iJRASET
International Journal For Research in
Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 3 **Issue:** XI **Month of publication:** November 2015

DOI:

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Automatic Railway System Using Wireless Sensor Network

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Abstract-- This paper is analysis for the crucial situation occurs in the automatic train system. In the railway surveying in many accidents cause multiple damage for life and also our property. So that this project to implement in two way to save the train travel. For the one way is to determine the malicious in the train track incessantly, whether the track stipulation is good or not for use the VIBRATION Sensor to check it. Next for them to avoid the obstacle crossing in train track, when the train is come. The main aspire in this project is to help our railway department to improve the automatic process. Also develop the requirement tools needed in that safe travel. But still the train collisions occur in may place not yet decreasing one. To control the main region in train system have been the gate level operation to using STEPPER MOTOR in real time analysis .This is accurately done by using the PROTEUS tool to get the better result.
Key terms-- Vibration sensor, Stepper Motor, IR sensor, Ultrasonic sensor, GPS, GSM, LCD, Proteus software.

I. INTRODUCTION

The train system is that one proficient way to travelling one place to another place. The assessment of cost is also easy to pay for all level people. In that train security process will be easily implemented, by solving the two struggles. Because train travel has been needed more security compared to other travelling vehicle. For track damage is create more causes in the train. To avoid this one by using the vibration sensor. When train is come nearby sensor at that time sensor will be sensed. To find the damage location by using GPS. For obstacle crossing in track, means using Ultrasonic sensor to measure the distance between train and object. And certainly send the message to control station by GSM. In all action of train process is controlled by GATE operation of switch. For switch means gate is open or close however when the train is come. By using the motor to run the gate, and demonstrate the message for LCD.

II. LITERATURE SURVEY

The process of railway security system is discovered by the reading of multiple theory and news also. In that paper is making by many fiction surveys. For this (WSN) used by using Fuzzy logic technique for communication purpose[1].In that early warning, rescue system will be deducted by using the assimilation function of the system frame[2]. This paper has been detected only for the fire accident in running train, to collect info by sensor. And then fast water sprinkler also given to driver [3].For this implemented in fire detection by attach the sensor for every coach in train.GPS will be used for sending info to police, ambulance [4]. That paper proposes the idea for conflict detection by control the speed of the train. This is done by using wireless protocol zigbee only. For the controller will be PIC, so it will be not superior method [5]. In this have been safety of commuter and wait of train considered. But costly component only using this purposes, this is not implemented in real time [6]. That paper realizes to check the crack fault by ultra sonic sensor. When the train is nearby track to gauge distance between them. In this not attainment accurate output in real time process [7]. Even using AdHoc network gap for station by use the zigbee for trustworthiness in security. But it has reduced the accident in moderately [8].

III. PROPOSED SYSTEM

The anticipated system of this project will overcome for breathing system in many traditions. In that project will be use three sort to solve the train accidents in currently days. This is implementing in real time in always for security purposes that only avoid trouble condition. For track blunder detection, impediment over crossing, control of gate operation these all are assembled in a single real time progression. In track fault detection is done by using the vibration sensor. This sensor is placed within the track, when the train is come nearby sensor to sense the track .And give the alarm to coming train for stop process by GPS (Global Positioning System)

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Volume 3 Issue XI, November 2015
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

to find the track location. The next process in obstacle over passage computes by ultrasonic sensor. This had been sense the info among train and objects long reserve also. So, that is advantage of one in real time. The property will be saved by send the memo from GSM (Global system mobile) to the control station. This station administrator to control the train speed and keep the property. For gate is operated when the stepper motor will be used for rotating the gate. In this the gate for closed way switch is OFF, otherwise ON condition. The above both behaviour will be display in train by LCD also.

