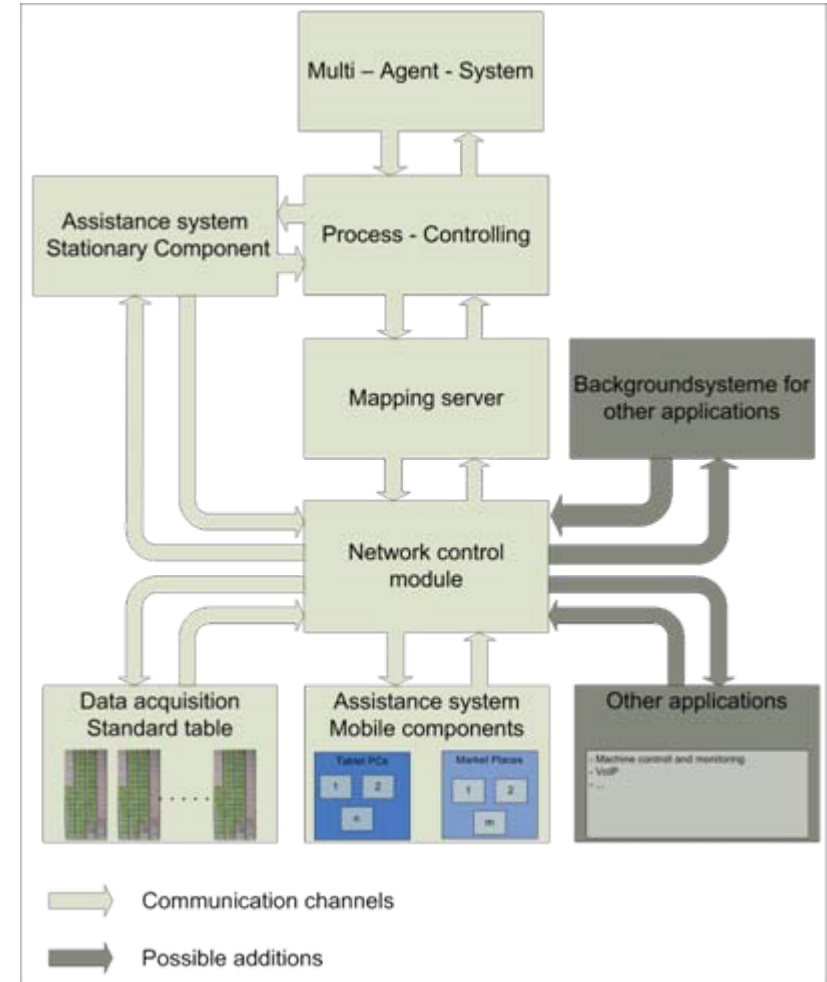


- Introduction
- Basic Concepts
- Data collection
- Conclusion and Outlook

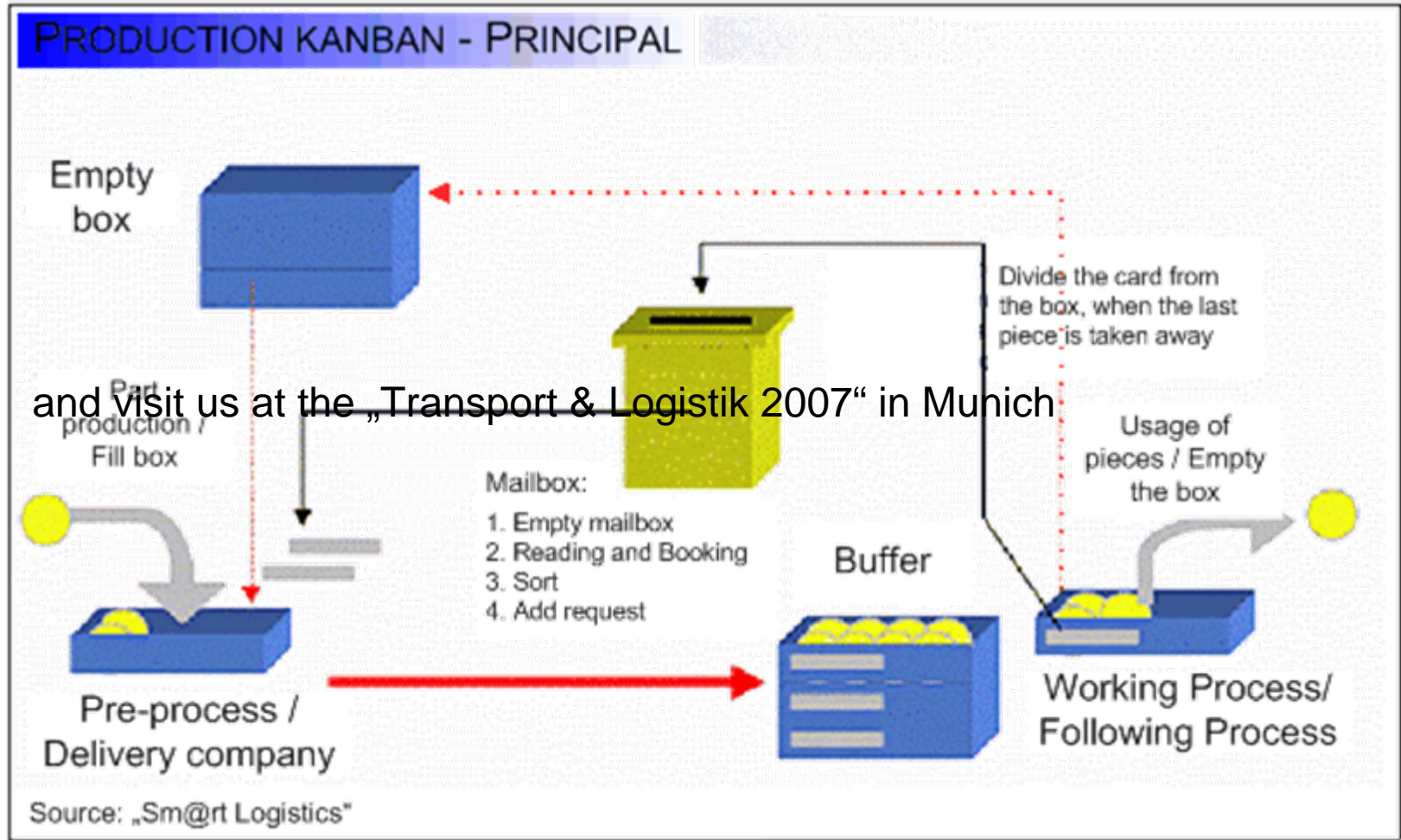
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■ Basic Solution

- Totally modular structure
