# SMART SOLUTION FOR RAILWAYS USING IOT

## LITERATURE SURVEY

TEAM ID                 : PNT2022TMID44729

TEAM MEMBERS    : MANGAIYARKARASI E (732519106011)

                             JAI KRISHNAN A.P      (732519106005)

                             RAHUL M               (732519106016)

                             SHANMUGAPRIYA A    (732519106307)

DEPARTMENT         : ECE

COLLEGE NAME    : SHREE VENKATESHWARA HI TECH

                             ENGINEERING COLLEGE, GOBI

**J.SMITH, S.RUSSELL AND M.LOOI GAVE A REVIEW ON SECURITY AS A SAFETY ISSUE IN RAIL COMMUNICATION AT INFORMATION SECURITY RESEARCH CENTRE QUEENSLAND UNIVERSITY OF TECHNOLOGY.** Systems whose failure can lead to the damage of property or the environment, or loss of human life are regarded as safety-critical systems. It is no longer adequate to build safety-critical systems based on the control of errors and failures alone. Safety critical systems must also deal with securing the data that is used in their operation. While safety and security engineering have evolved separately, there are a number of similarities. These similarities and efforts to integrate safety and security are identified. A project looking at securing safety-critical communications for the Australian rail network is also discussed.

**E.AMARNATH REDDY,I.KAVATI, K.SRINIVAS RAO AND G.KIRAN KUMAR, "A SECURE RAILWAY CROSSING SYSTEM USING IOT", INTERNATIONAL CONFERENCE ON ELECTRONICS,**

**COMMUNICATION AND AEROSPACE TECHNOLOGY ICECA.** The aim of this paper is to develop a prototype that control the railway gate using the micro-controller. Whenever train touches base at the sensor, caution is activated at the railway crossing so that the general population get instruction that entryway will be shut. At that point the control module initiates and shuts the gates on either side of the track. Once the train crosses, this module naturally lifts the gate. For mechanical operation of a gate DC adapted engines are utilized. We are utilizing an installed controller worked around the 8051 family (AT89C52) for the control. As per the instructions produced at the microcontroller, the proper action (i.e., shut or lift) will be made. This logic was implemented in Embedded C and dumped to the Raspberry PI. This prototype was tested and successfully shuts the gate at the time of train arrival and lifts after train crosses other end.

**B.KUMAR REDDY,S.KUMAR REDDY,R.REDDY AND NAVYA, ON "SAFEGUARD OF RAILWAY CROSSING USING IOT", JOURNAL OF TELECOMMUNICATIONS SYSTEM & MANAGEMENT.** The main prototype of this paper is to develop an application based on Internet of Things. In the present day world, railway gates at the crossings were monitored and operated manually. The master of the station gets the information about the arrival and the departure of the train and its timings. There is the more chances of occurrence of the accidents at the railway-crossings due to the miss communication or delay in the information or irresponsibility of the master. Sometimes the accidents may occur in the presence or absence of him. He may suddenly from their due any kind of reason. In that case the accidents may occur and chances to put many lives of innocent people in danger.

**E.GOOLSBY,M.J.VICKICH,A.P.VOIGT,"RAILROAD GRADE CROSSING MONITORING SYSTEM",** In North America, highway-railway grade crossings can lead to significant travel delays for emergency responders trying to reach an incident. Grade separation cannot be justified for most grade crossings, but a grade crossing monitoring system (GCMS) can detect a blockage and communicate the information to local emergency dispatchers in real-time. As every minute can be critical in emergency work, the potential for such systems clearly needs investigation. Saskatoon, Saskatchewan has numerous grade crossings and blockages caused by long slow moving or stationary freight trains. This study uses two Geographic Information System based analyses service area analysis to show how the fire responders' service area changes with and without a grade crossing blockage; and network analysis to estimate the impact of GCMS on fire responders' response times both with and without a blockage. Both analyses are quantitative and both can present the results visually. The results from our examples in Saskatoon show significant savings in response times by, for example, avoiding detours made on the assumption that a road is blocked, avoiding taking a route found to be blocked and then having to take a detour, and choosing to wait at a crossing for a blockage to clear when the GCMS indicates that this is more efficient than taking a detour route. Although all cities and road networks are different, this study demonstrates that a GCMS can benefit certain jurisdictions by improving their emergency services and saving lives and property.