Functional Description for TOA Transportation Software

Purpose

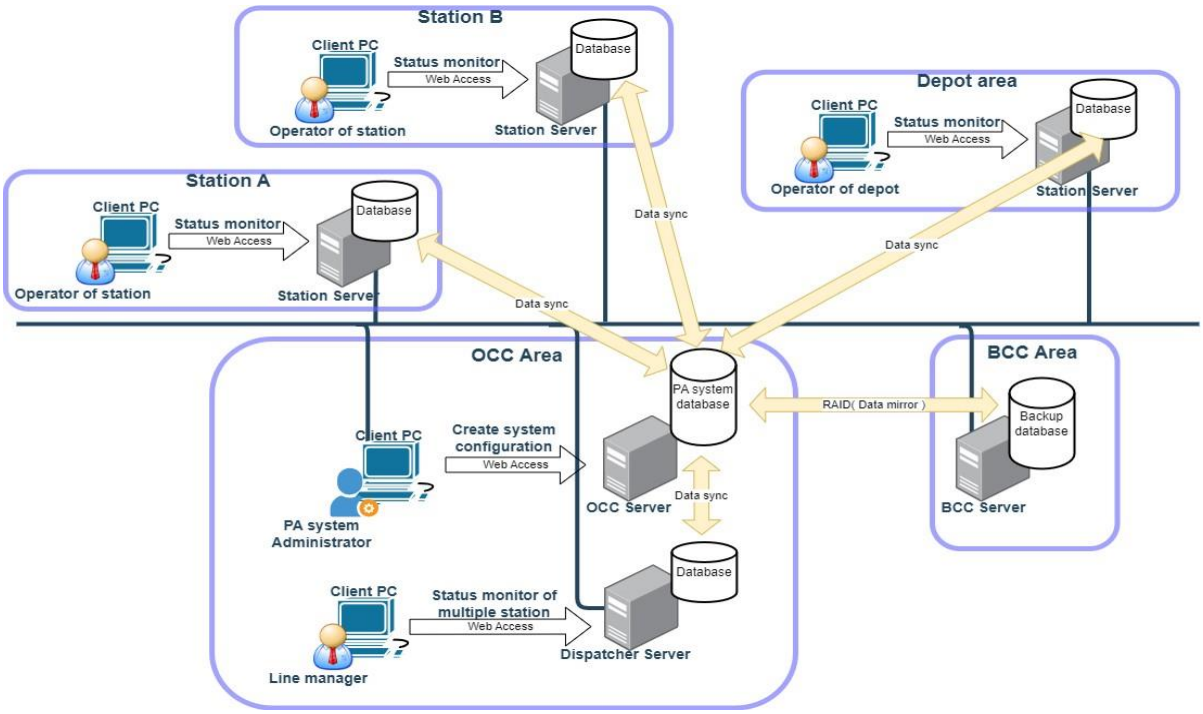
This document explains about the TOA Transportation Software, which it enables wide-area broadcast by using a Public Address System (PAS) network.

Scope

This document covers all major feature of TOA Transportation Software, including System Configuration , Live Announcement , Pre-Recorded Announcement , Schedule Announcement , Adhoc Announcement , Status Monitoring , Operation Log .

Software Overview

Transportation Software is a network-based Public Address System (PAS) control software. It consists of three Server Software components (OCC, Station and Dispatcher server), and each software is installed on a respective server PC and accessed via web browser.
Customization allows to interface with other subsystems.



Example for interface with other subsystem in Airport application:

ToIP (Telephone Over IP) Interface

The ToIP inteface is to enable broadcasting from IP telephones to PA systems.
IP Telephone broadcast can be performed via SIP protocol.
The caller can choose any broadcast zone at the start of the SIP call.

AODB Interface

PA System interfaces with AODB system to make automatic broadcasts for arrival and departure announcements.
AODB system send arrival and departure information to Transportation Software and Transportation Software will process it accordingly. The detail protocol used for AODB is TBD but Transportation Software will follow the provided protocol.