- Separation of the physical and logical level
- Layer model



■ Kanban method

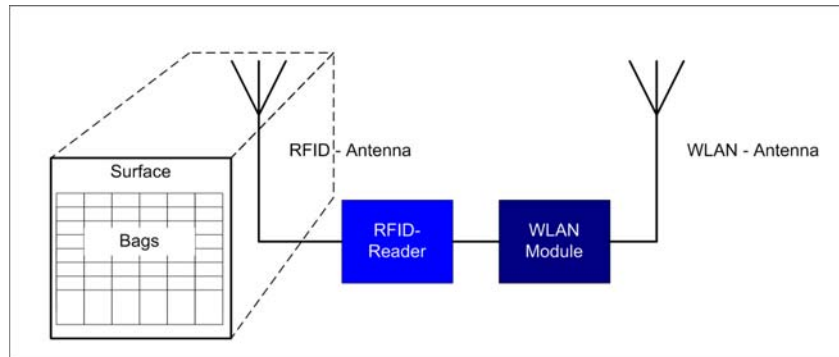


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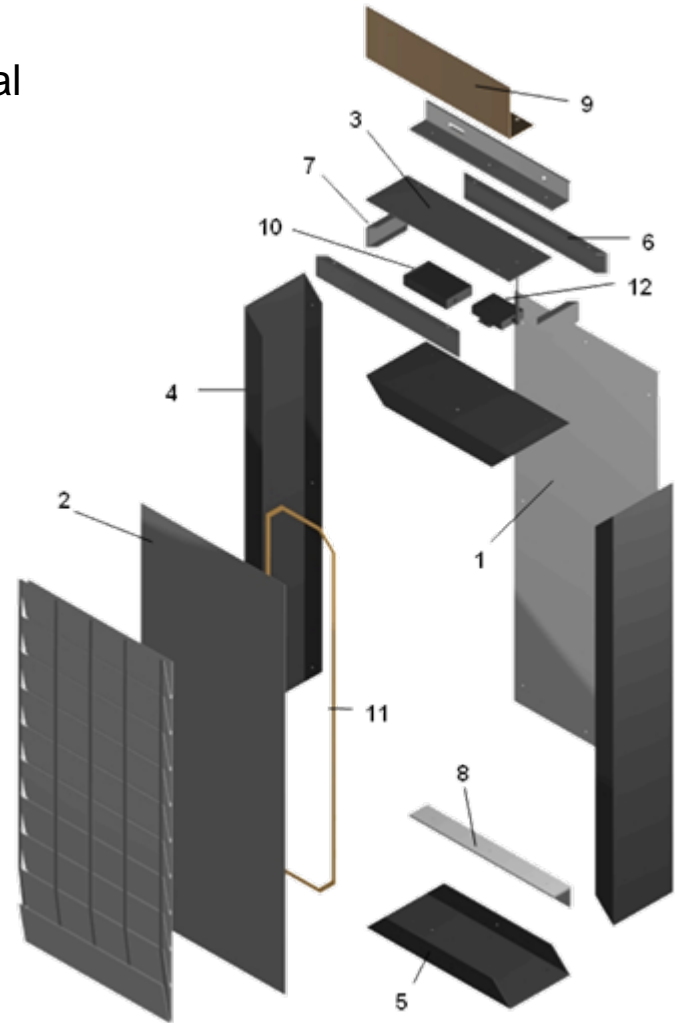
■ Kanban board

