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Research paper

A Navel Analysis of GNSS for Monitoring the Position of Trains

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Abstract

This Proposed paper using the technique of Navigation system that is Global navigation satellite system[1-2], which are usable to reach the trains in accurate time. The performance of these system is able analyze the based on reliability and maintainability. In this paper presented the operation of receiver navigation system, and also analyze the water levels on the railway track, and also identifying the accidents, and the information will be sent to respective registered mobiles.

Keywords: *Navigation, sensors, train position*

1. Introduction

One of the common navigation systems is Global positioning system, this system is completely based on the satellite navigation method, and it will transmit the signals and also receiving the signals. These navigation systems are detecting the location or positions and whether conditions through-out the world.

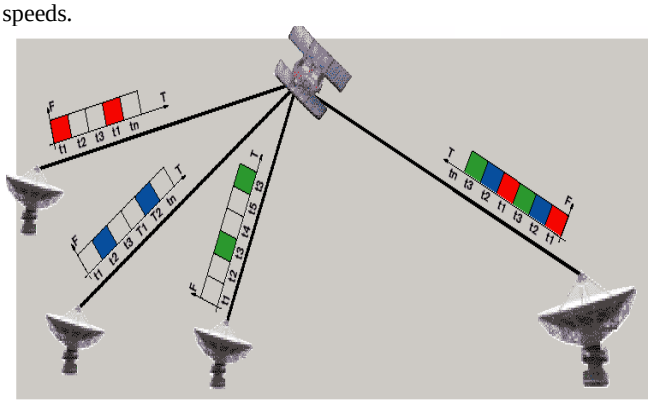
Navigation [3] can be defined as accessible from one place to another while classification your location cyclically. In past years, our scientist are measuring the location of our earth by looked at the sky.

The GPS model originates through the competition between the two developed countries. The Govt of USA understand that they could look at Sputnik's transmission and establish its location in the atmosphere by measure the Doppler alteration of the waves frequency range between the satellite and location on earth. They understand that the communicate would also be true that if the satellites place was known then they could verify a exacting position on earth.

GPS vehicles were original launched over 2-decades ago in the year of 1978. However, it was not pending 1993, when a complete gathering of 24 satellites were deploying, then it was measured fully operational. Early for profit applications in 1984 were ascertain location fixes on offshore oil rigs, and surveying.

The organize section consists of a system of track [4] stations positioned around the globe. There are 6- OCS monitor stations and 4-earth antenna based station. These antennas always track all satellite signals [5-6]. Three of them are able of up linking data to the satellites. In other words, those are communicating to the satellites, updating them with regard to clock corrections and satellite place. They pay attention in to the satellites to establish their strength by looking at their signal integrity and orbital position stability.

The Global positioning System for mobiles is a digital mobile communication system that is broadly used in all parts of the globe. GSM has divergence of TDMA and it is the mainly use of the 3- wireless telephone technologies that is TDMA, CDMA, and GSM. GSM digitizes and squeeze data, then transmit it to a channel with two other fields of user data, each having its own time slot. It works at either the 0.900 GHz to 1.800 GHz frequency range. It functioning voice calls and data transfer speeds.



Time Division Multiple Access

Figure 1: Basic concept of TDMA

TDMA method having relay, the switch is able to decide the performance of the handoff mechanism. It was having the ability to transport data rates of 64 Kbps to 120 Mbps. The TDMA, allows the operating

The services like voice calling, fax, and SMS services. It will also helping the services of video processing.

2. Analysis of Development

RFID is supposed by a lot of in the production to be the frontrunner knowledge for regular detection and data gathering. The major, as of yet not proven, advantage would eventually be in the customer goods deliver chain where the RFID tag attach to a

consumer produce could be tracked from built-up to the retail store right to the clients home.