IV. BLOCK DIAGRAM

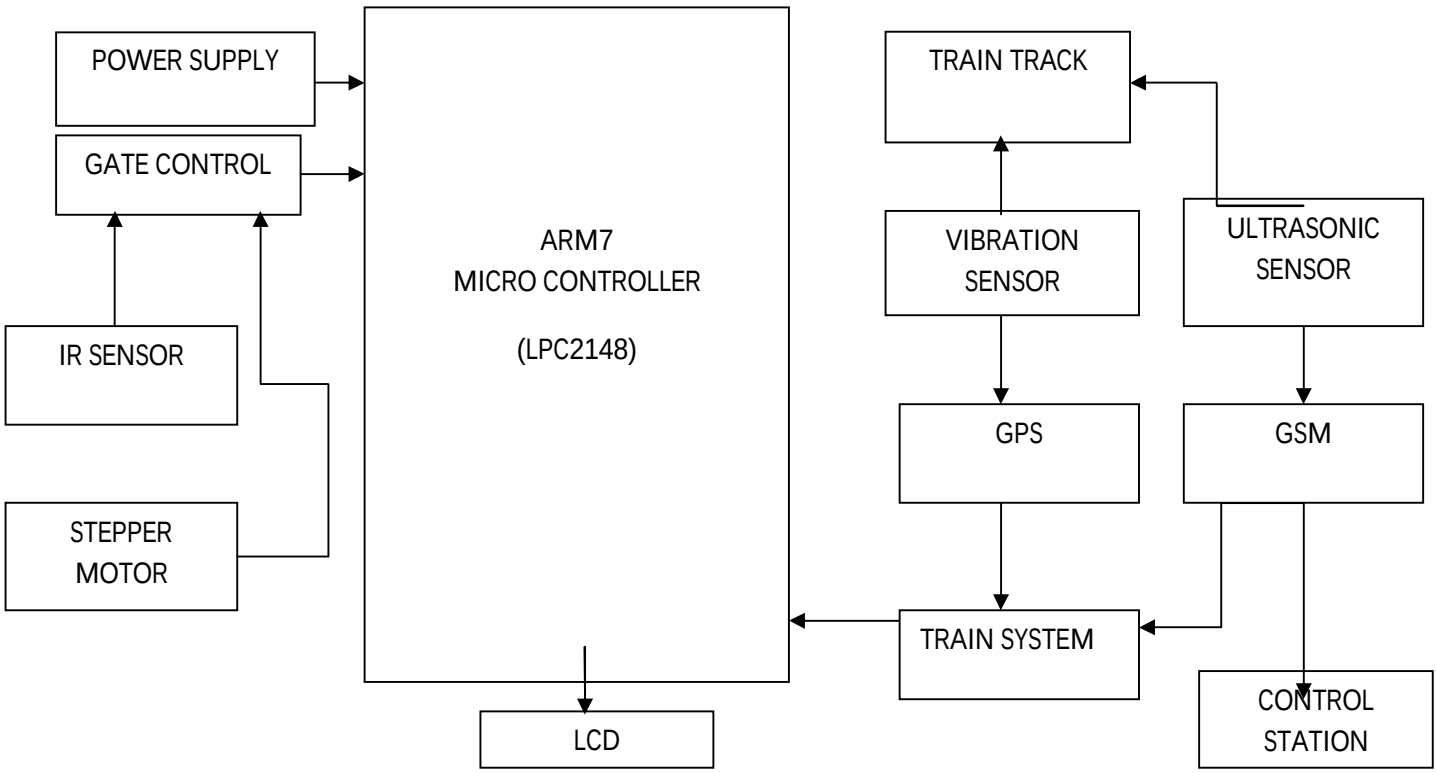

Fig.1 Block Diagram of Automatic Train Security System

A. Automatic Gate Control

In this blocks having to working successfully in automatics security system. For gate control process in using Infrared sensor to maintain the gate action by stepper motor. Here switch will be used to control the train speed when the train is come near the gate. Power supply always given to the controller.