- RFID - Reader
 - Feig MR100A
 - Feig MR101A
- WLAN-Modul
 - Sena LS100W
- Dimensions:
 - 1200mm x 400mm
- Surface:
 - 64 bags



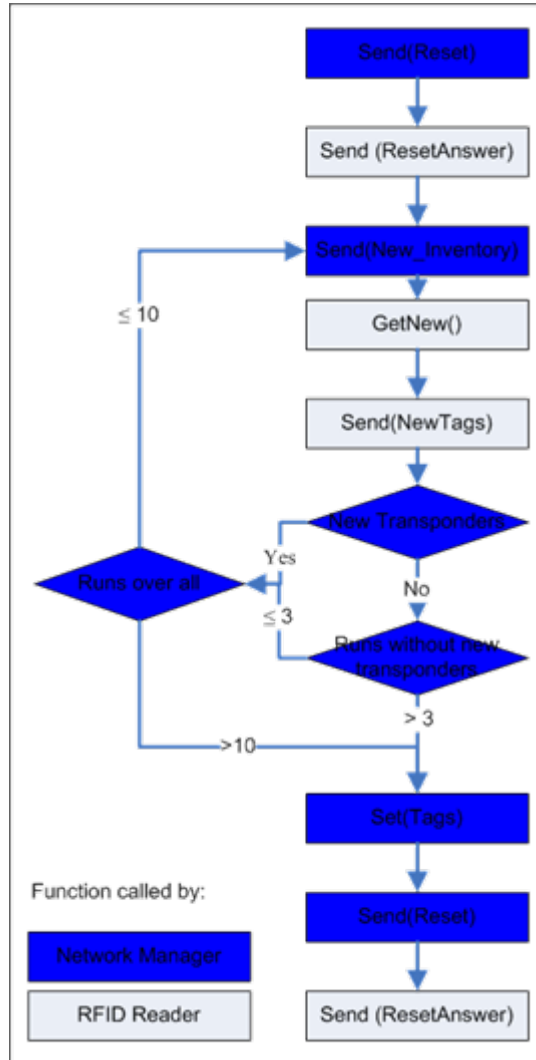
■ Components

- 1 – 9 Fiber reinforced synthetic material
- 10 RFID – Reader
- 11 Antenna
- 12 WLAN – Modul