BMS (Building Management System) Interface

The BMS interface provides PA equipment failure information to the BMS system.
PAS failure information can be retrieved via Modbus TCP protocol.
The BMS retrieves each failure status by accessing a predefined register map for the VX-3000 frame.

AMS (Airport Management System) Interface

The AMS interface provides AMS with integration with the PA system.
Integration is achieved via the Transportation Software URL.
AMS displays the GUI retrieved via the URL as part of its own application, and enable user full control of PAS.

Internal Interface Descriptions

TOA does not provide internal interface specifications for TOA PAS Control Software as this software is COTS product.

OCC Server

The OCC (Operation Control Centre) server is installed in the OCC area and is responsible for creating and managing PAS configurations. The created configuration information is stored in the own database and synchronized it with Station and Dispatcher servers.

Station server

The Station server controls and monitors the PAS equipment, which is installed at each station (facility). Operators can access the station server via a web browser from a client terminal or server itself, and perform live PA broadcasts or pre-recorded message broadcasts.

Dispatcher

The Dispatcher can monitor and control multiple station (facility) simultaneously, and it's installed at OCC area normally. Simultaneous broadcasts that across multiple Station areas are performed through the Dispatcher server.

Software Function Summary

The functions of each software are listed below.

Function	OCC Server	Dispatcher Server	Station Server
User Roll Setting	o		
System Configuration	o		
Live Announcement		o	o
Pre-Recorded Announcement		o	o
BGM Announcement			o
Schedule Announcement		o	o
Ad-hoc Announcement		o	o
Status Monitoring		o	o
Operation Log		o	o
DataSync	o	o	o
Multi Language Support	o	o	o
Subsystem Interface	o		
Redundant Feature	o		

Functional Description

OCC Server Function

In this section, we will describe the functions of the OCC server. The OCC server creates and manages the configuration information of the PAS. By synchronizing the created configuration information with the Station and Dispatcher servers, the PAS becomes operational.

Configure Station

To install equipment or client PCs requiring an IP address for each Station, register the IP address and port number for monitoring or control purposes. The Emergency PA Microphone and Ambient noise sensor are analog-connected to the Voice Evacuation Frame and do not require an IP address for registration on this screen. However, separate configuration settings are required for the Voice Evacuation Frame.

Configure Map

Register a map of the PA area for each station. Multiple map registrations are possible. The format of the maps that can be registered is specified as JPEG or PNG. In the PA, the areas that are visually recognized as being in the PA are indicated with colours on the map. Therefore, a monochrome image is suitable for the map image.

Configure PA Zone

Register the PA zones on the map. The areas specified by the zone will receive the same PA. One digital power amplifier will be associated with each zone. It is also possible to define multiple zones as a single zone group.

Configure User Account

Manage the permissions of operators who can access each server.
Set a login password for each operator and limit the servers (OCC, Dispatcher, each station) that each operator can access.

Configure Message

Priority

Register the types of PA priority. Please note that you are registering the "type" of priority. While running the PA with the registered priority, set the color for the zone on the map. By setting this color, you can easily determine the priority at a glance.
Note: PA from a remote microphone connected via analog will be prioritized over the registered type of priority.

Messages

Register audio file data to be used in PA. The registered audio file data can be used at all stations. The audio file data that can be registered is in Wav format.
It is also possible to create audio file data. The microphone used to create audio file data must be connected to the Client PC that accesses the OCC server via the Web.
The registered audio file data needs to be preset to be used as a PA message. With Preset, multiple audio file data can be combined to register one PA message.

Configure Chime

Register chime sounds to be used at the start and end of PA broadcasts. Multiple chime sounds can be registered for use. Operators can select which chime sound to use at the start of PA broadcasts.

