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SENSOR DETECTION OF TRAINS FOR NATIONAL TRAIN ENQUIRY SYSTEM

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Abstract

National Train Enquiry System plays an important role in providing timely and reliable information to the people who travel by trains, through user friendly interfaces. National Train Enquiry System is managed by Centre for Rail Information Systems [**CRIS**], Government of India. NTES, as it is popularly known, is software in which one can track a train's position and other details. The other details include live station, Trains between Stations, Rescheduled trains, Diverted Trains, Special Trains, and Cancelled trains. The software is frequently updated. The position of a train can be tracked in this software. When a train's number is entered, and the date is mentioned, the train's current position will be tracked. The quality of the software is good. In the live station, when a station's name is entered, all the available trains for the next two or four hours will be displayed. In the trains between stations tab, if the source and destination stations are entered, all the available trains between the two stations will be displayed. The rescheduled, diverted, special and cancelled trains can also be seen in the respective tabs. The quality of the software can be assessed based on the response time and the time taken for the frequent updating of the train's position. The software can be considered reliable since the software is very useful to the passengers and the interface is user friendly. The reliability of the system is satisfactory since it is well maintained and the train's position is frequently updated. The train enquiry system includes the database of all the running trains. If a user wants to track a particular train, he can just enter the train's number and track that train's position. The train's position is frequently updated. The updating is done manually, by the administrators upon getting information from the station masters and the section controllers. A new feature of tracking the train on the map was added recently.

Keywords: Train Enquiry, Sensors, Server, Admin.

Introduction

The work plan of NTES is described below. The design, development, implementation and maintenance are done by Centre for Rail Information Systems. Control Office Application, assists the Section Controllers in planning and to track the position of trains in a section. The details are shared to this application, which in turn is made available to the user. The punctuality reports of trains are reported through Integrated Coach Management Systems, which is constantly receiving data from the Control Office Application. NTES depends mainly on the information provided by the station masters or the section controllers, after which the train position is updated. The position is frequently updated by the system administrators. When a train arrives, departs or crosses a particular station, that station master provides information about the train after which updates are made. Without information from the respective people, updating is not done. When information is not given properly or if there is miscommunication between the above mentioned people, there is a delay in updating the train's position. As a result the passengers who depend on the software have a chance of missing their train as proper position of the train is not updated. The delay in updating the train's position makes it difficult for the users, who in turn miss their train. This time lag must be overcome in some way or the other. If there is regular update of a train's position, i.e., for at least every 3 minutes, the problem can be overcome. The other details such as trains between stations, cancelled trains, diverted or rescheduled trains are also maintained in the same software. They are enclosed in separate tabs. If one wants to see the diverted or cancelled trains, if he clicks on the respected tab, the list of all the trains running throughout India will be displayed. There will also be press releases about the details of the cancelled or diverted trains in the websites of the respected Zonal Divisions. The quality and reliability of the National Train Enquiry System can be improved by making the updating system automatic. Currently the system is manually updated.

Problems Related To the Existing System: The first ever version which was released by the Centre for Rail Information System included the following. The version had a complete Indian map with all the existing train sections and routes. Whenever a person wanted to see a train's position, he had to go to that current route and see the train. Trains would be displayed as small arrows. When the cursor was place on those arrows, train details would be displayed. This was accurate and reliable. But the users didn't know where to see their train as all the trains running throughout India would be displayed. This made the system non-user friendly and as a result, many users did not use the system. The

system became a failure. Now, the existing system of NTES displays complete details of all the stations which the train has a halt and displays the current position of a train as a flickering arrow, displaying that the train has crossed or departed from the station. This was more reliable and accurate and it drew a more number of users. The system became more reliable and as a result, it became more successful system. Results were accurately published. However the delay in updating has caused a flutter among passengers.

Proposed System: Automating the system includes installation of sensors in the traction poles situated at every station and installation of sensors in trains. When the process of installing the sensors in trains and traction poles is completed, the sensors must be directly connected to the software so that when a train crosses a particular sensor placed near the station, it automatically senses data and sends it to the sever which handles the software. The server in turn, after receiving the data, automatically updates the train's position to the software. By following the above procedure, the delay in updating the position of the train's position to the software can be removed. So, if delay in updating is eradicated, the reliability of the software would be high and the software quality will increase. The proposed system will make the software more usable and maintainable. The updating of train's position will be quick and therefore it can be more dependable. So, if the proposed system is implemented, it will be easy for the user to track trains. The data transfer will be quick from the sensors to the server. Before a train leaves a station, the authorities must activate the sensor so that position of train can be tracked. The sensors should be placed near the tracks in such a way that it should be able to sense the sensor placed in a train. Even if the sensors position gets slightly altered, it will be difficult to sense. Proper measures have to be taken care of the sensors.

Alternatives to the Existing System: Though there might be a no alternatives suggested to the system, a viable alternative, in the case of server or system failure will be calling the respected stations, by dialing the toll free number. Once called, the train numbers when requested to the station master can be obtained and the train's position will be informed. Although, this is a quick process, not many numbers of users can be attended to. This results in waiting time to increase. Thereby, this method is not suggested. Thus, it is better to maintain system and servers properly such that this sort of problem is avoided.

Conclusion: Thus, the various aspects of the National Train Enquiry System have been discussed. The problems in the earlier versions resulted in improper updating as well as out of bounds errors. There were also problems with the

interface. The interface when updated of the positions of trains would show errors and would not get updated. As a result of this, passengers were not able to use the interface. Another problem was that, the interface was not mobile friendly. So, most of the passengers didn't come up to use the interface. This resulted in the system being less often used and the system became a failure. An update was provided in which there would be quicker update of the train's position. This update made the system more reliable and the quality of the system was better. However, there were technical glitches due to which there were maintenance problems. As a result the system's downtime became high. The proposed system is more reliable when compared to the existing system and as a result the quality is very good. Quality software will be provided and the software can be more dependable. As a result of these proposed changes, the system can be more dependable and the changes made to the system are more effective when compared to that of the existing system. So, when the proposed system is implemented, there is a high possibility of the system becoming more successful. As discussed earlier, the data transfer between the sensors and the admin system is more quicker and there is a quicker updating process due to which, the train's position can be quickly updated. Future work may be to implement high speed servers and also better quality sensors.

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