initiativ

Company newsletter of init AG, Karlsruhe for customers, business partners, investors, employees and friends

E-Ticketing System for trent barton.
Best price tickets “in passing”.

Easier, faster and cost saving for transportation companies and passengers - these are the key advantages of the new contactless E-Ticketing system INIT is implementing for trent barton. The UK bus operator transports nearly 37,000,000 passengers per year running a fleet of around 330 modern buses on a network of local routes. trent barton’s policy is to offer a more personalised service in order to increase passenger satisfaction.

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Editorial

Dear transportation professionals,

The ongoing trend to integrate more and more functionality into a single device is affecting the transport industry as well. Where the integration of different types of equipment in one vehicle is still a concern for bus operators, highly integrated and open solutions will finally offer more options to transport operators and reduce the need for capital investment, as well as integration and maintenance costs.

In line with this is the development of INIT’s EVENDsmart, which comprises the functionality of a modern, smartcard-enabled Electronic Ticketing Machine and a Real-Time Passenger Information on-board computer. INIT’s experience of more than 20 years of providing Automatic Vehicle Location Management, Real-Time Passenger Information, and Fare Collection systems has thus led to the development of an Electronic Ticketing Machine, which utilises the same proven and highly accurate automatic vehicle-location algorithms and a similar data model as INIT’s standard RTPI on-board computers. Therefore, integration starts already in the back office where data can be maintained for ticketing and RTPI simultaneously without redundancy.

> **Dr. Gottfried Greschner,**
Chief Executive Officer

trent barton has taken the first step forward here and, apart from the innovative Check-in / Check-out concept, the EVENDsmart will serve as a single point of access both for the ticketing and the RTPI functionality. Drivers can now use the state-of-the-art colour touch screen user interface to handle all functions. By adding a radio to the EVENDsmart trent barton buses will become part of the East Midlands’ “star trak” RTPI system.

This special edition of our newsletter will provide further details, so we hope you’ll enjoy the read.

Dr. Gottfried Greschner

INIT technology makes the use of public transport as convenient and easy as possible.

The new E-Ticketing system will save costs, reduce waiting times and increase customer satisfaction.

For trent barton's Nottingham buses INIT will provide the **PROXmobil** ticket validator, which will allow passengers to Check-in/Check-out using a contactless smartcard. In addition, drivers will receive assistance from **EVENDsmart**, the compact electronic ticketing machine with integrated on-board computer. **EVENDsmart** features a high-speed thermo printer for issuing paper tickets, as well as a proximity reader for scanning contactless smartcards. **EVEND-smart** will also process the data exchange for the Real-Time Passenger Information System "star trak" via mobile radio (learn more about the East Midlands region-wide RTPI system on page 4).

All the passenger requires to use the new E-Ticketing system called "TOTO" (Touch-on/Touch-off) is a smartcard, which he receives after initial registration. He can pre-load this card via trent barton's Internet portal or at their customer service centre.

The new INIT system makes ticketing simple: When boarding the bus the passenger just needs to pass his smartcard by the check-in terminal **PROXmobil** or the ticket printer **EVENDsmart**. The devices' reader units will register the customer's card and charge the maximum fare rate. On leaving the bus the passenger checks out in the same manner by passing the card reader. The smartcard will be automatically credited with the difference between the maximum fare and the fare for the actual journey taken. In addition, should the passenger take further trips on the same day, he won't be charged more than the fare for a day pass in total. Once the equivalent amount has been reached, the passenger travels free of charge, although journeys are still registered.

> **"INIT has vast experience** in both ticketing and RTPI systems. I am proud that trent barton, one of UK's leading private operators makes now use of this know-how to the benefit of their customers", said Faiza Zaidi, the responsible INIT manager for this project.

> **Taking the bus without having to buy a ticket?** This may well come true for trent barton's passengers.

Advantages for passengers and operators.

The introduction of the new ticketing system provided by INIT will increase trent barton's productivity along with the quality of service. It will lead to reduced costs for the handling of paper and cash, and to more flexibility in setting the fares. Furthermore, trent barton will be able to offer a much better service to its passengers; because they no longer have to have the small change ready, they can just board the bus. This will increase customer satisfaction remarkably. In addition, it will reduce vehicles' waiting times at the stops, which will not only improve their punctuality and frequency, but also save fuel.

As a pioneer in E-Ticketing, INIT has been installing these systems in Germany since 1995, including the first region-wide E-Ticketing system for an entire transportation association, the Verkehrsverbund Bremen-Niedersachsen.

Informative

The new Electronic Ticketing Machine by INIT.

The compact ticket printer with full on-board computer functionality is extremely user friendly and versatile.

> **EVENDsmart features:** full on-board computer and RTPI functionality, a high-speed thermo printer and a proximity reader for the scanning of smartcards.

EVENDsmart: The name is the programme, because EVEND stands for Electronic Vendor and smart — that's what it is! For the **EVENDsmart**'s state-of-the-art technology builds on INIT's experience of many years and the proven ticket printers with on-board computer functionality **EFADintegral** and **EFADportable**, and combines all of this expertly with numerous technical innovations.

