



Dubai Roads & Transport Authority

ITCS and Passenger Information System for Dubai



Fast-growing cities face specific transportation challenges. The existing public transport network has to be expanded or a new one has to be established. And the service offered must be convincing! Only then a great number of people will switch to bus and train. This is exactly what happened in Dubai where INIT implemented a complex telematics system for the Roads & Transport Authority (RTA). The result: Busses are more punctual and the number of passengers increased significantly.

Dubai Roads & Transport Authority (RTA)

.....
1,550 busses
.....

.....
125 bus routes
.....

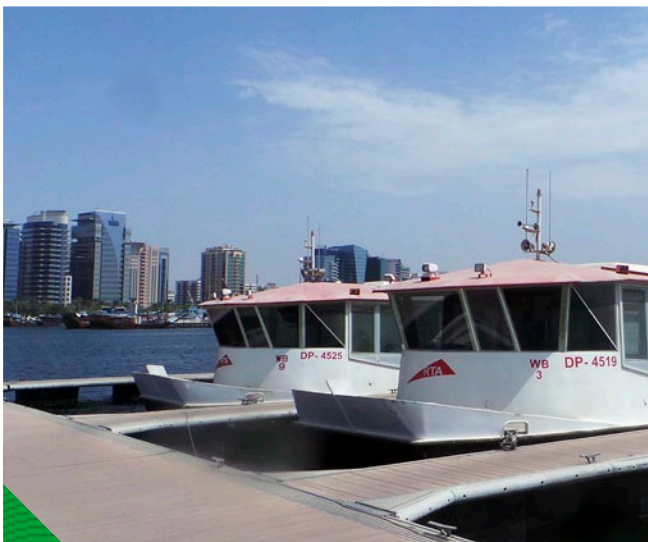
.....
168,000 km bus network
.....

.....
155 million passengers per year
.....

Establishing a modern public transport system in Dubai – with high-performance technology.

The task

Facing transportation challenges resulting from its fast growth the Emirate of Dubai decided in 2006 to build a metro system and expand its bus network. Improving service quality of its bus operation was of great significance for the Dubai Roads & Transport Authority (RTA). It was obvious right away that this goal could only be achieved with the implementation of high-performance technology. This is why in 2007 RTA Dubai selected the INIT Intermodal Transport Control System MOBILE-ITCS to establish an Automatic Vehicle Management (AVM) and Passenger Information System.



Following the successful installation on their bus fleet, RTA decided to integrate 21 vessels of their Marine Transport Vessel Service in the Dubai Marina.

RTA wins the Gulf Engineering Innovation Forum Award 2016 for its Automated Vehicle Management (AVM) System

The solution

The central Intermodal Transport Control System MOBILE-ITCS plays a crucial role in the improvement of service quality – in particular punctuality. It is the core element of operations control. The clear display of all necessary information allows the dispatchers in the control center to stay on top of things. Knowing the exact location of all vehicles allows for prompt identification of incidents and congestions and selective counteractions can be initiated immediately by means of elaborate dispatch measures.

Efficient management of operation

Optimum information for dispatchers: This is one of the key factors for successfully operating an attractive and efficient bus system. This is why for the first time the new 3D GIS (three dimensional city map display) of MOBILE-ITCS was used in Dubai. It does not display only the familiar “flat”

information of streets, routes, and stops but gives also a realistic impression of the situation on site.

With the implementation of INIT's integrated telematics system RTA Dubai was able to increase the punctuality of its bus fleet significantly. The statistical evaluation of the daily operation played here a major role. Specifically by analyzing the schedule adherence of all performed trips weak spots could be detected and timetable and duty planning could be optimized.

Disaster Recovery

As the ITCS plays such an important role for the traffic management in Dubai, being able to restore operations in the event of a disaster is crucial for RTA. Hence, ITCS servers and an Operations Control Center have been set up at a remotely located back-up disaster and recovery site. The recovery systems features exactly the same software modules as the primary system and is automatically synchronized on a daily basis.