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■ Request



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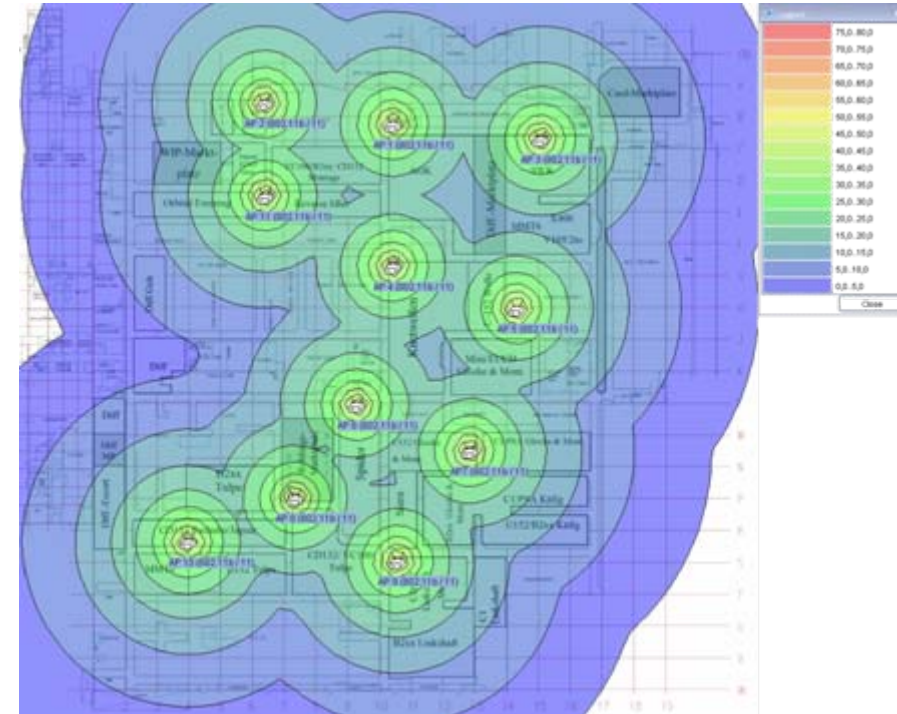
- Detection rate
 - Tests with 4, 8, 12, 16, 32, 50 and 64 cards on board
 - A full test consists of 6000 detections.
 - The cards were set randomized on board.
 - Detected failures are
 - Non detection
 - False detection with impossible id
 - False detection with possible id (not recognizable)
- Within more than a half million measurements only two false detections with impossible id happen

100,00%	99,97%	100,00%	100,00%
100,00%	100,00%	99,97%	100,00%
99,96%	100,00%	100,00%	100,00%
99,83%	100,00%	100,00%	99,79%
100,00%	100,00%	100,00%	99,84%
100,00%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
99,93%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%
99,94%	100,00%	99,89%	100,00%
99,93%	100,00%	100,00%	100,00%
99,96%	100,00%	100,00%	100,00%
100,00%	100,00%	100,00%	100,00%

Test with 50 cards

■ Data Transmission System

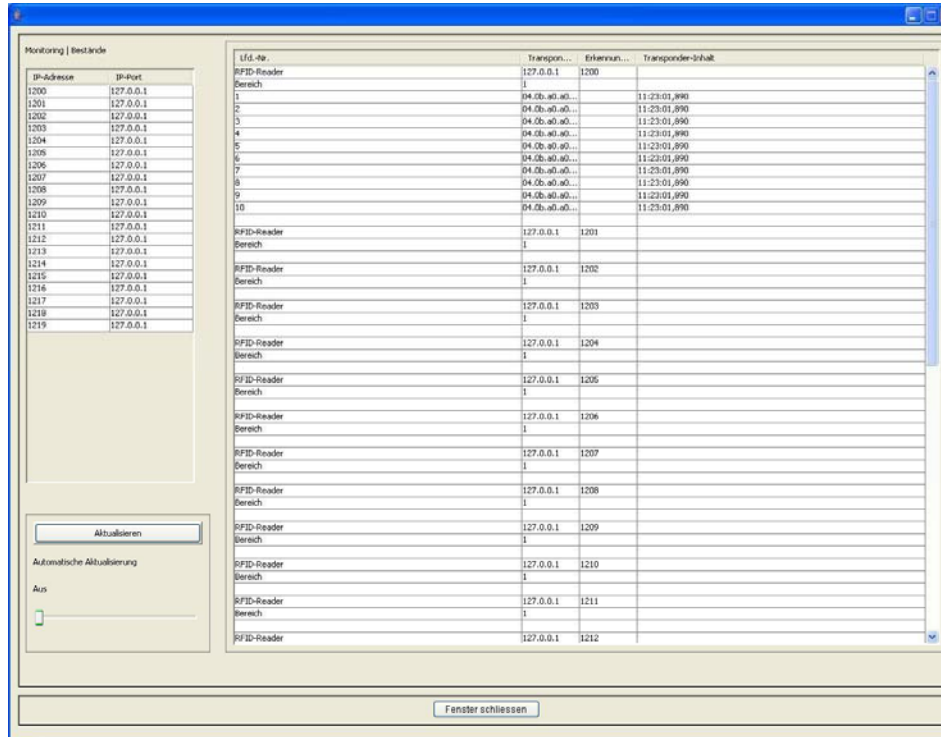
- WLAN consists of 11 Access Points and more than 30 clients
- Two types of APs are used.
- Transmission rate between the APs 54 MBit/s and to the Boards and other Applications 11 MBit/s
- Nearly full coverage