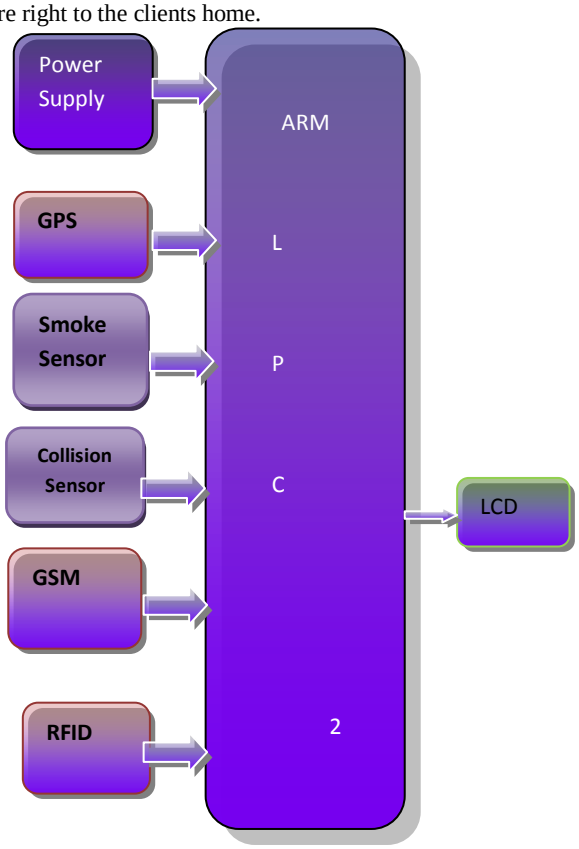


Figure 2: Block diagram

We able to use, the remote control of developed machines or we able used it for household computerization or we able to use it for the safety of household or offices GSM control 8051.

The mainly imperative string of GPS is "GPRS", it contain the smallest amount data necessary in tracking an object in addition you may need the data regarding the satellites numbers that are able to be seen to the receiver of GPS.

The paper was developed by using GPS and RFID[7] the analysis of location monitor is more accurate. Here used the Smoke and Collision sensors to known information about accidents occurred in Trains[14]

The SIM was inserted into the SIM slot then control on it to GSM mode after that register with respective mobile number with send SMS to SIM number by dialling * fallowed by your number[8].

The RFID component is used to notice the train position when GPS is not working RFID sensor is used track the train position.

Smoke sensor is used to sense the fire accident occur in trains. This smoke sensor is connected into GSM unit when fire accident is occurred the SMS is sent to registered mobile phone[9-13].

3. Results

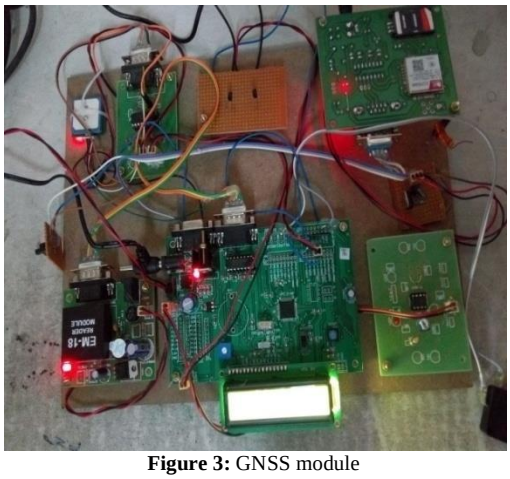


Figure 3: GNSS module

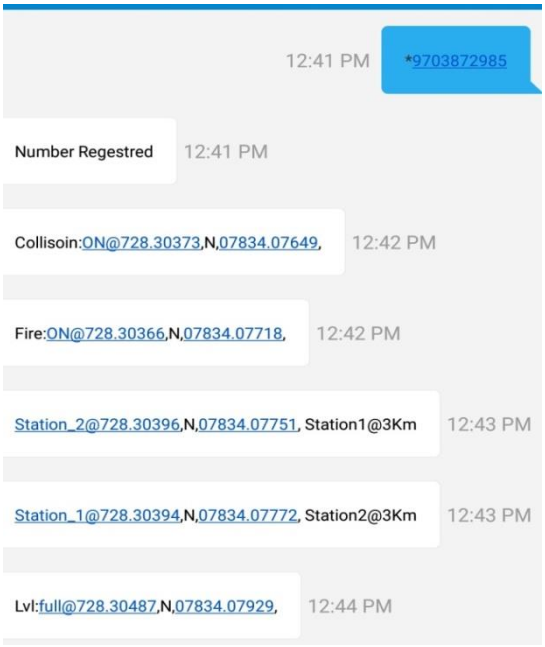


Figure 4: Data sent information

When collision and fire accidents are occurred the message is sent to the registered mobile. Level sensor also used to detect the water levels on the Railway track. Distances between stations are sent to register mobile.[15]

4. Conclusion

The paper was implemented to analyze the position of train and monitoring the safety measurements of train which my occurred the fire accidents or railway track problems. If any incident happens the related information passes through GSM to registered mobile customers.

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