



Public Transport

Public transport organisations have found that the availability of reliable real-time and forecasted bus schedule information contributes to a better traveller experience, subsequently improving utilisation.

Public transport hubs located in the heart of 21st century cities require optimal utilisation of resources in terms of space and time. Operational excellence improves the user experience at public road transport facilities and leads to better utilisation, which is a key strategy in reducing congestion and improving overall traveller mobility. The challenge of developing public transport within these constraints requires innovative approaches such as DBUS.



Passenger information display system (PIDS)

The Passenger information display system (PIDS) developed by ARS T&TT offers a dynamic solution for providing passengers with real-time and forecast travel information. Information about bus service numbers, arrival/departure times for specific routes, and unplanned and scheduled changes are communicated to travellers at bus stops using fully automated displays.

The PIDS processes the planned timetables against real-time deviations from the public transport schedule. This is accomplished by tracking the progress of buses and forecasting the real arrival and departure times. Accurate real-time information is shown on the bus station displays.

Displays on bus stops and stations include multiline LED displays and LCD displays. The PIDS also controls Interactive voice response systems (IVRS). LCD displays are small in size and autonomous as they can be powered by solar panels.



Dynamic bus platform allocation systems (DBUS)

ARS T&TT's Dynamic bus (DBUS) platform allocation system resolves the maximisation problem in which buses have to be allocated to a fixed number of platforms within the terminal, ensuring optimal capacity (space) utilisation. DBUS also solves the minimisation problem, reducing the waiting period (time) during which buses queue for platform slots.



DBUS assigns buses arriving at the terminal to available platforms, coordinating their line/service numbers and expected time of arrival and departure by using an optimising algorithm.

DBUS comprises a bus schedule planner for planning and dynamic information and a learning system that employs heuristic allocation strategies.



Advantages

PIDS

All trips set to depart from the bus stops and terminals are shown on the respective displays. The trip details displayed depend on the number of available bus services and trip departure times.

For the passengers, the PIDS provides:

- The service operated by the next vehicle to arrive, service number, destination and any intermediate destinations.
- Departure time of the vehicle.
- Any deviation from the scheduled timetable.
- Number of minutes till departure.
- General advice on any current travel disruptions.

DBUS

- Improved utilisation (up to 75%) of space: more platforms per square metre of terminal area.
- Better crowd management at the terminal.
- Safer boarding and disembarking from buses at consistent platform slots.
- Accurate and real-time updates on the departure of buses, improving convenience for the commuters.
- More organised parking of buses at the allocated platforms to allow the boarding of commuters.

Back-office application

Both the PIDS and D-BUS provide seamless interfaces with the back office systems of the transport organisations. A secure web-based back office system provides remote maintenance and management facilities.

Authorised users are able to visually check the status of displays as well as the overall system.

Users can remotely configure the displays and perform software and configuration updates over the air (OTA).

Technical specifications

PIDS

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| Presentation | <ul style="list-style-type: none"> • LED Multiline displays • LCD displays • TFT displays • Interactive Voice Responds System • E-paper • Mobile apps |
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| Communication | <ul style="list-style-type: none"> • GPRS/3G/4G • Ethernet/fibre glass • WiFi • RS232/485 • Short wave radio modems (KAR) |
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| System interface | <ul style="list-style-type: none"> • Configurable XML interface based on TransModel standard • From TransModel server (TMi KV7/8) • SIRI |
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| Back Office | <ul style="list-style-type: none"> • System monitoring • PIDS management • Remote update (OTA) • Report generation |
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| Availability | <ul style="list-style-type: none"> • 99.x% |
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DBUS

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| Presentation | <ul style="list-style-type: none"> • See ARS PIDS product |
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| Communication | <ul style="list-style-type: none"> • See ARS PIDS product |
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| Bus identification | <ul style="list-style-type: none"> • Short wave radio modems • Loop detection • Optical detection • DSRC, RFID |
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| System interface | <ul style="list-style-type: none"> • Configurable XML interface based on TransModel standard • Real time information feed (SIRI; TMi KV7/8; • Allocation deedback (e.g. TMi KV5) • Carriers (e.g. TMi KV4) |
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| Back Office | <ul style="list-style-type: none"> • See PIDS Back Office • Additionally Platform rules management |
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|---------------------|---|
| Availability | <ul style="list-style-type: none"> • 99.x% |
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