

# LITERATURE SURVEY ON IoT BASED SMART SOLUTIONS FOR RAILWAYS

## **Abstract:**

Even with the greatest of ideas to avoid railway accidents, many train accidents still happen worldwide. This paper shares an idea on how to avoid train collision by using an automated control incorporated in the trains. In this proposed paper we have implemented ideas such as pre-crashing using RFID sensor, ultrasonic sensor in-order to choose an array of commands which would run as per the conditional algorithm created in the microcontroller. We would also have a EPM to control the speed of the motor to lessen speed. This system will be more efficient since it was fully automated and also it was cost effective.

## **Introduction:**

In India, railways is one of the most commonly used modes of transport. On an average, around 23 million passengers were traveling in trains per year in India. It represents the importance of Railways in the Indian Transport system. Even though the system has been developing, railway accidents are a common occurrence which is a risk to the safety of passengers. As per the review most of the railroad accidents occurred because of level crossing and derailments [1]. Therefore more efforts are necessary for improving safety of passengers and avoiding train accidents. It can be deduced that most of the accidents happen due to level crossings and derailments. The majority of these are caused due to failure of staff or others. So, it is fair to imply that avoiding human failure can reduce the

number of train accidents by a large number. With the proposed system, the number of level crossing accidents and accidents due to human failure can be reduced significantly. The open source IOT environments and cheap microcontrollers along with the internet boom enable the railway industry to employ such automated systems which reduce the calamities caused by human failure and concentrate on providing a better experience for the travelers.

### **Problem statement:**

Railways is the one of the crucial transport departments, everyone uses railways for daily transport. When there are any difficulties, it affects everyone's daily routine such as undesirable downtime due to sudden repairs and sudden breaks down on the track.

### **CONCLUSION:**

Using Autonomous vehicles for the purpose of railway track inspection and crack detection, it will have a great impact in the maintenance of the tracks which will help in preventing train accidents to a very large extent. The regions where manual inspection is not possible, like in deep coal mines, mountain regions and dense thick forest regions can be easily done using this vehicle. An automated SMS will be sent to predefined phone numbers whenever the vehicle sensors detect any crack or deformation. This will help in maintenance and monitoring the condition of railway tracks without any errors and thereby maintaining the tracks in good condition, preventing train accidents to very large extent. Railway track crack detection autonomous vehicle is designed in such a way that it detects the cracks or deformities on the track which when rectified in time will reduce train accidents.