B. Track Fault Detection

For this fault detection is using the VIBRATION sensor inside the track, because this is sense the info about track damage. To this process done with the help of GPS. This is doing the location info, so that the LCD is placed inside the driver room. When train is come near the damage part to show the message by lcd.

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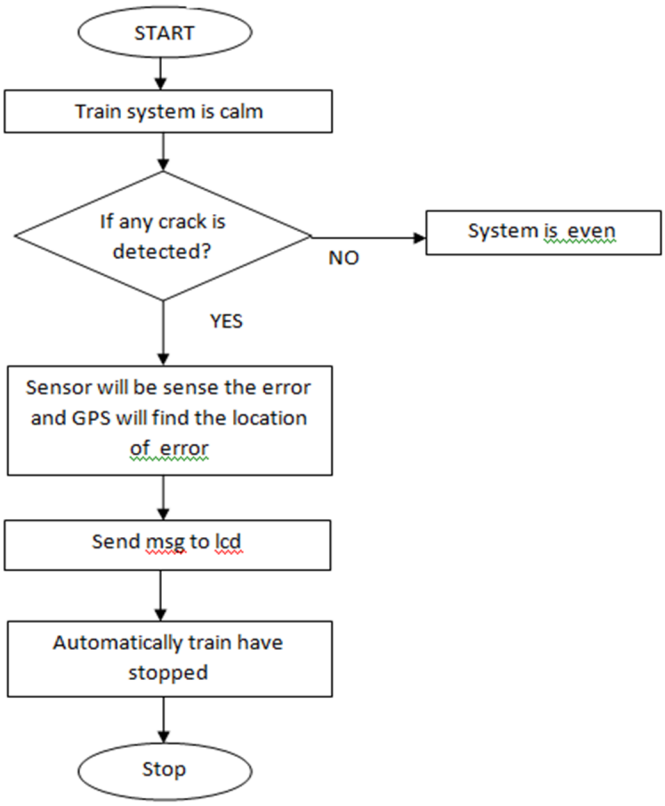

Fig.2 Flow chart of Track Fault Detection

C. Obstacle Cross Detection

This is for any object is over crossing in front of the train that time to detect this one. And then using the ULTERA SONIC sensor to measure the distance among object and train. For use GSM to send the message for control room. That control server intimate to train to stop by show the lcd message.

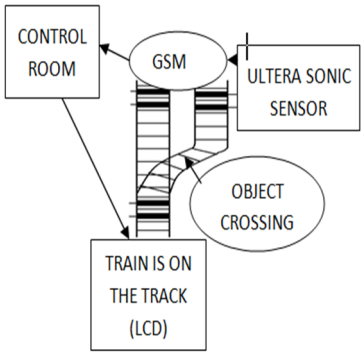

Fig.3 Diagram for Obstacle Cross Detection

V. SOFTWARE REQUIREMENT

In software work has been given the output result in simulation model. For using KEIL software to running the program only. Here the program will be loaded in to the windows. But using the PROTEUS tool for simulation purposes. In this proteus software 8.0 version will be used here. Then the simulation process is to be the drawing of schematic diagram. The diagram consists of power

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supply (cell), Button (switch), Controller, LCD.

