

### Overview



14 tram lines



56 bus routes



500 vehicles



2,800 employees

### Industry

Bus and light rail,  
Stuttgart, Germany

### Challenge

Migrate control system without  
major interruption.

### Solution

Trapeze Intelligent Transport  
System (ITS)

### Results

- ✓ Automatic Vehicle Location and Control (AVLC)
- ✓ Traffic light preemption
- ✓ Link to train tracking computer

### Background

Stuttgarter Strassenbahn AG (SSB) employs a staff of approximately 2800 and operates a total of 56 bus routes, 14 tram lines as well as a rack railway. With their 500 or so vehicles they carry around 600,000 passengers on a day-to-day basis through the week.

### The Challenge

In 2004 the SSB transport authority commissioned an upgrade for their existing LIO-Classic control system. The soft migration option was decided on for the changeover to the new LIO system. This meant that control centre operation and all AVLC functions were largely unaffected and without major interruption.

### The Solution

During the course of the migration a further two contracts were added - providing the vehicles with the multifunctional displays (MFD) in 2008 and implementing an interface to the new depot management system the year after. The planned use of LIO demanded a comprehensive refit of the existing hardware, including the radio components. The earlier IBIS1 and IBIS2 on-board computers were replaced with the new IBISplus model, complete with GPS location. The analogue radio system was extended with GSM/GPRS and the depots were fitted with wireless LAN.

The functionalities

- LIO AVLC system
- Analogue radio system
- Modern on-board computers IBISplus
- GPS location
- Geographic Information System (GIS)
- LIO-Data, data supply
- Planning programs DIVA (timetable compilation) and PERDIS (personnel planning)
- ISAS2 statistics program
- Reporting and analysis tool, Business Intelligence
- Traffic light preemption
- Link to the train tracking computer





## The system at a glance



### Control centre

7 dispatcher workplaces, 5 service workplaces, 7 remote stationary info stations, 4 mobile info stations



### Radio system

Analogue radio with GSM/GPRS; Voice-over-IP



### Vehicles

Approximately 445 owned (buses and rail vehicles); more than 60 sub-contractor buses



### Dynamic Passenger Information

640 multifunctional displays in the light rail vehicles (8 Trapeze displays per train)

Integration of 330 stop signs (Lumino)



### Depots

8 owned; 14 vehicle depots run by sub-contractors



### Software Interfaces

Real-time interface for timetable information relating to the entire Stuttgart region (VVS-EFA, VDV454)

Depot management system (VDV461)

## Results:

- Automatic Vehicle Location and Control (AVLC)
- Traffic light preemption
- Link to train tracking computer

“Thanks to the soft control system migration from LIO-Classic to LIO we had access to control centre operation and most AVLC functionalities without any major interruption. With the new multifunctional displays the system upgrade was extremely visible to our passengers and also very well received.”

Jürgen Lewandowicz, Project Manager, Stuttgarter Strassenbahnen AG

## 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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