

Railway Level Crossing Gate Control through GSM by SMS with User Programmable Number Features by the Station Master or the Driver

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ABSTRACT:– The main objective of this project is to control the railway gate through SMS. This project works with GSM modem which is used to send a message whenever a railway gate is open or closed message is sent to the station master which is done by interfacing between a programmable microcontroller of family 8051 and GSM modem is done by a voltage level shifter called IC MAX232 which used a serial communication. the microcontroller sends an interrupt to make active for the motor to gate open /close with help of Motor driver called L293D that controls the motion or rotation of motor mounted at railway level crossing gate with display. The power supply consists of a step down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier and it is then regulated to +5V using a voltage regulator 7805 which is required for the operation of the microcontroller and other components.

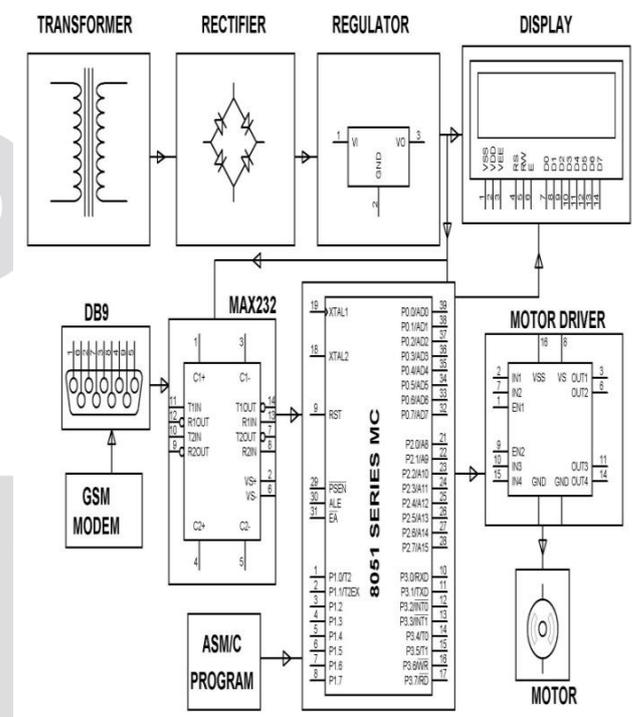
KEYWORDS: GSM modem, Motor, sms

railwaygate.

1.INTRODUCTION:The project is designed to achieve control over the railway level crossing gate through Android Application by the station master. Opening and closing of railway level crossing gate involves manpower, which could be often erroneous leading to accidents. The proposed system rules out the need of any human involvement at the railway level crossing. This system involves opening and closing of the level crossing gate with help of an Android Application device. Remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation. A Bluetooth device is interfaced with the system. When the station master sent command to close from the Android application device (when the train is approaching at the level crossing) to the Bluetooth device which while fed to the microcontroller, sends an output signal which activates a mechanism to switch on the motor to close the gate. To open the gate, another command needs to be sent for the microcontroller to open the gate with help of motor driver IC. In this project we use a microcontroller of 8051 family, and the input to it is a Bluetooth device which receives command from the user Android application. The output to microcontroller is given to a motor through a motor driver IC for required operation. The status, whether the gate is open / close is displayed on an LCD display interfaced to the microcontroller. Further the project can be enhanced by

sending an acknowledgement to the sender about the status of the gate.

BLOCK DIAGRAM:



Microcontroller AT895C1:–This project is based on the microcontroller AT895C1, which is a derivative of 8051 family, from Atmel Inc. This is a 40 pin IC packaged in DIP package

MAX232:–It is used to convert the TTL/CMOS logic levels to RS232 logic levels during serial communication of microcontrollers with PC. The controller operates at TTL logic level (0-5V) whereas the serial communication in PC works on RS232 standards (-25 V to + 25V). This makes it difficult to establish a direct link between them to communicate with each other.

DC Motor:L293D is a dual H-bridge motor driver integrated circuit (IC). Motor drivers act as current amplifiers since they take a low-current control signal and provide a higher-current signal. This higher current signal is used to drive the motors. The motor operations of two motors can be controlled by input logic at pins 2 & 7 and 10

& 15. Input logic 00 or 11 will stop the corresponding motor. Logic 01 and 10 will rotate it in clockwise and anticlockwise directions, respectively.

DB9:The term "DB9" refers to a common connector type, one of the D-Subminiature or D-Sub types of connectors. DB9 has the smallest "footprint" of the D-Subminiature connectors, and houses 9 pins (for the male connector) or 9 holes (for the female connector).

DC Power Supply:For microcontroller, as well as the DC motor, a regulated DC power supply is required. We have to provide +12V to the microcontroller, while +9V to the motor.

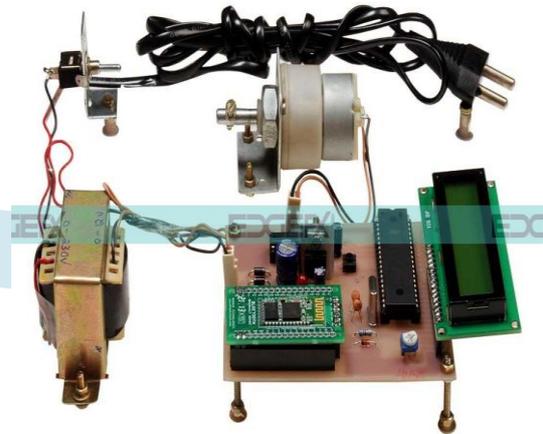
GSM modem:It is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone.

PROPOSED SYSTEM:

The proposed system is enhanced to prevent accidents at the unmanned level crossings and to provide much needed safety. This system uses a microcontroller of the 8051 family and a rectified power supply. In this system, a GSM modem is connected to the microcontroller through a level shifter IC for sending the data. The railway gate status is displayed on the LCD display which is interfaced to the microcontroller. A motor is connected to the microcontroller with the help of a driver IC for opening and closing.

SOFTWARE DESCRIPTION:Kiel compiler The KIEL 8051 Development Kits are a complete solution for creating software for the 8051 family of microcontroller. The development Kits comprise many different tools that allow projects ranging from simple to highly complex to be developed with relative ease. You will find that with the KIEL development kits you can rely on tools that have been tested by real users over a long period of time. KIEL provides a familiarity to the tools that will provide a basis for

using more complex features. It is assumed that the user is familiar with Windows and has at least some familiarity with the 8051 microcontroller family and the C programming language.



APPLICATIONS:

It is mainly used to avoid accidents. It reduces the time consumption. The GSM modem helps as a switch that makes the project reliable to work on any mobile. It reduces the man power and makes the work more reliable.

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