

### Overview



432 employees



33 million passengers per year



14 bus lines, 1 tram,  
7 night lines

### Industry

Bus and light rail,  
Ulm, Germany

### Challenge

Improve real-time passenger information and transfer protection.

### Solution

Trapeze Intelligent Transport System (ITS), On-Board Computers, Digital Radios

### Results

- ✓ Automatic Vehicle Location and Control (AVLC)
- ✓ Real time passenger information signs (RTPI)
- ✓ Passenger counting
- ✓ Transfer protection
- ✓ Traffic light preemption

### Background

Stadtwerke Ulm Verkehr GmbH and its subsidiaries have a workforce of 432 employees in the transport sector and carry approx. 33 million passengers each year. 14 bus lines, one tramway line and 7 night lines serve SWU Verkehr's 247 stops.

### The Challenge

In 2001, Stadtwerke Ulm Verkehr GmbH (SWU Verkehr) commissioned Trapeze to implement an operations control system to improve real-time passenger information and provide transfer protection.

### The Solution

The LIO system not only permits clearly improved real time information for the passengers using various information media, it also enables SWU Verkehr to offer significantly more protected transfers. To make more efficient use of the system, SWU Verkehr decided to equip all vehicles with modern IBISplus on-board computers by Trapeze, including 37 with the GPRS module. Since 2010, SWU Verkehr has also been using Trapeze's Business Intelligence solution. This permits statistical evaluations and facilitates future planning.

The functionalities

- LIO automatic vehicle location and control system
- Modern IBISplus on-board computers
- Analogue radio (urban), GSM/GPRS (region)
- ISAS2 statistics program
- Real-time passenger information
- Traffic light preemption (partly with beacons)
- Passenger counting
- Transfer protection, including interfaces with third party systems
- GPS location
- LIO-Data data supply
- Loading the vehicles with software / data using WLAN
- Business Intelligence





## The system at a glance



### Control centre

1 dispatcher workstation, 2 data supply/statistics workstations



### Radio system

AEG/EADS radio system with 3 base stations

1 voice channel, 1 data channel



### Vehicles

61 buses, 10 tramways, 37 regional buses operated by subcontractors, 1 service vehicle



### Dynamic Passenger Information

50 SmartInfo stop signs with acoustic module



### Depots

1 depot equipped with WLAN



### Third Party Components

Passenger information signs in the vehicles



### Software Interfaces

Planning programs, depot management, ticketing

System, passenger counting, DPI signs in the vehicles

(SOAP), sharing of real-time data with the multiagency

(DING), VDV interface to regional traffic Alb-Bodensee.

## Results:

- Automatic Vehicle Location and Control (AVLC)
- Real time passenger information signs (RTPI)
- Passenger counting
- Transfer protection
- Traffic light preemption

*“With the new control system by Trapeze, we can provide real-time passenger information when there are deviations from normal operations. Specific intervention on the part of the dispatchers also helps to considerably improve punctuality. Other positive points include automatic transfer protection and the clear layout for dispatchers.”*

Bernd Strohm, Head of Operations Control, SWU Verkehr GmbH

## TRAPEZE GROUP

Trapeze Group works with public transport agencies and their communities to develop and deliver smarter, more effective public transport solutions. For more than 25 years we have been Here for the Journey, evolving with our customers around the world to helping them move people from point A to Z, and everywhere in between.

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