Passenger information is service quality

Customer service is a big deal for RTA. This includes thorough and convenient passenger information anywhere anytime – in real-time. It is based on the calculation of the actual stop departure times computed by the INIT system with an elaborate prognosis algorithm.

The real-time departure times are available to the passengers through various channels: a web-based journey planner which can be accessed via both a regular PC and smartphones, and through passenger information displays at stops, in the waiting areas of the metro and at bus stations. In English and Arabic language. Passengers onboard the RTA busses are also informed bilingually: audibly in multiple languages through the announcement module PA-mobil and visually on the multimedia display PIDvisio.

High performance vehicle equipment

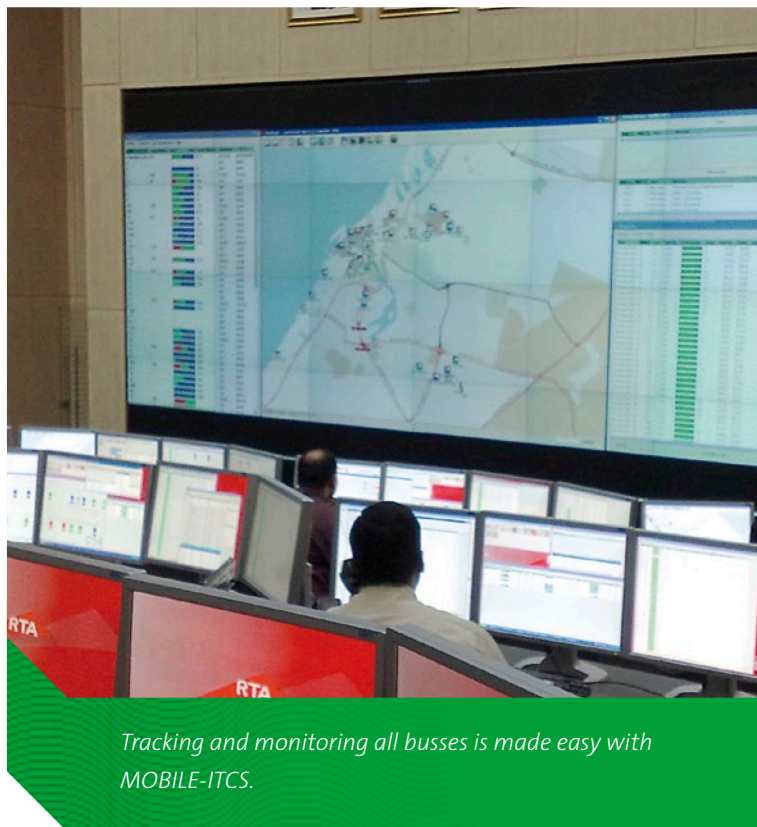
At the core of the vehicle intelligence is the onboard computer COPILOTpc. The PC based onboard computer controls voice and data radio as well as all ITCS functions. It calculates e.g. the current location and schedule adherence which is then transmitted to the central control system. The

COPILOTpc also controls all connected peripheral devices onboard and acts as their communication gateway.

The drivers can gather all information and instructions quick and easy on the 21 cm (8.4") touch screen of the TOUCHmon mobile data terminal. In case of a threatening event it transmits still frames to the control center allowing them to react promptly to the situation at hand.

Automatic Passenger Counting

100 busses were equipped with INIT's Automatic Passenger Counting System (APC), to provide a better understanding of ridership patterns. Highly precise IRMA Matrix sensors are connected via Ethernet with the on-board computer COPILOTpc, which organizes the data upload to the statistical evaluation tool MOBILEstatistics. In addition RTA is able to compare the ridership counts with the data from their ticketing system to identify possible fare evasion. In case a significant accumulation is detected, inspectors will be alarmed and sent to the relevant areas.