Configure Equipments

Configure equipments which is registered in Station configuration In the "PA Server Configuration" configure the association between the Dispatcher server, Station server, client terminal and "Equipment of Microphone A/D".
In the "Broadcast Channel" setting, set the type of broadcast input to VX-Frame.
n the "VX System Number" setting, set the VX-Frame to be controlled from the Station server.
In the "VX Control In" setting, configure settings to broadcast using the contact signal input to VX-Frame as a trigger.
In the "VX Speaker Out" settings, configure settings that associate the sound output from the VX-Frame with the Zone.

Configure Broadcast Channels

Register the type of PA for each station. Customers can freely set the type of PA. The type of PA refers to the type of audio data input to the Voice Evacuation Frame. When streaming audio data is input from the network, set the multicast IP address and port number. When analogue audio data is input to the Voice Evacuation Frame, set the analogue input channel.

Synchronize configuration data

Send and synchronize the data registered in the OCC server to the Dispatcher server and Station server.

Station Server Function

This section explains the functionality of the Station server. The Station server operates using the Configuration information created in OCC. Client operators with access to the Station server can only perform PA and monitoring within the Station. The Station server can also receive instructions via the network from Dispatcher or Signaling to perform PA. The PA is executed according to the priority set for each PA. The Station server updates/sends the current status information to the OCC server in real-time.

Status monitor of station

The Station Status is displayed. The polygonal range set on the map represents the PA Zone. During PA, the Zone is colored and can be visually recognized. The same color is also applied to the Zone Status list on the right side of the screen. The color during PA is set as Configuration information on the OCC server.

Live PA in station

Live PA is executed by specifying the zone. A chime sound will be played at the start and end of the PA. The chime sound can be selected or "none" can be selected. The chime sound settings are configured in the OCC server's Configuration information.

Pre-recorded PA in station

To execute Pre-recorded message PA, specify the zone. The audio data to be used for the PA can be selected from the voice data registered as configuration information in the OCC server or the voice data created in the station server. Additionally, the chime sound at the start/end of the PA can be selected in the same manner as Live PA.

BGM in station

This executes the start and stop of BGM playback within the station. The audio output of the BGM player needs to be connected to the analog input line of the Voice Evacuation Frame.

Schedule PA in station

To execute a Pre-recorded message PA, it is possible to set a schedule. The scheduled PA can be set to run on a daily, weekly, or specific date and time basis. If the "daily" or "weekly" option is selected, the scheduled PA will run at the designated time repeatedly.

Synchronize configuration data

The data registered in the OCC server is received and synchronized by the Station server.

Make the recorded message

To create a PA message for use within the station, you can either upload an audio file or record it using the client PC's microphone. Note that you need to allow the microphone function in the client PC's web browser. The message created can then be used with the pre-recorded message PA.

Dispatcher Function

This section describes the functions of the Dispatcher server, which operates using configuration information created in OCC server. The Dispatcher server can monitor multiple station servers that have gathered in OCC server. It is capable of executing PA to multiple stations simultaneously.

The Dispatcher server is intended to monitor and control multiple station servers in a cohesive unit, such as a railway line (i.e. RED line, BLUE line, A line, Z line, etc.). Please note that if management of multiple stations is not required in a cohesive unit, installation of the Dispatcher server is not necessary.

Live PA to stations

Live PA is executed by specifying the station and zone. A chime is played at the beginning and end of the PA. The chime sound can be selected, and it is also possible to select "none". The setting for the chime sound is registered as configuration information on the OCC server.

Pre-recorded PA to stations

The Pre-recorded message PA is executed by specifying the station and zone. The audio source data used for the PA can be selected from the voice data registered in the OCC server as configuration information. Also, the chime sound at the start/end of the PA can be selected just like Live PA.

Schedule PA to stations

Pre-recorded message PA can be executed by scheduling it. The scheduled PA can be set to run on a specific day and time or on a daily/weekly basis. If you choose to run it daily/weekly, the scheduled PA will be executed at the specified time repeatedly.

Synchronize configuration data

The data registered in the OCC server is received and synchronized in the Dispatcher server.

Event Log

Station server and Dispatcher server each log events.
General log: Logs events that occur in server software. There are various types of events, such as server operation logs by operators and PA start/stop.