

# Grievance Interface for Railways

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**Abstract**—A grievance is any discontent or feeling or unfairness faced during journey. The objective of the paper is to deal with the by Grievances faced by passengers during their journey at Southern Railways. The customer comfort is enhanced by reducing the manual processing of grievance and providing quicker and faster response through mail or sms. Public can register complaints regarding any department with valid registered username, password. Administrator views the complaints and forward them to specific department heads for further action. Once the reported complaints are rectified, the action are stored in database and an acknowledgement is forwarded to admin. Now, admin will send appropriate response to concerned user who made the complaint.

**Keywords:** Grievance, Grievance handling, Redressal, Passenger.

## I. INTRODUCTION

Grievance handling is a Web enabled, centralized information and management application to cater for the Southern Railways requirements in building best relations with its customer community by providing fast redressal mechanism to the customer grievances & self identified deficiencies. The website will collect more information from the customers and give a better view to the authorities for planning enhancements, which ultimately lead to more customer satisfaction.

The system on one hand provides an interactive user-friendly front end interface to the end-user, catering to their information and data management needs; and on the other hand... maintains, rather manages the data. So, it allows Indian Railways for quick handling of the problems. This way it will reduce the manual efforts earlier required for the quicker redressal.

Grievance redressal existing on Railways, operates at different levels namely Stations, Divisions, Zonal Railway Headquarters.

- i The Station Managers are nominated for redressal of complaints and Public Grievances at stations.
- ii. Additional Divisional Railway Managers have been nominated as Public Grievance Redressal Officers at

- Division's level.
- iii. Additional General Managers function as the Director of Public.
- iv An Executive Director coordinates the subject in the Railway Board and monitors performance of Zonal Railways periodically.

Periodical meetings with Divisional Officers and Station Managers are held in this regard. Redressal of public grievances is an important thrust area with the Government of India and the Ministry of Railways. All efforts are made to ensure that the Public Grievance Redressal Machinery on Zonal Railways is effective. Periodic review of the Public Grievance Redressal mechanism is done in regular Coordination Meetings with Zonal Railways by Railway Board. Periodic meetings are separately held by senior officers at Zonal Railway Headquarters and Divisional levels in order to mitigate public complaints.

