Functional Specification

Purpose

The aim of this project is to design and implement an audio guide system intended for the general public. The system will give the user a monologue on the exhibit of their choice, where the audio track will be chosen depending on the user’s level of knowledge. The system will allow for group multicast playback or individuals where it shall be unicast.

Scope

The domain for this system is encapsulated by museums or art galleries. Each art gallery or museum has a number of display items that have audio descriptions associated with them. There are multiple audio tracks linked to each display, which relate to different knowledge levels.

Mandated Constraints

* Audio tracks must be streamed from the “server” to the “client”. Local playback of the files will not be sufficient as tracks could potentially be updated server side.
* The connection between the handheld device and the server must be via a local Wi-Fi network.
* Application data must be persisted into a Relational Database Management System (RDBMS).

Functional requirements

Handset authenticates before playback can commence

* The customer will have received a pin number upon registration. The device will have a unique identifier and when a user enters the pin. An authentication request will be sent to a server using both the identifier and the pin number. The server will ascertain whether the pin number is acceptable for use with the device, responding accordingly. If the pin number was acceptable, the device will have the ability to playback an audio track. Otherwise, the device will inform the user that the pin was not accepted.

Listener controls playback of audio tracks upon handheld device

* The user can pause and resume playback of an audio track using a function upon the handheld device. They may also rewind and fast-forward the audio track using other functions.

Administrator manages audio files

* When a new audio file is created, an administrator will associate the audio file with an exhibit. The file should also be associated with a language and knowledge level. The audio file is then stored upon the server and can be used for playback by the handheld device.

Customer registers for use of a handheld device

* When a customer would like an audio guide, they must enter their name, address, mobile number and language into a “kiosk”. This information should then be stored for analytical purposes. The system should then generate a PIN for the customer and inform them of the handheld device that they should use.

A group of customers would like to listen to the audio guide

* When a group of customers would like to listen to the audio guide, they must use a function on the handheld device to enter into a mode that listens to a group broadcast.

Log system interaction

* When an action of interest is performed upon the system, a log entry will be created. This log entry will be visible to an administrator.

Tracks controlled by keypad

* When a user is listening to a track, they will be able to pause, rewind and fast-forward the current track. This information will be collected by a keypad with corresponding controls.

Display track data to user

* Whilst selecting or listening to an audio track, a user will be able to view details such as the track timing and track number. This information will be communicated to the user via a display connected to the handheld device.