VI. RESULT

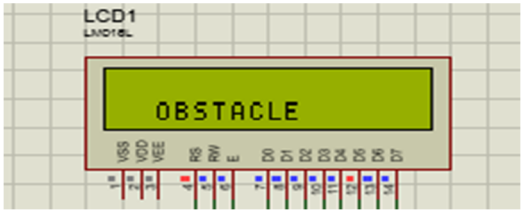

Fig.4 Output of Object over Crossing

Fig.5 Result of Track Fault Detection

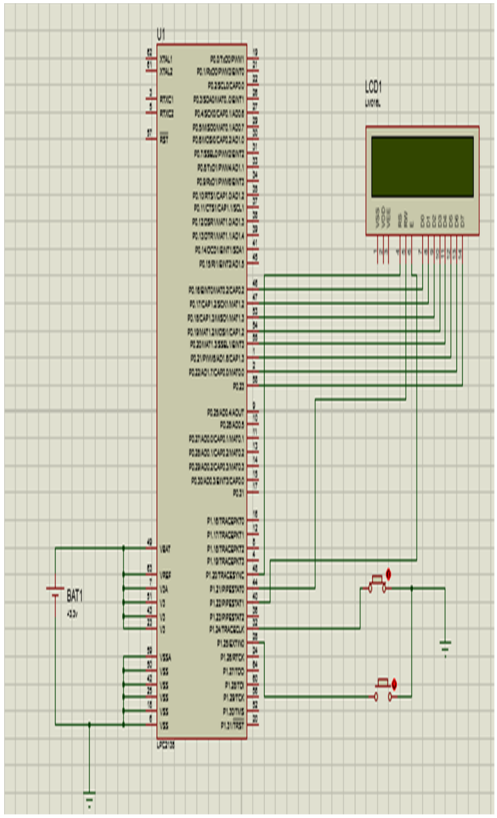

Fig.6 Output of the Simulation Result

VII. CONCLUSION AND FUTURE SCOPE

The proposed system ensures sophisticated security for the passengers in trains which is achieved by continuously monitoring the automatic train system for WSN. Also by implementing this system, the train mishap as in the active is eliminated, as the subject

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can be solved on plank in the proposed system and thus ensures avoiding the train collisions. In future will be using reproduction aptitude, the false alerts that may occur in the proposed system, though not destructive, can be avoided in upcoming. Using advanced Digital image processing, the system can be made to detect suspects whose images are previously accessible in the database. And a prerequisite can be provided for the coach to get locked when the urgent situation switch is triggered, thus keep away from the illegal person to escape.

REFERENCES

[1] Emad Aboelela, William Edberg, Christos Papakonstantinou and Vinod Vokkarane, "Wireless Sensor Network Based Model for Secure Railway Operations", 2006.
[2] Cai Guoqiang, Jia Limin, Zhou Liming, Liang yu and Li xi, "Research on Rail Safety Security System ",World Academy of Science Engineering And Technology ,pp. 1405-1410, 2010.
[3] R. Pitchai Ramasamy1, M. Praveen Kumar1, S. Sarath Kumar and R. Raghu Raman," Avoidance of Fire Accident on Running Train Using ZigBee Wireless Sensor Network", International Journal of Information and Computation Technology, Volume 3, Number 6 , pp. 583-592, 2013.
[4] Kuncham Viswa Teja1, Suresh Angadi2 ," Fire Detection and Notification System inTrains", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 2, Issue 4, pp. me 96– No.25,pp.32-35, June 2014.
[5] Kalpana Sharma1, Jagdish Kumawat2, Saurabh Maheshwari3, Neeti Jain4, " Railway Security System based on Wireless Sensor Networks: State of the Art", International Journal of Computer Applications , Volume 96– No.25,pp.32-35, June 2014.
[6] Shilpa Bharathan, Shameem B P, Savitha T, Assistant Prof. Mr. P. Vimal Kumar,"Advanced Security System in trains using RF Module", International Journal of Advanced Research in Electronics and Communication Engineering, Volume 4, Issue3,pp.543-547, March 2015.
[7] 1R. Immanuel Rajkumar, 2Dr.P. E. Sankaranarayanan, and 3Dr.G.Sundari," Real Time Wireless based Train Tracking, Track Identification and Collision avoidance System for Railway Sectors", International Journal of Advanced Research in Computer Engineering& Technology , Volume 3, Issue 6, pp.2172-2177, June 2014.
[8] M.D.Anil1, Sangeetha.S2, Divya.B3, Niranjana.B4, Shruthi.K.S," Advanced Railway Accident Prevention System Using Sensor Networks",International Journal of Advanced Research in Computer Engineering & Technology, Vol. 3, Issue 5, pp.6730-6732,May 2014.