## II. SYSTEM STRUCTURE

### 2.1 SYSTEM ARCHITECTURE

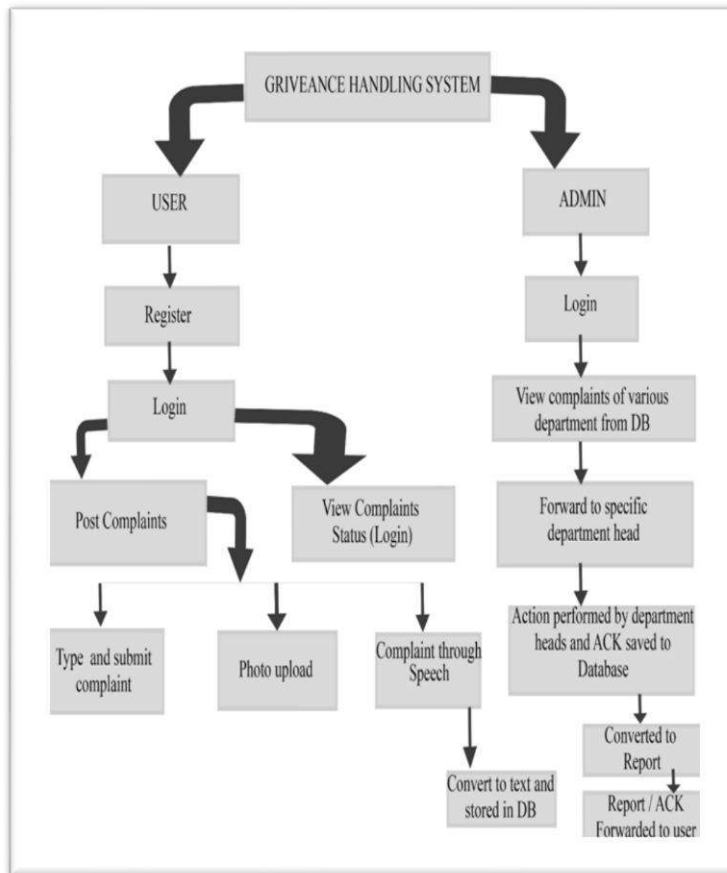


Figure 1 . Detailed Design

When a passenger want to complaint about any deficiency during his/her journey, he/she must first enter the grievance web portal. New users can register themselves by providing details like name, phone-number, e-mail id and address. Registered users can enter their username and password and can log on to the system. When a user register themselves a 4-digit PIN is sent as a password to users mail-id or phone-number , using it users can log on the portal. The portal displays a list of departments such as catering, maintenance, registration and enquiry. User can choose the department and can enter their complaints and click ‘submit’ to send the complaint.

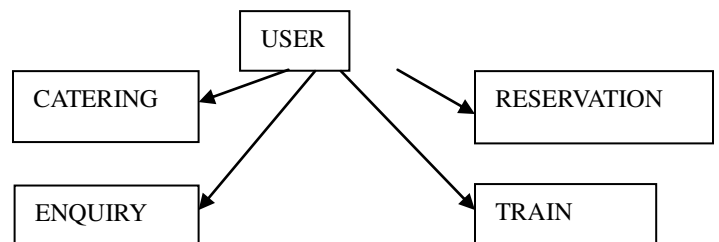
Administrator on the other end logs onto the portal and views the complaints that are registered. Admin now forwards the complaints to specific department. The investigation officer of the particular department will take necessary action towards the complaint, when the issue is solved the investigation officer sends back an

acknowledgment to admin and admin ensures that the issue is solved and forwards an acknowledgment to the

user who made the complaint.

### III. USER MODULE

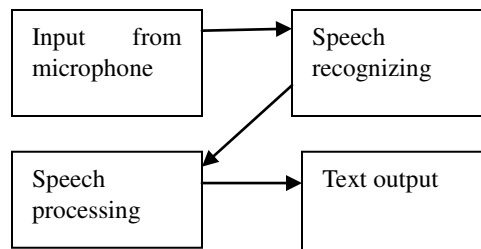
As stated earlier user can register themselves with the web portal and log onto the portal through valid username and password. The portal displays list of department and can enter their complaints by choosing specified department.



**Figure 3. Block diagram of user choosing department.**

### A. COMPLAINT THROUGH SPEECH

Users can also register their complaints via “**SPEECH RECOGNIZATION**”, an attractive modality of human interaction, it requires only modest hardware for acquisition (a high quality microphone). To register complaints through speech a link is provided on the web portal. When the link is clicked android application is downloaded from google play store and users can install the application and can enter their complaints.



**Figure 2. Basic Block diagram of speech to text System.**

Speech reorganization is done by providing Google translate link at the back-end. The technique is adapted to produce messages in English. When the text is spoken the back-end process starts and converts the speech to text. Google Translate works by tracking patterns of texts through a computer and translating the patterns. Google Translate software takes large amounts of text data and incorporates what Google calls "statistical machine translation." By using both monolingual text and aligned text, or human translations from one language to another, the software creates a translation model for each language

The process starts with the message information which can be thought of as having a number of different representations during the process of speech production. For example the message could be represented initially as English text. In order to “speak” the message, the talker implicitly converts the text into a symbolic representation of the sequence of sounds corresponding to the spoken version of the text. This step, called the language code generator which converts text symbols to phonetic symbol (along with stress and durational

information) that describe the basic sounds of a spoken version of the message and the manner (i.e., the speed and emphasis) in which the sounds are intended to be produced. The third step in the speech production process is the conversion to “neuro-muscular controls,” i.e., the set of control signals that direct the neuro-muscular system to move the speech articulators, namely the tongue, lips, teeth, jaw and velum, in a manner that is consistent with the sounds of the desired spoken message and with the desired degree of emphasis. The end result of the neuro-muscular controls step is a set of articulator motions (continuous control) that cause the vocal tract articulators to move in a prescribed manner in order to create the desired sounds. Finally the last step in the Speech Production process is the “vocal tract system” that physically creates the necessary sound sources and the appropriate vocal tract shapes over time so as to create an acoustic waveform, that encodes the information in the desired message into the speech signal.

