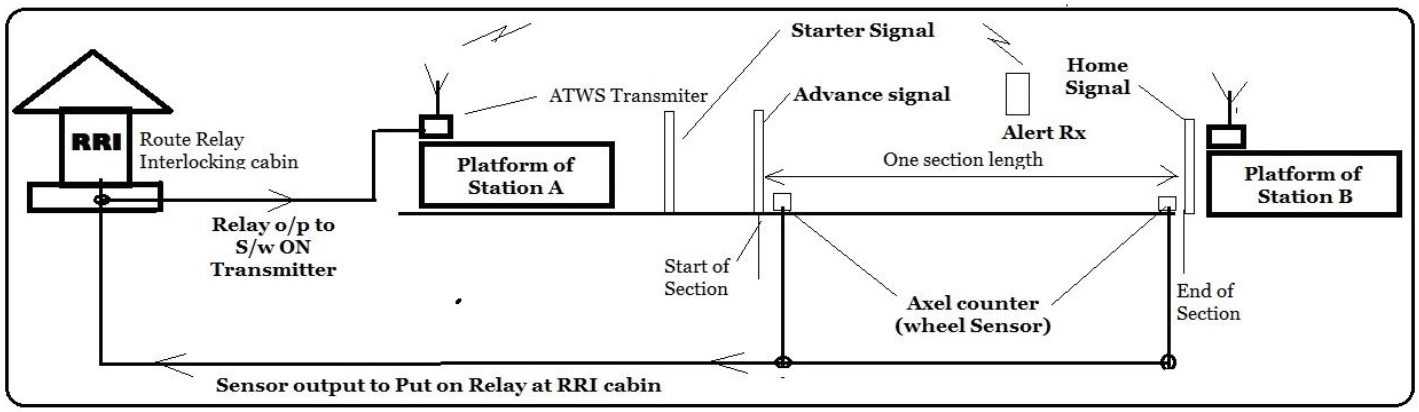
SANCHAR
WIRELESS COMMUNICATIONS LTD.

A CASE STUDY ON DESIGN, IMPLEMENTATION, SUPPLY AND INSTALLATION OF "AUTOMATIC TRAIN WARNING SYSTEM (ATWS) FOR INDIAN RAILWAYS BY COMPLY WITH RDSO'S SPECIFICATION & GUIDE LINE.

Principal Inspiration behind Developing of ATWS: Indian Railways are always working hard silently and continuously to maintain and develop their services, that dedicated to the nation. But to do this they often met different challenges, which obviously make slow down their sincere efforts, even some time ceased. Now we are going to explain such a challenges, where human lives are being unwantedly sacrificed, on the way to execute the job for the railways. By virtue of the requirement of "Railway Track Repair & Maintenance job", workers are required to present physically on the track, even during the train running operation. In case, the working area goes beyond any signal post nearby, then there would be absolutely NO indication comes to the respective workers, whether train is approaching to that spot or not. Due to such uncertainty, hundreds of workers are losing their precious human lives.
Now, as a prime communication company, this facts & figure inspires "SANCHAR TEAM" to think over it deeply and as an outcome they developed ATWS.

What is Automatic Train Warning System and How does it work: The following schematic diagram will help us to understand the working principal of this communication system.



As per the railway signalling system, RRI (Route Relay Interlocking) system is use to undertake the whole signalling control of each section. The signal post situated just prior to enter a station is called "Home Signal" and the signal post situated just after crossing the platform on the direction of train approach way of a particular line is called "Starter Signal". Another signal post, next to starter signal in the same direction is called "Advance Signal". The entire length of the rail track, from 'Advance signal' of a particular Stn. to "Home Signal" of the next is called "SECTION". When a train enter in a section by crossing the advance signal, an axel counter sensor at that Advance signal, counts the total no. of wheels of the train and sense the entering of the complete train in that specific section and will continue to sense the exitance of the train, until it crosses out next axel counter at the Home Signal of the next station. In the meantime, i.e when the train enters in a section, the sensor at Advance Signal will put ON the relay at RRI cabin and thus RRI further put ON the Transmitter of ATWS at the train entering end. This ATWS transmitter will be sending continuous alert signal to the Receiver at the Worker' end, providing continuous alarm signal to alert them that Train had entered in that section where they are working and such audio alarm signal will be keep sending, until the train get out from the current section, crossing home signal of the next stations. This entire system has been designed based on the STR (Schedule of Technical Requirement) of RDSO specification no. RDSO/SPN/TC/105/2015, first published on 01/12/2016. Sanchar have also made this system, following RDSO's guideline of Production flow chart and suggested quality instrument used in total manufacturing process.

ATWS TRANSMITTER TO BE INSTALLED AT PREVIOUS STATION OF A SECTION

The above ATWS Transmitter should be installed at starting station of a section, and it should be connected with the Tx ON relay, operated through RRI cabin of the respective station.

ATWS RECEIVER TO BE CARRIED BY THE MAINTENANCE STAFF

During the existence of Train in a section, ATWS Transmitter will keep sending alert signal continuously to all receivers at working area, as in the picture above, to make aware the respective workers executing their duties on that very rail track.

This ATWS was first implemented as “PILOT PROJECT” at six nos. of section of Dhanbad division, under East Central Railways in the year 2019. The first project had a grand success and achieve great appreciation by the concerned department.

SANCHAR COMMUNICATION SYSTEM has implemented several projects so far on ATWS, out of that Design, Fabrication/Manufacturing, Installation and commissioning of ATWS for 22 nos. section at Vishakhapattanam (VSKP) division, under East Coast Railways was most significant in terms of total Volume of the project. It was INR 2.5 crore project.