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Automatic Railway Gate Control Alerts via SMS

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Abstract: In this paper we make use of the Global System for Mobile to implement the automatic railway-gate control system. In fact there are various technologies like Global System for Mobile (GSM), Bluetooth and Android systems which can be utilized for implementation. It is used to prevent accidents at railway crossing levels. Depending upon the situation, the implemented gate control system should be able to work on the data (message) and control the gate correspondingly.

Keywords: GSM (Global System for Mobile); GSM modem; SMS; Motor driver IC; Microcontroller

I. INTRODUCTION

At present, the gatekeepers are instructed to manually close the railway gates when he receives the information about the arrival of train. In such cases, accidents may happen due to the manual operations on gate by the gatekeeper/ by his careless attention on operating the railway gates or because many are hurry to cross the gate before the gates are about to close. Due to this an alternate control system is used to prevent such accidents. That alternate method is 'Automatic gate control system'. In such situations, an automatic railway crossing-gate controller must be implemented to prevent accidents at unmanned crossing levels to provide needed safe transportation. An efficient control system should be implemented in the areas where the gatekeeper or a gate operator is absent.

Fig 1. Automatic Railway-Gate Control

II. PRINCIPLE

Fig. 2 shows the implementation of railway crossing gate control system using GSM technology.

Here the gate is controlled by sending an SMS either by station master or the driver to the remote areas where the railway control gate is been installed.

III. OPERATION

This system uses GSM and a control system. When an SMS 'open' is sent by the station master or a driver, the GSM modem receives the information and sends it to the microcontroller which in turn it acknowledges the signal to the motor driver IC. The motor driver IC controls the direction of the motor for opening and closing the gate. The final information will be updated in the LCD display whether the gate is opening or closing.

Similarly, in order to close the crossing gate, another SMS needs to be sent by the driver or the station master. This SMS is transmitted to the microcontroller, which in-turn sends the anticlockwise signal to the motor driver IC. Hence the motor driver IC drives the motor in anticlockwise direction as soon as it receives the corresponding signal from the microcontroller. Further it also updates the status on the LCD.

IV. CONCLUSION

GSM provides the most robust wireless connectivity for data transmission to any place where GSM services are available.

Railway safety is the most crucial fact of railway transportation all over the world. In order to avoid accidents at the railway gate-crossing levels, we make use of automatic railway gate controllers with GSM technology for opening and closing gates at unmanned areas.

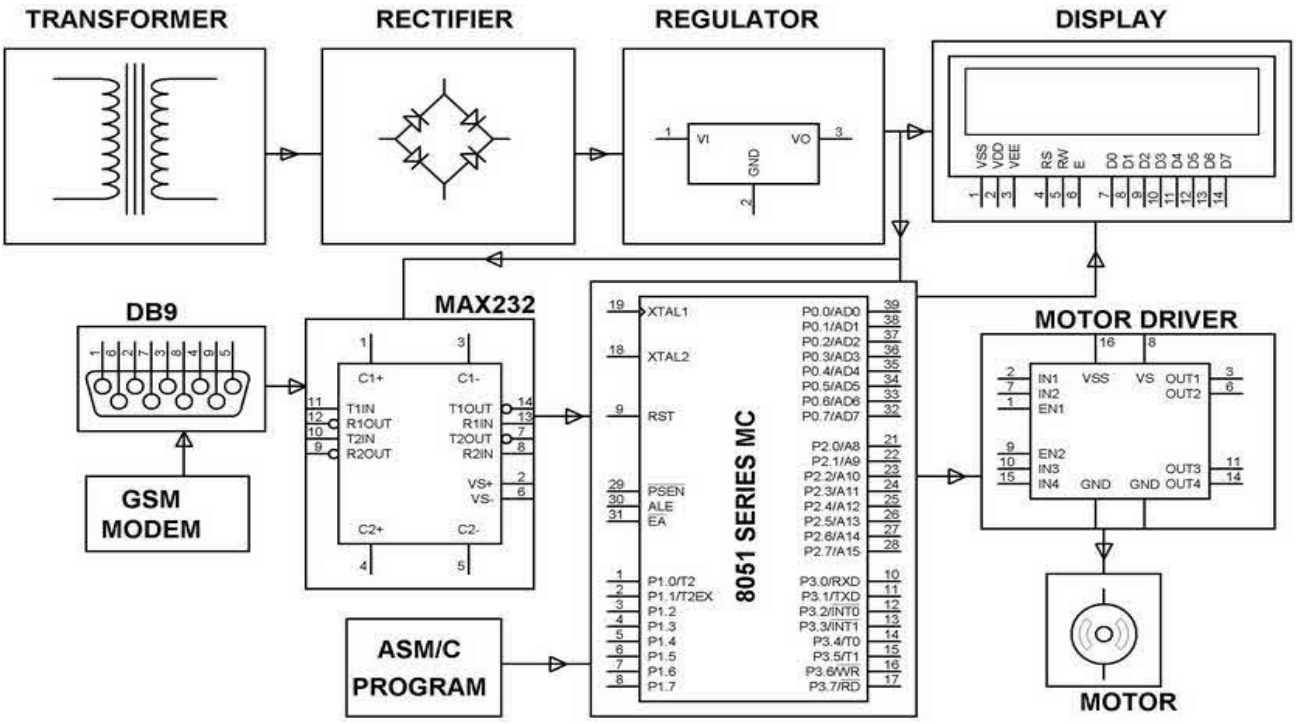

Fig 2. Railway Level-crossing Gate Control through GSM technology

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