



Roads & Transport Authority
Government of Dubai - www.rta.ae

Case Study

Speaking timetable information for Dubai's public transportation system takes on the traffic jam chaos

Initial Situation

Dubai is one of the seven emirates within the United Arab Emirates (UAE). However, Dubai differs from the others in many regards, one of which is its sophisticated public transportation system. In 2008 there were 70 lines with 1600 bus stops and almost 600 buses, serving around 250,000 passengers per day. This transportation network is supplemented by taxis and "Abrams" which are small water taxis. These are all managed by the Roads and Transport Authority (RTA) in Dubai.

To overcome the exorbitant increase of the general traffic volume in this mega city, the Ministry of Transport set itself ambitious goals. Along with introducing a new metro in 2009 and the expansion up to 2000 buses in 2010, a phone-based schedule and information service for the local public transportation system will be developed based on one of the most modern voice portals in the world. To implement this, the initiators rely on the innovative voice technology of Voxeo and Excelsis.

Challenge

The expansion of the public transportation system is essential for Dubai: The car drive from the periphery to downtown

Dubai, which is a distance of about 7.5 miles, takes between 20 minutes and two hours, depending on the time of day. With an RTA master plan, the public transportation system could be improved to meet Western standards and thus significantly increase passenger adoption.

With regard to development and implementation of the new voice portal, a range of very specific requirements had to be considered, including local languages of many different nationalities as well as the climate in Dubai.

The information system needed to support a high number of foreigners – approximately 85% – speaking a variety of Arabic languages and dialects. It also needs to take into account temperatures over 122°F (50°C), which make scheduled connections that require even a 20 minute walk (which is the European standard), unacceptable in summertime.

Furthermore, the Dubai city center is traversed by seven-lane highways, which can hardly be crossed by foot. For Europeans, orientation in the city is extremely difficult because only the main roads have street names, whereas all other streets are identified by numbers. Therefore, it is exceptionally difficult to assign clear names to the bus stops. As a result, well-known landmarks or central buildings are often identified as stops.

Solution

Ultimately, the solution involved developing a system that reflects each of the various local conditions and provides its users with current schedules 24/7 and from everywhere. Using simple, natural dialogs, the voice application allows fast and straightforward requests for information from any telephone and in multiple languages.

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In the end, RTA selected the software technology from Voxeo and Excelsis, which ensures that it will also be able to meet future demands. The system is based on open standards, such as VoiceXML, GrXML and Java. By using JEE technology it can be deployed across platforms, regardless of the operating system. VoiceXML guarantees independence with regard to speech platforms and speech recognition systems. Seamless scalability allows the solution to grow along with caller needs. Also, the system can easily be expanded with additional components.

The heart of the voice-based information system is Excelsis Speaking Timetable, which is responsible for the implementation of the business logic of the timetable information. The system utilizes Voxeo's VoiceObjects Phone Application Server as the run-time environment for the voice front end. The connection to the Excelsis integration framework happens via Voxeo's VoiceObjects XML connector.

The system deploys VoiceObjects Analyzer for administration, logging and monitoring at the technical level.

The administration and configuration of the voice portal, as well as monitoring and reporting at the business level can be controlled via the Web-based Excelsis Management Console.

„This project shows in a very impressive way how successful partnerships can be. With its 'Best of Breed' approach, Excelsis ensures that its clients benefit from proven and market-leading solutions and thus guarantees a degree of investment protection, which is essential for businesses, particularly in difficult economic times. We at Voxeo are proud to deliver on these high requirements and to contribute to the numerous business advantages that our customers experience.“

Michael Codini, CEO Voxeo Germany GmbH

The system obtains the necessary timetable information from Mentz Datenverarbeitung's EFA software, which is integrated using a specific middleware. Mentz is one of the world's leading companies in software for public transportation planning and intermodal timetable information.

The system has a wide range of special features to optimally match Dubai's local conditions. Due to street naming conventions, landmarks such as the famous "Burj Al Arab Hotel" are often used. In addition to bus traffic, the overall planning also takes other means of transportation, such as the Dubai-specific water taxis, into consideration. Users also have the option of obtaining their individual timetable information in high Arabic and English as well as various dialects. For added convenience, callers may ask for return trip options at a given time, as well as onward connections for which the current destination is automatically used as the starting point. Connection overviews and connection details can be sent, by request, via e-mail, text message or fax. As long as the caller provides the phone number, their profile is

loaded. This includes saved locations (stops, addresses, important points) and options. During the dialog, callers can select whether they want to use one of saved locations or enter new information.

“Voxeo VoiceObjects is, in our opinion, the best technology for multimodal self-service solutions and supports our product development very well. Once again, in this project, we have benefited from the professionalism of the Voxeo team. Likewise, the collaboration with our partners, Mentz DV and Nuance, was once again outstanding and RTA benefited from a professional overall solution.“

Christian Sauter, CEO Excelsis

The dialog system implements different disambiguation strategies that involve methods for clarifying ambiguous information (for example, whether the caller is searching by stop or landmark). For any call transfers that may be needed, the routing is directed according to the services times stored for the Call Center which can be adjusted by RTA at any time.

A versioning concept for locations, bus stops and landmarks is implemented in the information system. New entries can be activated gradually. RTA also has the option to add new entries in the dictionaries and modify the mechanisms for generating grammar.

Summary

The system has the ability to provide a significant number of passengers with current connection information on a daily basis. Moreover, it takes the continually increasing importance of the public transportation system in Dubai into account so that it can also keep up with the expanding demands of RTA in the future. Therefore, the solution is on its way to significantly increase acceptance of public transportation in Dubai.

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Requirements

- Multi-language capability
- Platform based on open standards
- Consideration of the specific bus stop infrastructure
- Integration of site-specific means of transportation, such as water taxis
- Easy access at any time and any location via mobile and landline networks
- Consideration of the geographic and climatic conditions

Highlights

- Scheduling information system in high Arabic and English
- SDS with open standards and large grammars (40,000 entries)
- Versioning concept for locations, bus stops and landmarks
- Integration of additional local means of transportation
- Automatic connection information including return trip and leg queries
- Connection overviews and details via e-mail, text message or fax
- Consideration of the individual user profile using the phone number
- Implementation of various disambiguation strategies
- Option of expanding dictionaries and modification of the mechanisms for generating dictionaries
- Easy, Web-based configuration of all settings and creation of extensive analysis and reports

About Excelsis

Excelsis is one of the internationally leading suppliers of solutions for self services based on voice and web portals. With software by Excelsis companies from numerous branches automate their contact center processes.

Excelsis offers products and solutions for companies from the sectors of banking, telecommunications, media, industry and trade, traffic and logistic as well as intersectoral software for speech-enabled information systems, customer management and help desk automation.

Customers include + 400 well-known companies in more than 20 countries. Excelsis has partnerships with global technology suppliers.

Contact

Excelsis Business Technology AG
Wilhelmsplatz 8
70182 Stuttgart – Germany
+49 711 620 30 131
International Freecall 00800 excelsis
sales@excelsisnet.com
www.excelsisnet.com

Technology and Project Partners