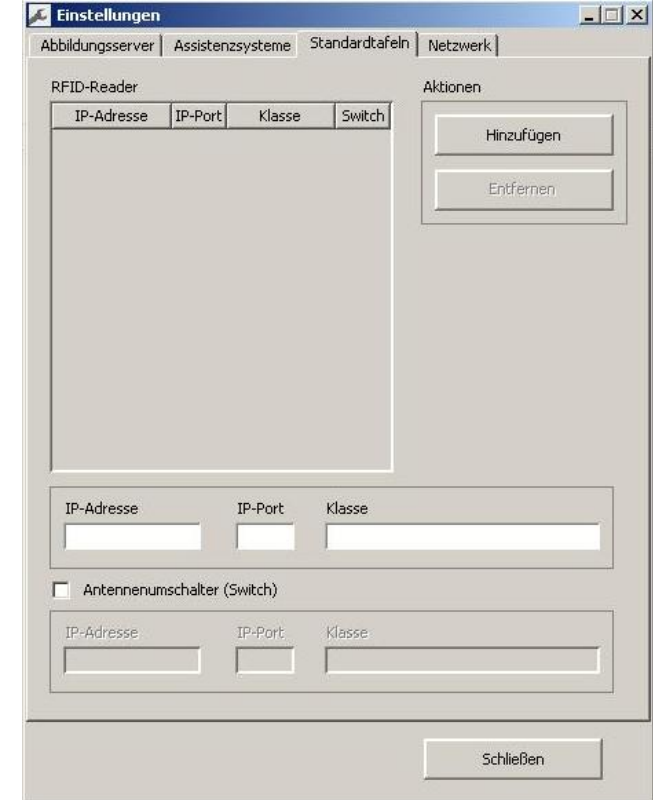
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■ Network Controller

- Steering and controlling instance for the whole hardware
- Interfaces for upper levels
- Buffering actual board states



IP-Adresse	IP-Port	RFID-Reader	Transpon...	Erkennun...	Transponder-inhalt
1200	127.0.0.1	Bereich	1	1200	
1201	127.0.0.1	RFID-Reader	1		
1202	127.0.0.1	Bereich	1		
1203	127.0.0.1	RFID-Reader	1		
1204	127.0.0.1	Bereich	1		
1205	127.0.0.1	RFID-Reader	1		
1206	127.0.0.1	Bereich	1		
1207	127.0.0.1	RFID-Reader	1		
1208	127.0.0.1	Bereich	1		
1209	127.0.0.1	RFID-Reader	1		
1210	127.0.0.1	Bereich	1		
1211	127.0.0.1	RFID-Reader	1		
1212	127.0.0.1	Bereich	1		
1213	127.0.0.1	RFID-Reader	1		
1214	127.0.0.1	Bereich	1		
1215	127.0.0.1	RFID-Reader	1		
1216	127.0.0.1	Bereich	1		
1217	127.0.0.1	RFID-Reader	1		
1218	127.0.0.1	Bereich	1		
1219	127.0.0.1	RFID-Reader	1		
1220	127.0.0.1	Bereich	1		
1221	127.0.0.1	RFID-Reader	1		
1222	127.0.0.1	Bereich	1		
1223	127.0.0.1	RFID-Reader	1		
1224	127.0.0.1	Bereich	1		
1225	127.0.0.1	RFID-Reader	1		
1226	127.0.0.1	Bereich	1		
1227	127.0.0.1	RFID-Reader	1		
1228	127.0.0.1	Bereich	1		
1229	127.0.0.1	RFID-Reader	1		
1230	127.0.0.1	Bereich	1		
1231	127.0.0.1	RFID-Reader	1		
1232	127.0.0.1	Bereich	1		



Einstellungen

Abbildungsserver | Assistenzsysteme | Standardtafeln | Netzwerk

RFID-Reader

IP-Adresse	IP-Port	Klasse	Switch

Aktionen

Hinzufügen

Entfernen

IP-Adresse: IP-Port: Klasse:

Antennenumschalter (Switch)

IP-Adresse: IP-Port: Klasse:

Schließen

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- System is implemented and running as a pilot.
- The developed basic solution can be used within all areas of data collection.
- The Kanban board with its special developed antenna is useable for different RFID-Readers and different cases of use.
- Looking forward for other applications.
- The practicability and stability of the whole system has to be demonstrated.
- The start of the system under normal conditions is terminated in September 2007.
- The benefits of the system has to be evaluated within the normal business process.

- Thanks for your attention and visit us at the „Transport & Logistik 2007“
in Munich (12.-15.06.2007)



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