A UNIQUE TRACK CHECKING SYSTEM FOR CRASHES

1.Katam Sravani,2.P.Suresh Kumar

1.M-TECH, AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY GUNTHAPALLY(V),HAYATHNAGAR(M),R.R DISTRICT,PIN:-501512

2.ASSISTANT PROFESSOR, AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY GUNTHAPALLY(V),HAYATHNAGAR(M),R.R DISTRICT,PIN:-501512

ABSTRACT:

The Railway network may be the world's greatest transport system. The Indian Railways is among the biggest railway systems on the planet. There has been many accidents happens within the railway network system. It's very hard to stop this type of collision, due to speed from the train, which requires a lead distance to prevent. The Train Monitoring Nick modules and Train Identification Nick modules are utilizing to sense the existence of trains on a single track. The TIC module is really a module that is put into the moving trains which consists scratch readers. The accidents between trains are growing because of negligence of intelligent techniques implemented within the trains and improper control signaling in the Train Traffic Control Station. This GSM has got the outcomes of the train and also the control station and the other way around. This module within the train when moving, the scratch readers will scratch the scratch pad within the track. This can maintains at each check points. In every checkpoint the particulars from the trains are conveyed towards the control station and so the collision between your trains could be avoided. The signals in the moving train are sent with the GSM network towards the stationary trains on a single track and also to the TTCS. Applying this method it's possible to see whether the trains were at risk of Rear-finish collision or Mind on collision. The TTCS transmits control signal to prevent or slowly move the trains.

Keywords: Train Collision Avoidance, GSM, Train Identification Chip, Train Tracking Chip.

I. INTRODUCTION

The majority of the accidents happened because of the collision between your trains and detrains. The suggested product is accustomed to predict that type of collision between trains and prevents them from occurring. By stopping these types of accidents more quantity of lives could be saved. Due to these cases within the railways we considered collisions would be

the most dreaded accidents. Collision happened by two ways because of human error. The two kinds of Collisions are, Mind - on collisions, Rear- finish-collisions. As with the suggested model, collision happened through the above stages could be predicted and controlled. Individuals mind on collision and rear finish collision are happening because of the human negligence therefore these the weather is more within our country [1]. Thus the Railways excluded from coverage underneath the Act include railways in mines, amusement and amusement park railways and slipways. This railway has certain responsibilities to safeguard and also to prevent destruction within their path. But nonetheless there's large amount of train collisions are occurring because of lack of knowledge. The Rail Safety Act regulates the security on most rail transport including heavy and lightweight rail systems, therefore most private and public sidings, each tramways and tourist and heritage rail procedures. The primary railways controlled through the Act range from the Melbourne heavy rail system, the Melbourne tram and lightweight rail network, Victoria's regional standard and broad gauge rail systems and regional tourist and heritage railways.

II. EXISTING SYSTEM

The machine includes Loco ACD having a console for that driver, Guard ACD with remote, Station ACD with console, Manned and Unmanned Gates ACD with hooters and flashers and Repeater ACDs which operate in concert to avoid the next types of collisions and accidents like Mind on collisions, Rear finish collisions, Collisions because of derailment, As with the present system, the next shows some existing technics. The Anti-Collision System is a self-acting Micro-processor-based data communication device designed and produced by Kankan Railway. Train accidents can occur very frequently because of safety violations which end from human errors or restrictions at the same time from the existing system as well as because of equipment failures'. As through the project is fully focusing on staying away from train collisions and ensures passenger's safety through android system integrated with ultrasound and MEMS sensor based control system built-in within the train [2]. Emergency alerts could be sent through traditional telecommunication systems for example Walkie-Talkies or any other communication products. However, Collision avoidance systems using IR sensor

and anti-collision device are used through the Railway sector continues to be facing some problems because of the thought on some factors for example affordability, despite its growing the quantity allocated to implementation from the products. Here RTOS is ported with ARM7 which cope with a lot more complicated tasks. Our work is going to be recognized worldwide due to its usefulness and it is robust communication features. Presently, to some degree the Konkan Railways has put efforts to supply train safety through ZigBee and Infrared based sensor concepts. Though it has disadvantages for example limited selection of signal covered and difficulty within their implementation within the real life it's still getting used.
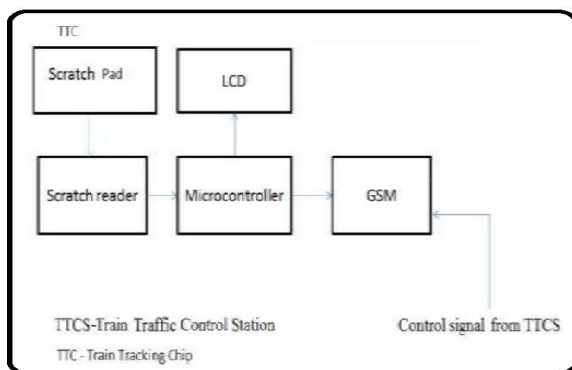
Fig.1. Block diagram of proposed system

