

An Android Application for Effective Public Addressing System for Railway Station

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Abstract: Nowadays travelling from one place to another has become part of our day-to-day life. The people who depend on the public transports for their travel have a bundle of bad experience of missing their transport or without prior knowledge of arrival of stop in long journey. The proposed system introduces a novel idea of intimating such people through the application.

Keywords: Firebase, Text to Speech.

1. Introduction

Announcements at Railway Stations are a major information source for passengers. There are different types of technologies used in Indian Railways. Most advanced one is Integrated Passenger Information System. In this the standard voice is pre-recorded and just the blanks are filled with train numbers, expected arrival time, platforms etc. There is an interface in which user inputs the data and have various options such as display train information and coach position. There is a possibility that train passengers travelling over long distance can miss their destination station and reach unknown city or village especially at mid night which can lead to frustration and disappointment. In order to offer a high-quality service, passengers must be informed about the arrival time and if there's a delay, the expected arrival timing is to be shared, and this feature is provided by this application. This will also enable the passenger to get more accurate information. This paper aims at developing an Android app which is useful for passengers using railway transportation services. The station master will be updating the announcements through Web Application which in turn will be retrieved by the android application. The user is prompted to select the location. Then, the Passenger is shown with a list of recent announcements made at the particular station in text format, he can also hear by selecting any of the announcements.

2. Related work

Previous work has been referred which brings challenges to existing system in railways. S. P. Kesavan, M. Dhanasekaran, "Automatic Station Announcement System in Railways", International Journal of Research and Engineering [1], this

paper helped us to provide the announcements in the audio format.

Mr. Rohan Sharma, Mr. Abdul kamar shaikh, Mr. Umesh Yadav, Mr. Ajay Yadav, "Public Addressing System", International Research Journal of Engineering and Technology [2] This paper gives us the idea about the announcements made in station which are not clear due to train noise, crowding at the station, technical defects in the public address system and helped to develop an application where the announcement is provided to the user in both text and audio format. In the existing railway system, the announcements are operated by the computer at station by station master. Announcements are pre-recorded and can be used later. Only the variable phrases changes for the announcements and the other phrases are prerecorded.

3. Problem statement

With the development of society, different kinds of improvements appear. But the traditional and the existing system in railways are not able to provide the solutions for the problems.

A. Proposed system

This system aims at developing an Android app which is useful for passengers using railway transportation services. The station master will be uploading the announcements to Web Application which in turn will be retrieved by the android application. The user is prompted to select the location in the App. Then, the Passenger is shown with a list of recent announcements made at the station selected by the passenger, in text format. The passenger can also hear to the announcement by selecting any of the announcements.

Advantages:

1. Provides an alert to the passengers at the arrival of the destination station.
2. Announcements are clear and can be heard any number of times.
3. Information about the particular railway station is provided.

4. Scope

1. This application can be used by the passengers travelling in engine driven trains.
2. The application is available 24*7 provided there is an internet connection.

5. Methodology

A solution for effective Public Address System at Railway Station, is proposed by developing an Android application which allows the passengers to listen to announcements made at the station clearly.

The station master first uploads the announcement in the text format to the Firebase through web application. When the passenger taps on a particular announcement within the app, the text is fetched from android application which then synthesizes the text into speech and the audio output is heard on the passenger's phone. Hence a robust and intuitive solution is implemented by making use of Technologies such as Android, Real-time database.

When Passenger first launches the application, he is prompted with railway stations, from which he needs to select the boarding station. Then the Passenger is shown a list of recent announcements made at that particular station in text format. Later the passenger can listen to a particular announcement in the audio format by selecting any of the announcements from the list.

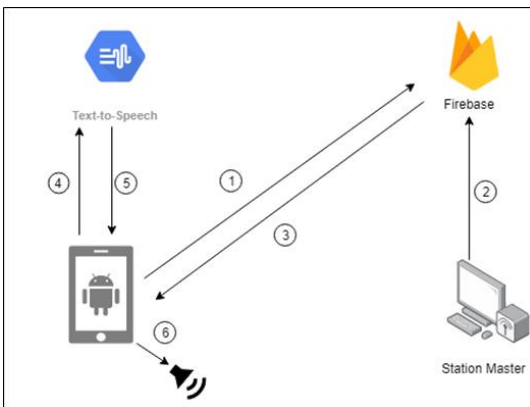


Fig. 1. Architecture diagram

1. The passenger selects the station.
2. The station master uploads the announcements to the firebase.
3. The announcement of the particular stations is fetched by an application.
4. The selected announcement is sent to Text to Speech (TTS).
5. Text to speech result.
6. Announcement in the audio format.

