Robust Railway Crack Detection Scheme Using GSM & GPS

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 by impact of loss of life because of accidents. 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.

This project application is implemented using components such as GPS module to track the location parameters, GSM Modem to send SMS to emergency number and microcontroller ATMEGA328 to process the data. The GPS parameters are also shown on 16\*2 LCD. The IR sensor is used to sense crack detection in rail tracks. The proposed scheme has been modeled for robust implementation in the Indian scenario**.** The IR sensor is fixed on robotic vehicle which moves along track to detect any faulty condition and to give alert. The robotic vehicle consists of gear DC motors interfaced to microcontroller through L293d Motor Driver.

**Block Diagram :**

 **ATMEGA328/**

**PIC16F877A**

16\*2 LCD DISPLAY

GSM MODEM

IR

SENSOR

GPS MODULE

GEAR DC MOTORS

L293D DRIVER

Buzzer

**Software :**

* Arduino IDE
* Embedded C code
* Proteus Simulator

**Hardware:**

* Atmega328 Microcontroller Logic Board
* 16\*2 LCD Display
* IR Sensor
* GSM Modem
* GPS Module
* L293d Motor Driver
* Gear DC Motors
* Robot Chassis
* Wheels

Proteus Simulation Design :