III. PROPOSED SYSTEM DESIGN

Within the suggested system the Train Identification Nick built-in with GSM

module can be used to speak between your train and also the Train Traffic Control Station. The TIC within the train and TTC on the right track at certain distances could make the peace of mind of train safety each and every check point crossings. Within the TTC we've fixed the scratch pad. This scratch pad may be the sensor that will give necessary signals to monitoring from the train. The scratch pad is completed by determining 9 pins, this pins are spring type will connect to the moving train. The pin supports the data concerning the checkpoint, train track number and direction from the moving trains. The entire TTC module is positioned within the railway track. The TIC module is really a module that is put into the moving trains which consists scratch readers. This GSM has got the outcomes of the train and also the control station and the other way around. This module within the train when moving, the scratch readers will scratch the scratch pad within the track. This can maintains at each check points [3]. In every checkpoint the particulars from the trains are conveyed towards the control station and so the collision between your trains could be avoided. The messaging between your Train and TTCS is controlled with a PIC Microcontroller. This is actually

the Sensor that is put into the track. Within the Scratch Pad the train track number, checkpoint number and also the direction are fixed. The following module towards the TTC may be the TIC module, featuring its sensor known as Scratch readers. The TIC module also consist microcontroller, Liquid crystal display and GSM module. The entire TIC module is positioned within the moving Train. Within the TIC module, GSM can be used to deliver and receive information between TTCS and TIC. To understand the collision recognition unit system we must have following Modules. TTC, TIC, TTCS. Within the TTC module, sensor named scratch pad can be used, were it's accustomed to identify train. The dynamic moving from the train might well be extremely fast. The train recognition is completed through different sensors; however it relates certain time variation. Time variation can cause issues in the recognition from the train. Such situation we encounter certain collision between trains. This problems could be prevented TTC which built using scratch pad sensor for that recognition from the train easily. The scratch pad sensor consists data pins. This data pins are extremely employed for the recognition from the train, so that it

identifies it location, direction and track. The entire TTC module is positioned within the exterior atmosphere i.e. within the railway track [4]. The TIC module will get the data concerning the track and also the checkpoint in the Scratch pad once the scratch readers scratch the scratch pad. The recognized information will be collected and also to be sent by micro controller with GSM module towards the TTCS. The PIC microcontroller can be used for this function. This micro controller will get the control signals towards the scratch readers and transfers the information towards the control station by GSM. GSM is really a cellular and wireless network, meaning mobile phones connect with it by trying to find cells within the immediate vicinity the policy section of each location varies based on the implementation from the atmosphere. The bottom station antenna is a component of a rooftop level. The GSM module produces link between the train and also the control station. The GSM can be used to deliver and get the information between your TTCS and TIC. The microcontroller is associated with the GSM module, so the information in the TIC is moved to manage station. The significant from the module is straightforward. That's, the scratch readers

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will get the data when scratches the scratch pad. This post is arrive at the PIC controller PIC 16F877 A, which controls the GSM and scratch readers through control signal. The GSM coding is implemented within the PIC16F877 A controller. A GSM modem is really a specialized kind of modem which accepts a Sim, and works on the subscription to some mobile operator, as being a cell phone. In the mobile perspective, a GSM modem looks as being a cell phone with no display and also the keyboard. Whenever a GSM modem is linked to a pc, this enables the pc to make use of the GSM modem to speak within the mobile network. While these GSM modems are commonly accustomed to provide mobile internet connectivity, most of them may also be used for delivering and receiving SMS and MMS messages. The Train Traffic Control Station may be the primary base station which predicts and controls the flow of traffics from the train. The Train Traffic Control Station is build using Lab VIEW. The TTCS is extremely necessary to train collision avoidance. The control station includes GSM module and contains the display to see the data regarding trains. The TIC transmits the data towards the TTCS through GSM. The TTCS is going to do the calculation

between your trains and predict the collision between your trains. The TTCS can predict the two types of collisions [5]. The TTCS has got the train number, track number, check point and direction. In the train number track number, check point and using the specialized formula it may predict the collisions between your trains. Then in the predicted results the train collision is going to be prevented. The TTCS module was built using GSM along with a Pc. Laptop Computer system has software specifically created to identify the collision.

IV. CONCLUSION

The Railway network may be the world's greatest transport system. The Indian Railways is among the biggest railway systems on the planet. It's been believed when the machine is implemented within the railway systems, train accidents could be avoided. This collision between trains is calculated and colliding trains were alerted. With this project train collision is stopped. Many human lives and lots of qualities could be saved if the product is implemented. The scenario of accident in Trains because of collision is going to be controlled with the aid of this project.

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AUTHOR'S PROFILE:

Katam Sravani, M-TECH, AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY GUNTHAPALLY(V),HAYATHNAGAR(M),R.R DISTRICT,PIN:-501512

P.Sureshkumar, ASSISTANT PROFESSOR, AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY GUNTHAPALLY(V),HAYATHNAGAR(M),R.R DISTRICT,PIN:-501512