

LITERATURE SURVEY

TITLE : IOT Enabled Smart Solution For Railway

DOMAIN NAME : Internet of Things

LEADER NAME : Nithya. S

TEAM MEMBER NAME :Shiva Shalini. S ,Yogeshwari. C,Sandhiya. A

ABSTRACT:

Almost all the countries across the globe strive to meet the demand for safe, fast and reliable rail services. Lack of operational efficiency and reliability, safety and security issues, besides aging railway systems and practices are haunting various countries to bring about a change in their existing railway systems. The global rail industry struggles to meet the increasing demand for freight and passenger transportation due to lack of optimized use of rail network and inefficient use of rail assets. Apart from this major problem, people are suffering while booking tickets. So the web application is designed to reduce the workload of the user and also the use of paper. Here in this project, we are going to design a web application which is useful for booking tickets.

INTRODUCTION:

Smart solutions for railways is an idea where we can many problems while booking ticket. Our project is based on the web application for booking ticket .Nowadays people are working in busy schedule, They can't able to go for railway station and fill the form and waiting there for when will the counter is free. So avoid these kinds of this sense able activities. We can handle booking the ticket in this web application. while applying this we can reduce the paper, and printing machine. And the ink we are giving to the machine. The passenger reservation system of Indian railways is one of the world's largest reservation models. Daily about one million passengers travel in reserved accommodation with Indian railways. In this vast system, it is a herculean task to efficiently handle the passenger data, which is a key point of consideration nowadays. But the

implementation of the latest technological updates in this system gradually turns inevitable due to increasing demand for providing the most efficient passengers services. Handling the passenger data efficiently backed by intelligent processing and timely retrieval would help backing up the security breaches. In this paper, we exploring some issues and solutions for railways which is affect the peoples who are often traveling in the train.

Specification:

Software requirement: Python idle

Hardware requirement: RAM-Minimum 4GB Processor-Min. Configuration OS-Windows/Linux/MAC, 250 GB hard disk space and other standard accessories.

SURVEY:

[1], Most of the public transportation infrastructure in European cities is easily accessible. The majority of the tram/train stations are located in an open and "gate-free" environment, easy available to everyone and hence introduces potential malfunctions in the system. This is why fare dodging (hopping on the tram/train without paying for a ticket) is simple. This paper suggests a conceptual framework and architecture to capture free riders (fare dodgers) in an early stage by using a RFID distance scan combined with people counting techniques as a tool to locate and monitor passengers.

[2], Wheel set is one of the vital components of the train. Normally, the wheels are regularly detected by using ultrasonic technology to check cracks, especially in wheel rim. In order to eliminate the failure risks of wheels, daily dynamic wheel set inspecting system is needed during the light maintenance period. A way-side arrayed ultrasonic technology is described in this paper to detect wheel cracks. By using a specially designed track structure ,the arrayed ultrasonic probes are arranged between the double-track for wheel rim inspection .

[3], Numerical investigations are carried out to assess the possible use of vibration measurements to identify the presence of a fatigue crack in railway axles. A non-linear finite element model of a cracked axle, reproducing the crack breathing mechanism, is introduced. The solid model of the axle is built in the ABAQUS FEM software and a crack is introduced in it. Numerical simulations are presented for two different types of axle: hollow ones, as in passenger trains, and solid ones, as in freight trains. Simulation are carried out for different possible locations of the crack and different measuring points for the monitoring equipment.

[4], In India, most of the commercial transport is being carried out by the railway network and therefore, any problems in the same has the capacity to induce major damage to the economy-notwithstanding the societal impact of loss of life or limb. This paper proposes a cost effective yet robust solution to the problem of railway crack detection utilizing a method that is unique in the sense that while it is simple, the idea is completely Novel and hitherto untested. The paper discusses the technical and design aspects in detail and also provides the proposed robust crack detection algorithm. The paper also presents the details of the implementation results of the RRCDS utilizing simple components inclusive of a GPS module, GSM Modem and LED-LDR based crack detector assembly.

[5], The Indian Railways has one of the largest Railway networks in the world, crises- crossing over 1,15,000 km in distance, all over India. However, with regard to reliability and passenger safety Indian Railways is not up to global standards. Among other factors, cracks developed on the rails due to absence of timely detection and the associated maintenance pose serious questions on the security of operation of rail transport. A recent study revealed that over 25% of the track length is in need of replacement due to the development of cracks on it.

