1.Dr. A. Benjamin Joseph 1 , Mohan kumar aradhya M S 2 , N phaneendra Ranjith kumar G M"SMART RAILWAY AUTOMATION SYSTEM USING IOT".

ABSTRACT:

Even with greatest of ideas to avoid railway accidents, many trains 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 RFIDsensor, 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 effect.

Advantage:

- It's possible to travel cross country with a single public transportation card,using Transport systems of several transport operators.
- It will eliminate the failure risks of wheels effect of various sources of disturbance,namely wheel out-of roundness,can be more easily dealt with.
- Cost of the unit is less when compared to other, No fire hazard problem due to over loading.
- The auto crack detection method is more efficient in the technical field, Quick response is achieved.

Disadvantages

- Applicable only for passenger monitoring.
- Technique used has a long process were the time interval is not sufficient.

2.Shaofu Lin[1,2], Yafang Jia[2] and Sibin Xia"Research and Analysis on the Top Design of Smart Railway".

ABSTRACT:

Deepening the informatization and intelligent construction of railways has become an inevitable choice to promote the innovation and development of railways and enhance their core competitiveness.At present,China has in-depth research in smart cities,smart transportation and other fields, but the research on smart railways is still in its infancy, and it is urgent to make plans for the development of smart railways to provide guiding suggestions for the development of railway informationization.Based on the research results of smart cities and smart transportation in related fields at home and abroad, combined with the application trends of internet technology and big data technology in railway informatization, this paper attempts to give a clear definition of smart railway from the perspective of smart city development. It also proposes the overall structure of the top-level design of the smart railway, and the application of the smart railway in combination with the development needs of the construction of the Jing-Zhang high-speed railway.

3. Vatsala Sharma, Kamal Nayanam, Himani" A survey on Smart Railway Track Fault Detection Using IOT".

ABSTRACT:

Indian Railways is the largest railway network in Asia and additionally worlds second largest network operated underneath a single management. Due to its large size it is difficult to monitor the cracks in tracks manually.This paper deals with this problem and detects cracks in tracks with the help of ultrasonic sensor attached to moving assembly with help of stepper motor. Ultrasonic sensor allows the device to moves back and forth across the track and if there is any fault, it gives information to the cloud server through which railway department is informed on time about cracks and many lives can be saved. This is the application of IoT, due to this it is cost effective system. This effective methodology of continuous observation and assessment of rail tracks might facilitate to stop accidents. This methodology endlessly monitors the rail stress, evaluate the results and provide the rail break alerts such as potential buckling conditions, bending of rails and wheel impact load detection to the concerned authorities.
KEYWORDS: IOT, Raspberry, Smart railway, Fault detection, Ultrasonic sensor.

4. Prof. Sushant M. Gajbhiye, Prof. Zen P. Raut, Prof. Raju A. Bondre .A Review Paper on "Smart Railway Crossing using Microcontroller".

ABSTRACT:

The main purpose of this research paper is to reduce the railway accidents occurring at the level crossings (Intersection Points). Railway is the vast mode of the transportations in India and it is the cheapest way for travelling. So there are more numbers of rail users and it is not easy to stop railway anywhere to obstruct accident, due to that there are major drawbacks of that. At present anunmanned system is available at level crossings and hence, lots of accidents occur at such crossings, since there is no one to take responsibility of the functioning of the railway gate when a train reaching the crossing.The objective of this research paper is to handle and control the system of railway gate by applying the microcontroller. This model includes infrared (IR) sensors, radio frequency indication device (RFID), Liquid Crystal Display (LCD),Light-emitting diode (LED), Lights, buzzer, motor driver and microcontroller. In the self-regulating railway gate control system, at the level crossing the meeting of the train is identify by the IR sensor and RFID placed close to the gate. In case of RFID it identifies only meeting of train. Hence, the time for which it is closed is less compared to the manually operated gates and reduces the human labor. As the whole system is automated fault occurring due to manual operation are restricted because the corrected of automated operation is more than the manned operation. Side sensor activated and the signal about the removal is sent to the microcontroller and motor turns in further direction and gate opens and motor shutdown automatically.

5. Ohyun Jo; Yong-Kyu Kim; Juyeop Kim"Internet of Things for Smart Railway: Feasibility and Applications"

The explosively growing demand of Internet of Things (IoT) has rendered broadscale advancements in the fields across sensors, radio access, network, and hardware/software platforms for mass market applications. In spite of the recent

advancements, limited coverage and battery for persistent connections of IoT devices still remains a critical impediment to practical service applications. In this paper, we introduces a cost-effective IoT solution consisting of device platform, gateway, IoT network, and platform server for smart railway infrastructure. Then, we evaluate and demonstrate the applicability through an in-depth case study related to IoT-based maintenance by implementing a proof of concept and performing experimental works. The IoT solution applied for the smart railway application makes it easy to grasp the condition information distributed over a wide railway area. To deduce the potential and feasibility, we propose the network architecture of IoT solution and evaluate the performance of the candidate radio access technologies for delivering IoT data in the aspects of power consumption and coverage by performing an intensive field test with system level implementations. Based on the observation of use cases in interdisciplinary approaches, we figure out the benefits that the IoT can bring.