**Introduction**

The rail transportation system is a vital part of any country's infrastructure and the safety of rail track crossings is of paramount importance. Despite the advancements in technology, accidents at rail track crossings continue to occur, causing significant loss of life and property. To address this issue, this project proposes the development of a wireless red signal alerting system using the NRF24L01 Wi-Fi module. The proposed system will be designed to detect the approach of a train and alert pedestrians and motorists of the presence of an approaching train through the use of wireless communication system and close the railway gates. This will reduce the risk of accidents at rail track crossings. The system will be designed to be easy to install, cost-effective and reliable, making it ideal for deployment at rail track crossings across the country. The aim of this project is to make the rail track crossing safer and reduce the number of accidents that occur at these locations.

**Background**

Rail track crossings have long been a source of concern for public safety, with accidents at crossings resulting in both injury and loss of life. The main causes of these incidents are driver inattention, malfunctioning equipment, and human error.

Traditional warning systems such as flashing lights, bells, and gates have been implemented at rail track crossings to alert users of the approaching trains. However, these systems have limitations and are not always able to prevent accidents. For example, in some incidents, the gates are not functioning properly, or the driver did not pay attention to the warning signs.

Wireless communication technology has the potential to improve the efficiency and reliability of warning systems at rail track crossings. The use of wireless technology can provide real-time information to crossing users, allowing for faster reaction times and reducing the likelihood of accidents. Moreover, it can be used as a backup system in case of failure of traditional warning system. The NRF24L01 wi-fi module is a low-cost, low-power wireless module that can be easily integrated into a variety of systems, making it an ideal choice for this application.

The proposed system will use the NRF24L01 wi-fi module to identify whether it is a train or not and transmit warning signals to the gate through wireless communication system in the event of an approaching train. The signals will be received by the antennas at the gate and the gates will be close automatically in presence of an approaching train. In addition to improving safety, the proposed system will also demonstrate the potential of low-cost, low-power wireless modules in safety-critical applications and contribute to the field of wireless communications.