[6], we introduced the integration of railway track surveying system. In our proposed system it is used to detect the railway crack. This project consists of IR sensor & fire sensor. The IR sensor is used to detect the crack and as well as distances, fire sensors used to detect the fire accidents. To communicate the received information, we make use of a GSM modem. The GSM module is being used to send the current latitude and longitude data to the relevant authority as an SMS. The importance of this project is applicable both day & nighttime detection process applicable both day & night time detection process.

[7], The IR transmitter and receiver total station for railway track geometry surveying system. Railway Crack Inspection is dedicated as a measure of railway safety. The defect information can be wirelessly transferred to railway safety management centre using a GSM module and it includes defect level and location information which is acquired by embedded GPS receiver. In terms of the reliability and safety parameters, Indian railway has not yet reached the international standards. The main problem about railway analysis detection of cracks in the structure.

[8], In the fast developing country, people are facing many accidents; it would be undesirable for any nation to losing their life for unwanted cause. Railways are one of the important transports in India. There is a need for manual checking to detect

the crack on railway track and always railway personnel takes care of this issue, even though the inspection is made regularly. Sometimes the crack may un-noticed . Because of this the train accident or derailment may occur. In order to avoid this situation and automate the railway crack detection has been proposed.

[9], An Unmanned Aerial Vehicle (UAV) has several applications in the modern scenario. It can be used for capturing live video footages for sports like cricket or football or even commercial applications. It can even be used for procuring images at places where human intervention is difficult and so, can find wide application in disaster management. This paper mainly deals with the localization of a UAV and how it can be applied for detecting cracks in a railway track using the concepts of image processing. The algorithm used for localizing the UAV is called Monte Carlo or Particle filter localization algorithm.

[10], This paper suggests the use of distance readability as atool for distance reading and scanning of RFID based chipcards. The distance reading can be effectively used, tocapture potential free riders. Who are in the possession of achip card. While distance scanning alone will not be able todetermine the actual number of free riders, an additionaltechnology to count the number of people in an area is proposed . The clue of combining the two technologies (RFID distance scanning and People thermal image counting) is the basis on which this paper suggests away to capture free riders in an early stage. This paper willfocus on a framework and architecture needed to capture faredodgers (free rides), the expected results of the empiricalstudy and research thereof will be used to perform tests in anexperiment to verify the assumed expectations.

REFERENCES :

- [1] S. Sawadisavi J. Edwards, E. Resend, J. Hart, C. Barkan, and N. Ahuja, “Development of a machine vision system for inspection of railroad track,” in Proc. Amer. Railway Eng.MaintenanceWay Assoc. Annu. 2012
- [2]. M. Singh, S. Singh, J. Jaiswal, and J. Hempshall, “Autonomous railtrack inspection using vision based system,” in Proc. IEEE Int. Conf. Comput.Intell. Homeland Secur. Pers. Safety, 2009

- [3]. J. Lin, S. Luo, Q. Li, H. Zhang, and S. Ren, "Real-time rail head surfacedefect detection: A geometrical approach," in Proc. IEEE Int. SympIndust. Electron., 2009.
- [4]. R. Clark, S. Singh, and C. Haist, "Ultrasonic characterisation of defects in rails," *Insight*, vol. 44, no. 6, pp. 341–347, 2002
- [5]. R. Edwards, S. Dixon, and X. Jian, "Characterisation of defects in the railhead using ultrasonic surface waves," *NDT & E Int.*, vol. 39, no. 6, pp. 468–475, 2006.
- [6]. Ramavath Swetha ,P.V. Prasad Reddy,"Railway Track Crack Detection Autonomous Vehicle" ISSN, vol. 4,Issue 2015.
- [7]. P.Navaraja,"Crack Detection System For Railway Track By Using Ultrasonic And Pir Sensor" IJAIC-2014
- [8] A. .H. Cribbens, "Solid-state interlocking (SSI): an integrated electronic signaling system for mainline railways", *IEE proceedings*, 2012
- [9] G. Dipoppa, G. D' Alessandro, R. Semprini and E. Tronci, "Integrating automatic verification of safety requirements in railway interlocking system design", *The 6th IEEE International Symposium on High Assurance Systems Engineering (HASE'01)*, Washington, USa 2011
- [10] G. Tarnai, "Safety verification for train traffic control communications", *IEEE journal on selected areas in communications*, vol. sac-4, no. I, 2012 .