A. Module description

- i. Displaying nearby stations: In this module, the names of the nearby stations are displayed.

- ii. Provides announcements: In this module, the recent announcements of the selected station are fetched from the Firebase and are displayed to user.
- iii. Audible announcements: In this module the user selects a particular announcement among the list of announcements that are displayed. The selected announcement is converted to speech using android in-built functions and the passenger can listen to it without any disturbance.

6. Snapshots

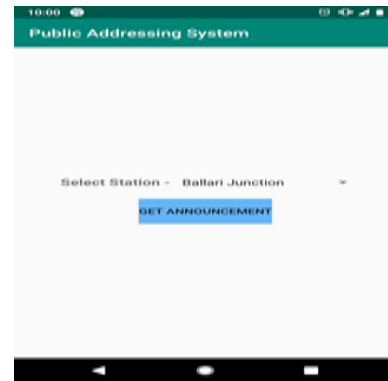


Fig. 2. User selects the station

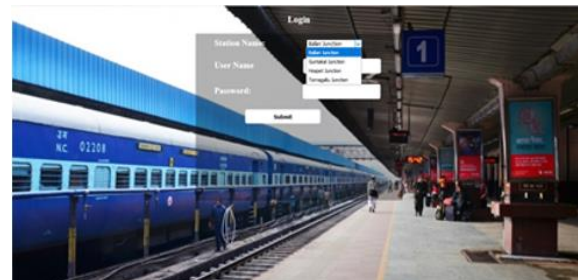


Fig. 3. Station master logs in to a particular station

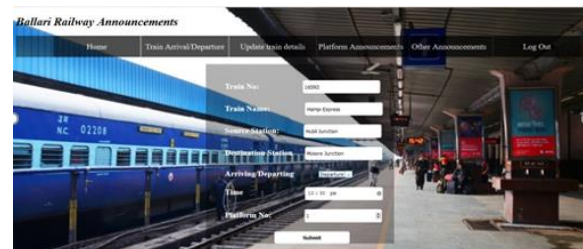


Fig. 4. Train details are uploaded to firebase through website

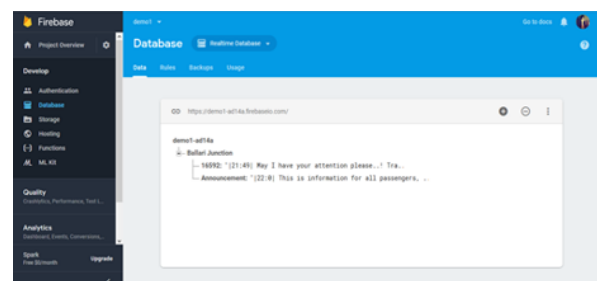


Fig. 5. The complete announcement is stored in the firebase

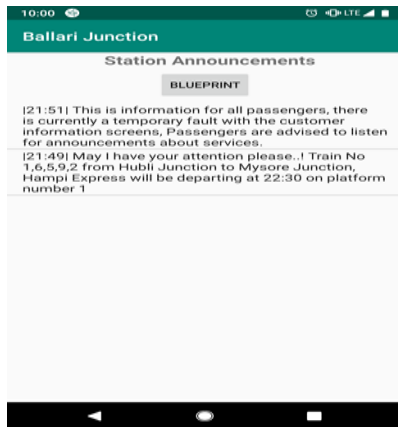


Fig. 6. The announcements from the particular station are fetched by the application and announcement can be heard in audio format by tapping on it

7. Future scope

This system can be further enhanced by incorporating regional languages so as to provide announcements in regional languages. It can also be mapped to Google Maps to provide directions of their destination platform from their current location.

8. Conclusion

This paper aims to make an android application through which announcements made in the railway station can be heard to the passengers personally without any disturbance. This application also provides the feature of hearing the missed announcements which are already announced. One can know about the station by the help of blueprint provided within the application. This application is available 24*7 to the passengers provided there is internet connection and can accommodate any number of train details, contributing to scalability factor.

References

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