Tracking and monitoring all busses is made easy with MOBILE-ITCS.

Route	Destination	Time
F03	Mirdiff West	1 min
F02	Al Rashidiya	3 min
F01	Nadd Al Hamar	5 min
F05	Mizhar	8 min
F03	Mirdiff West	8:02
F02	Al Rashidiya	8:05
F10	Al Warqa	8:06
F01	Nadd Al Hamar	8:07

Bus Services to this Station run every 10 minutes

INIT's TFT displays present real-time departures in English and Arabic alternating.

Innovative communication and data provision

The data radio connection to the vehicles is via GPRS whereas voice radio is via GSM. Using the existing public communication networks allowed for a fast project implementation and turned out to be very reliable in daily operation.

The upload and download of mass data from/to vehicles is performed at five depots located across the operating area. Special depot servers control the transfer using INIT's Intelligent Messaging System MOBILE-IMS. The system manages the transfers and the correct data synchronization between the central servers, the depot servers, and the busses. MOBILE-IMS also controls the data transfer of a number of third party components in the vehicle. Thus INIT makes consistent, controlled data transfer of all components integrated into the system feasible.

Integration of marine services

Following the successful installation on their bus fleet, RTA decided to integrate 21 vessels of their Marine Transport Vessel Service in Dubai Marina. Abras and Ferries were equipped with the same ITCS on-board system. Hence they can be monitored and managed by a Marine Dispatcher in the Operation Control Center (OCC).

The conclusion

Based on its long-time experience in implementing complex telematics systems INIT was able to commission the ITCS

and Passenger Information System on schedule. Managing the Dubai bus network without INIT's ITCS would be inconceivable today. With this system RTA Dubai is well prepared for the planned expansion of its network.

The improvements which RTA implemented in recent years led to a noticeable increase in passenger numbers. With the support of INIT's ITCS public transport in Dubai is getting more reliable and passenger information is getting better and faster.



Statistics recorded by the system for the period 2009–2011 indicate that [with the implementation of the integrated ITS system] bus adherence to timetables rocketed from 16 % to 80.5 % [in 2011], and the number of cancelled trips plummeted from 13 % to 0.8 %, which resulted in a drastic fall in the number of complaints by customers from 500 to only four complaints filled per month.



Adel Shakeri,
 Director of Transportation System Department,
 at RTA's Public Transport Agency.
 Gulf News – March 30, 2013

The project at a glance

DUBAI ROADS & TRANSPORT AUTHORITY

1,550 busses and 21 marine vessels

Intermodal Transport Control System

Real-Time Passenger Information System

APC in 100 busses

2D and 3D GIS

Disaster Recovery

Intelligent Messaging System

Evaluation and statistics

Multimedia displays in busses and at stops

IT platform onboard

TASK

- Implementation of an ITCS and Real-Time Passenger Information System
- Improvement of service quality

SOLUTION

- Installation of an entirely integrated telematics solution with real-time passenger information, high-performance vehicle equipment and innovative communication systems

ADVANTAGES

- Comfortable monitoring and fleet management
- High service reliability
- High punctuality
- Reliable passenger information
- High passenger satisfaction

If you would like to know more about this project and featured INIT products, please contact us at sales@initse.com. We look forward to hearing from you.

More than 600 customers worldwide rely on our integrated solutions to support them with their daily tasks

- ◆ *Planning & Dispatching*
- ◆ *Ticketing & Fare Management*
- ◆ *Operations Control & Real-Time Passenger Information*
- ◆ *Analyzing & Optimizing*

and they also benefit from our proven Service & Maintenance support.

INIT is the worldwide leading supplier of integrated planning, dispatching, telematics and ticketing systems for buses and trains. For more than 30 years, we have been assisting transport companies in making public transport more attractive, faster and more efficient.

INIT

sales@initse.com | www.initse.com



@INIT_en



INIT Group

init

The Future of Mobility