

ANNUAL 2007

PASSENGER TERMINAL World



**EXCLUSIVE
REPORT:**

**The world's
most noteworthy
airports 2007**

As decided by
Passenger Terminal
World's expert panel

20 ANNUAL 07

IT'S PHONEME-NAL

WITH DIGITIZED SPEECH FRAGMENTS, AIRPORT VOICE ANNOUNCEMENTS ARE STATE-OF-THE-ART SIMPLICITY

American airlines flight 115 to New York JFK will be delayed until approximately 14:00
 KLM departure to Barcelona flight number 412 now boarding at gate 3
 S1 Baggage Left Unattended will be Removed and Destroyed
 S7 Thieves are operating within the Terminal
 L5 Passengers are Permitted to Carry One Piece of Hand Baggage Only
 S4 Place Telephones, Coins and keys in Hand Baggage



In autumn 2006 London Heathrow Airport implemented a state-of-the-art technology for making announcements in all the terminals at the airport. The system, which uses a phoneme technology, was designed and developed by AviaVox, a Dutch enterprise based in Schiphol-Rijk in the Netherlands.

As part of the implementation procedure Heathrow installed a project team that closely worked together with the develop-

ment department of AviaVox to intensively test the AviaVox-System in the BAA ITF laboratories in London. This process took nearly a year after the order assignment was provided to ARINC and AviaVox in the summer of 2005.

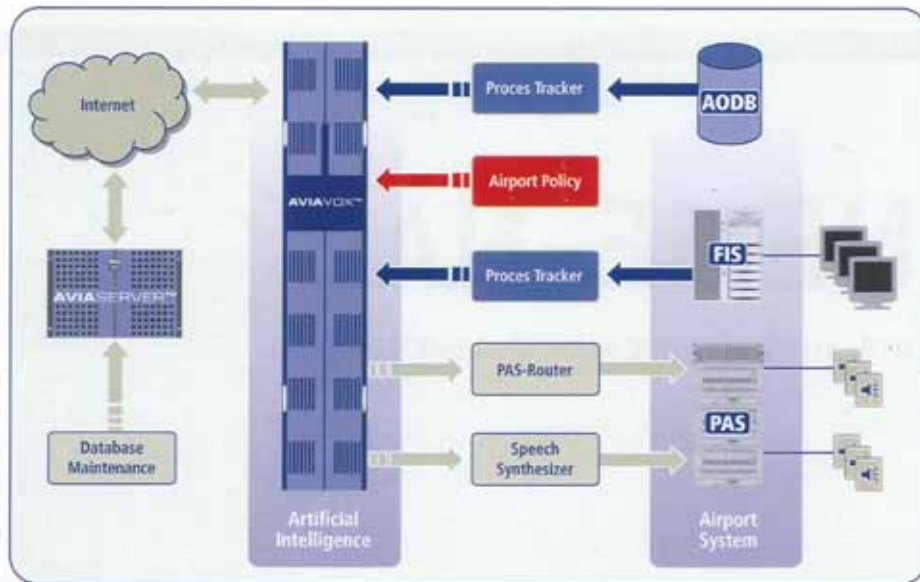
The AviaVox intelligent announcement system is specifically designed for airports and addresses many solutions to well-known issues that airports are experiencing day by day. With the new phoneme

technology, natural announcements can be made fully automatically in a multitude of languages. The quality of those announcements is at an extremely high level and can not be distinguished from a human speaker. Yet it is the phoneme technology that actually makes the computer speak.

The artificial announcements are generated by AviaVox-Software, which uses digitized speech fragments called phonemes. If the intonation of words within sentences is



1. Graphical user interface at London Heathrow



analyzed, then the conclusion has to be made that the pronunciation of a word is very much dependant on the position within the sentence and is also influenced by the words that are in front and immediately behind it. Within the AviaVox system every word is dynamically built with these phonemes to get the intonation, speed and timbre exactly right. The word 'passenger', for example is built up in this way from a total of 36 phonemes.

The AviaVox system takes its feed from the AODB/FIDS systems at the airport. Hence it will dynamically make announcements based on the real-time situation at the airport and the airport announcement policy, which is reflected in a number of parameter settings. AviaVox has not only developed the interfaces to these AODB/FIDS systems but also connects to a variety of PA systems. This can be done either digitally or on a 'hard-contact' basis. As Heathrow has multiple PA systems, AviaVox used both type of connections.

With a traditional pre-recorded system the maintenance of a voice base is often a major problem. If a new airline, destination or other change needs to be made, new recordings are inevitable. This is often very expensive and if the original speaker is no

New destinations and names of airlines are updated in real-time – and immediately if required

longer available all the recordings will have to be made again, because one cannot mix the voices of multiple speakers without it being obvious to listeners.

In addition to the excellent quality of the announcements, the AviaVox phoneme technology offers another major benefit over pre-recorded systems – the maintenance of the voice base. Since in the AviaVox system there are no sentences – only sentence-structures – the phonemes can be interchanged and used to build various words. AviaVox has a rich central database where phonemes are stored.

These phonemes can be downloaded automatically as the AviaVox system identifies the need for a new phoneme or if a new phoneme with increased quality is available. Heathrow uses about 10 percent of the available phonemes on the central database to cover its daily needs. Yet in the

first four months of operating the system, the airport downloaded and refreshed about four million phonemes, which illustrates the need for frequent changes. All airports, large and small, share this need. The operators do not have to be involved in this automated process and new destinations and names of airlines are updated in real time – and immediately if required by the system.

The voice-base and software maintenance is offered through an annual subscription, which is a function of the number of passengers that the terminal handles per year. The costs can further vary depending on the configuration and the number of options the airport uses. This subscription-based service is very attractive for an airport because the costs can be treated as operational costs and are not an investment that needs to be put on the balance sheet and written off over many years.

The first phase of the implementation at Heathrow was about the generic system, enabling the airport to make all the required dynamic and canned announcements both landside and airside. The second phase is for the implementation of the Airline Gate Client at 168 gates, which will enable airlines and handling agencies to fully automate the announcements that accompany the boarding process at the gate. AviaVox is the first company in the world to design an announcement application that is certified by ARINC and SITA to run on CUTE PCs at the gate. A large number of airports and airlines have showed interest in this option as it increases the efficiency of the boarding process.

AviaVox systems are being implemented throughout the world. In addition to Heathrow Airport, AviaVox has worked on projects in the Arabian Gulf area, north Africa, Russia, Australia and several airports in Europe.

The AviaVox system received an IT award from ATTIS at Schiphol for being the best in the airport industry. With its state-of-the-art technology, AviaVox is positioned to become the leading provider for artificial voice systems at airports.

1. Schematic showing how AviaVox integrates into a terminal's IT system



'if only you could hear us

... they can understand you'



Artificial Voice systems by AviaVox. It's more than crystal clear!

We integrate our speech system with your (existing) Flight Information System, Gates and PA-System, so that you can make announcements with high intelligibility in multiple native foreign languages. Contact us for a demonstration.



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