Driver-oriented ease of operation.

The **EVENDsmart** is equipped with a 6.5" colour TFT display providing drivers with utmost ease of use. The excellently legible colour graphic display provides a clear and easy-to-use user interface. Thus, the driver can take in all the information at a glance. Drivers can choose to operate the device using either the touch screen or the keypad. So the **EVENDsmart** combines advanced driver guidance with familiar operating sequences for an off-the-shelf solution. The keypad features numerical keys, arrow keys, and variable function keys (softkeys).

Contactless, cashless paper?

For electronic ticketing the **EVENDsmart** is equipped with an integrated reader for contactless chip cards and other RFID tags (Radio Frequency Identification Transponder) like those used in watches. With the reading unit it is possible to process MIFARE cards and chip cards conforming to ISO 14443 A and B.

A high-resolution, full graphics display provides the passengers with all relevant information.

The thermo printer is also state-of-the-art. Tickets are printed at a speed of up to 200 mm/s. Moreover, the printer features a novel 'easy paper loading' function which can be used to change paper rolls simply by loading and closing the paper tray. Intricate threading by the driver is obsolete. In order to prevent misuse, opening and closing of the paper tray is electronically monitored and recorded.

Full on-board computer functionality.

Like all the other INIT ticket printers, the **EVENDsmart** can be used as an on-board computer in parallel. It controls on-board and RTPI functions and peripheral vehicle devices, and manages radio communication and traffic signal priority. All necessary functionalities and interfaces including an Ethernet port are integrated. A special feature is the integrated WLAN functionality for which both a WLAN adapter and an antenna are built into the device. This renders additional external components unnecessary.

The ticket printer, which has been designed without integrated cash table, can therefore be mounted onto existing cash tables in the vehicle.

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Show Case to build a multi-user RTPI system.

A case study of the Real-Time Passenger Information system from 20 up to 400 buses in the East Midlands.

The star trak system is a Real-Time Passenger Information system which operates in Leicestershire, Derbyshire and Nottinghamshire. The system was specified with due regard to the needs of the bus companies involved. Through the Quality Bus Partnership (QBP), the bus companies involved in the project all contributed to the detailed design documents and participated during the main contract period.

star trak was launched in 2000 initially on three routes within Leicestershire, with 21 buses and 15 Real-Time Passenger Information signs.

The system is made up of a central server, on-street variable message signs, GPS location devices mounted on buses and a computer mounted in the cab of the bus, as well as passenger information displays within the bus. Dissemination of information from the vehicles is via radio and the same applies to the information being passed from the central system to the on-street variable message signs. Another part of the system is bus priority equipment, which has been installed at traffic signalled junctions.

Current situation.

Since its launch the system not only covers Leicestershire, but has expanded to cover routes within Derbyshire and Nottinghamshire. The star trak project has grown from its three initial routes to over 40 routes that are on the system today with an increase to 400 buses and 600 on-street Real-Time Passenger Information variable message signs. Within the conurbation of Leicester, 70% of routes are covered by the star trak system and increasingly routes are also being equipped both in Nottingham and Derby.

As part of the star trak project a Website was designed to disseminate real-time bus information (www.star-trak.co.uk). The site includes tabular as well as map-based information of all the real-time routes on the star trak system. Since 2002 a Short Message System (SMS) known as star text is successfully in operation, although there is a charge of 25p to the user. Each bus stop has a unique code, and by sending this code via SMS the user receives their chosen stop's latest departure times. The volume of hits on the Website as well as the use of the SMS has risen steadily since the launch and is expected to continue rising as more routes will be added to the system.

> **The star trak system covers** 6 transport authorities, 5 bus operators and over 40 routes.

Technical details of the star trak system.

INIT's open platform design supported the upgrade from a real-time information system for Leicester City Council to a real-time information platform for the whole East Midlands region. Due to the open architecture Leicester City Council is able to supply planning data as well as operational data on the current traffic situation to operators, as well as real-time passenger information for the whole region to the public. Operators are provided with AVL workstations to manage the services. Components and systems of different vendors work seamlessly together, and different operators and transport authorities were able to cooperate for a mutually beneficial solution. Therefore, any change of services is part of the passenger information provided.

The central module for processing the real-time information for the stops, the Website and the SMS service is **MOBILE-STOPinfo**, INIT's open platform Real-Time Passenger Information system. Schedule data from a third party planning system, information about the current location of vehicles and operational data, e.g. dispatching measures, are taken into account to calculate the real-time arrival times of all buses.

The INIT on-board computer **COPILOT** is the central vehicle IT platform. It controls the telematics functionality, and manages peripheral devices such as passenger announcement devices or the automatic passenger counting sensors. It also triggers the traffic signal priority system to request bus priority at predefined action points and emits a signal to clear the departing information at wayside passenger information displays.

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