The speaker recognition system may be viewed as working in a four stages-

- a. Analysis
- b. Feature extraction
- c. Modeling
- d. Testing

#### a). SPEECH ANALYSIS:

In Speech analysis technique Speech data contains different types of information that shows a speaker identity. This includes speaker specific information due to vocal tract, excitation source and behavior feature. The physical structure and dimension of vocal tract as well as excitation source are unique for each speaker. This uniqueness is embedded in the speech signal during speech production and can be used for speaker used for speaker recognition.

#### b). FEATURE EXTRACTION TECHNIQUE:

Feature Extraction is the most important part of speech recognition since it plays an important role to separate one speech from other. Because every speech has different individual characteristics embedded in utterances. These characteristics can be extracted from a wide range of feature extraction techniques proposed and successfully exploited for speech recognition task. It must satisfy criteria

- a. Easy to measure extracted speech features.

- b. It should not be susceptible to mimicry.
- c. It should show little fluctuation from one speaking environment to another.
- d. It should be stable over time.
- e. It should occur frequently and naturally in speech.

## B. PHOTO GALLERY

It is an option added to upload photos to the web portal. User at the time of posting a complaint can also upload images related to the complaint being registered. Image upload helps the admin to view the extreme status of complaints. Admin forwards the complaints along with the uploaded images.

When the complaint has been entered by any of the above mentioned methods and submit button is clicked for registering the complaint onto the database.

## C. ATTACHMENTS

Attachments component will allow you to add any documentary proofs to the problems. It is suggested that users shall attach the documents in their minimized types, so that the uploads and retrieval will be faster.

## IV ADMINISTARTOR MODULE

### A. ADMIN LOGIN

Admin enters the web portal through his respective username and password. The admin page displays a list of complaints that are registered. The portal allows admin to issue a task-sheet to the concerned department to take action against the complaint/deficiency registered by the users. An investigating officer associated with the department, will be issued a task sheet.

The task-sheet specifies the department, investigating officer to whom the task is assigned, designation, the target date, and assignment details. The investigation officer of a specific department will take necessary action. When the action for a particular complaint is performed and when the issue is solved, the officer sends a report to the admin stating that the complaint/deficiency is solved. Admin views the report sent by the investigation officer and will send acknowledgment to the user stating that the complaint produced by them is solved.

### B. DATABASE ACCESS

Administrator is the only person who is authorized with

the right to access the database. Admin views the user complaints that are registered through speech and typing a complaint along with the image uploaded are saved into the database.

For ensuring security of the images that are being uploaded to to the database

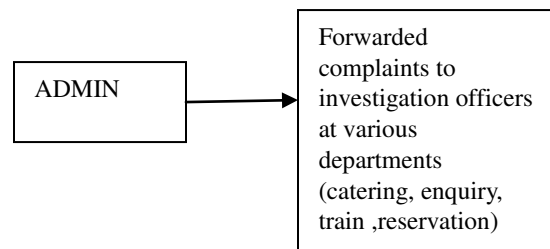


Figure 4. Admin assigning task to department heads.

## C. ACTION MODULE

The investigation officers at various departments take a step to solve the complaints that are being forwarded by administrator. Once ,when the issue is solved the investigation officer sends a report to admin stating that the forwarded complaint has been solved, and it is stored in the database.

## D.REPORT

Dynamic reports are generated and are viewed by admin. Admin can generate report on catering department and its services, reservation department and its services and some enquiry reports. These reports are also made available to public for printing purposes.

## V CONCLUSION

Railway administration should ensure that the grievances should be received and stable promptly, so that the passengers get the necessary intelligence of satisfaction. As former stated, redressal of the grievances is a must to preserve good customer relation and industrial peace. Thus, the management should certify that the grievance should be received and settled promptly, so that the passengers get the essential sense of satisfaction. Thus the grievance web portal provides fulfilled customer satisfaction.

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