

Gps-gsm based rail signaling and tracking system



Abstract: In this paper, we propose a system for monitoring, tracking, and automating the trains. In contrast to the existing methods, we employ a global position system (GPS) and Global System for Mobile communication (GSM). The messages are sent and each train is individually tracked. We utilize signaling techniques like GPS and GSM, which provide information to the loco pilot proactively. The proposed system has advantages in terms of communication range and accuracy with respect to wi-fi based rail tracking method. The work has potential applications in bad weather and emergency situations like collision.

Keywords: Train Tracking, Collision Detection, Collision Avoidance, GPS, GSM, Railway Signaling.

I. INTRODUCTION

Railway tracking in the countries like United States, Russia, China, and India assumes significant attention. The railways traverse the length and breadth of the country and carry over billions of passengers and million tons of freight daily. In recent years, a hectic problem around the world is regarding traffic densities. This is not uncommon in railway sectors either. We often hear about the word train collision and its huge impact on precious human life and time. With great passion for this issue, the paper proposes the solution for this grave problem. Especially if we consider the case of Indian railway, most of the train tracking is based on manual entry from stations. The railway is always looking for the specific tracking methodologies, which will provide prior state of the train before arriving to the station. The GPS-GSM tracking system overcomes many problems like multiple aspect color

light signaling, relay interlocking, and various kinds of block working, point operation and train tracking. The proposed system is applicable for reducing the damages to a greater extent and it is helpful to both railway system and loco pilot.