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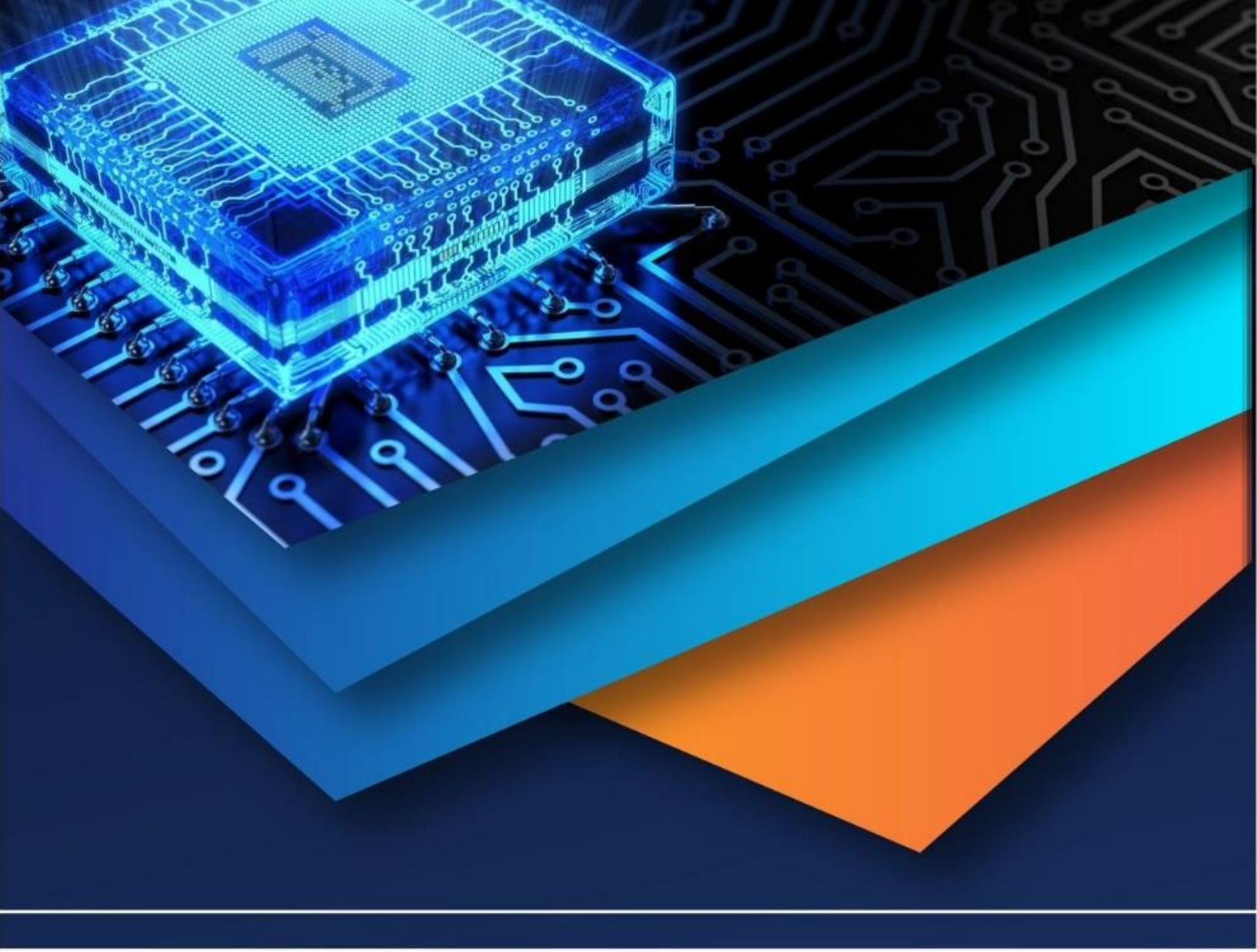

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