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AUTOMATIC RAILWAY GATE CONTROLLER WITH HIGH SPEED ALERTING SYSTEM

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ABSTRACT

The main aim of this project is to operate and control the unmanned railway gate in the proper manner to avoid accidents in the unmanned railway crossings .in a country like ours where there are many unmanned railway crossings ,accidents are increasing day by day . the train accidents due to the absence of human power in the railway . in order to overcome the accidents due to the abive problem this project is to be designed . automatic railway gate controller with high speed alerting system is an innovative circuit which automatically controls the operation of railway gate detecting the arrival and departure of train at the gate . it has detector at the far away distance on the railway track which allows us to know the arrival and departure of the train.these detectors are given to micro controller which activates the motor which open and close the railway gate correspondingly.

INTRODUCTION

Embedded means something that is attached to another thing. An embedded system can be thought of as a computer hardware system having software embedded in it. An embedded system can be an independent system or it can be a part of a large system. An embedded system is a microcontroller or microprocessor based system which is designed to perform a specific or predefined task/s. The system gains its name from the fact that the software is embedded into it for a particular application.

So we can define an embedded system as a Microcontroller based, software driven, reliable and real-time control system. An embedded system is a microcontroller / microprocessor based system that is built to control or monitor the functions of equipment, machinery or plant. Embedded Systems can provide high level of automation and performance.Embedded Systems have some unique

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characteristics.real – timeubiquitous (ever – present)heterogeneous (mixed)Embedded systems are Everywhere: Embedded Devices are an integral part of our daily lives like Automobiles, Cell Phones, Routers, Microwaves, etc.

An embedded system is a combination of computer hardware and software, fixed in capability or programmable, designed for a specific function or functions within a larger system. Industrial machines, agricultural and process industry devices, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines and toys, as well as mobile devices, are possible locations for an embedded system.

Embedded systems are computing systems, but they can range from having no user interface (UI) -- for example, on devices in which the system is designed to perform a single task -- to complex graphical user interfaces (GUIs), such as in mobile devices. User interfaces can include buttons, LEDs, touch screen sensing and more. Some systems use remote user interfaces as well.

The objective of this project is to provide an automatic railway gate at a level crossing replacing the gate operated by the gate keeper.it deales with the two things.firstly,it deals with the reduction of time for which the gate is being kept closed ,and secondly,to provide safety to the road users by reducing the accidents .by theb presently existing systems once the train leaves the station,the station masterinformes the gate keeper about the arrival of the train through the telephone .once the gate keeper receives the information ,closes the gate depending on the timing at which the train arrives. Hence if the train is late due to certain reasons, then the gate remains closed for a long time causing traffic near the gate .by employing automatic railway gate control at the level crossing the arrival of the train is detected by the sensor placed near to the gate .hence ,the time for which it is closed is less compared to the manually operated gate and also reduces the human labour.this type of gate can be employed in unmanned level crossings where the chances of accidents are higher and reliable operation is required. Since the operation is automatic; error due to manual operation is prevented. Automatic railway gate controller with high speed alerting system is highly economical microcontroller based arrangment,designed for use in almost all the unmanned level crossing in the country.

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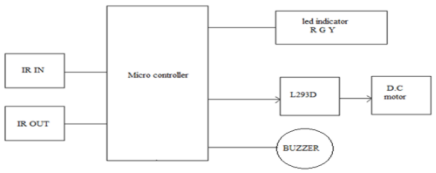
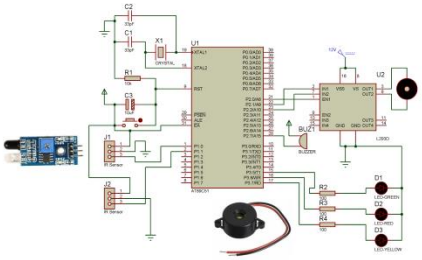


HARDWARE IMPLEMENTATION



The working of this project is explained here:

1. practically the two IR sensors are placed at left and right side of the railway gate. the distance between two IR sensors is dependent on the length of the train
2. if the sensor 1 detects the arrival of the train,microcontroller starts motor with the help of motor driver in order to close the gate
3. the gate remains closed as the train passes the crossing.
4. when the train crosses the gate and reaches sensor 2 it detects the train and the microcontroller will open the gate.

SOFTWARE IMPLEMENTATION

Keil is a cross compiler. So first we have to understand the concept of compilers and cross compilers. After then we shall learn how to work with keil. Concept of compiler:- Compilers are programs used to convert a High Level Language to object code. Desktop compilers produce an output object code for the underlying microprocessor, but not for other microprocessors. I.E the programs written in one of the HLL like 'C' will compile the code to run on the system for a particular processor like x86 (underlying microprocessor in the computer). For example compilers for Dos platform is different from the Compilers for Unix platform

So if one wants to define a compiler then compiler is a program that translates source code into object code. The compiler derives its name from the way it works, looking at the entire piece of source code and collecting and reorganizing the instruction. See there is a bit little difference between compiler and an interpreter. Interpreter just interprets whole program at a time while compiler analyzes and execute each line of source code in succession, without looking at the entire program.

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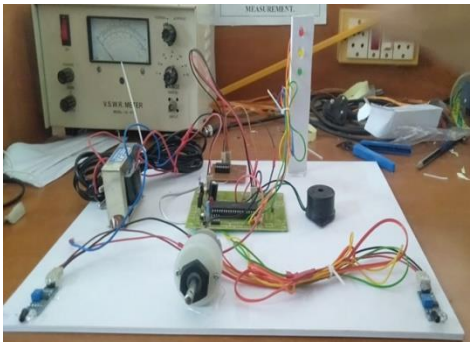
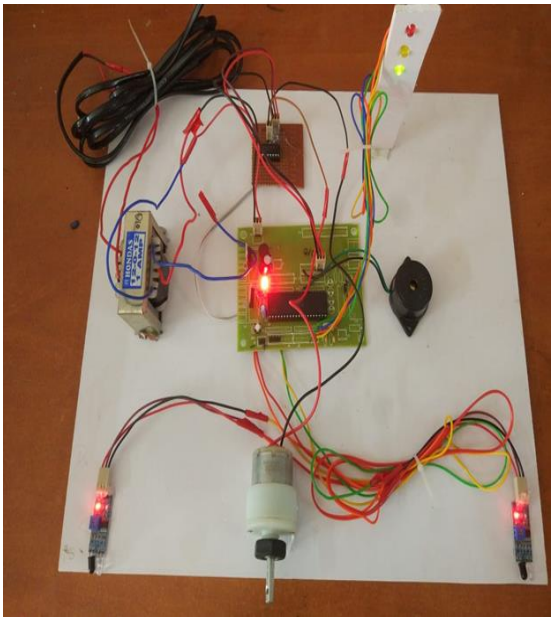
The advantage of interpreters is that they can execute a program immediately. Secondly programs produced by compilers run much faster than the same programs executed by an interpreter. However compilers require some time before an executable program emerges. Now as compilers translate source code into object code, which is unique for each type of computer, many compilers are available for the same language.

RESULT





CONCLUSION

The proposed work has many major advantages it will reduce the accidents occuring at the railway level crossings ,itwil increase the accuracy and reduce errors occuring due to manual operations .it will reduce the collision of train and will also manage the route of a particular train yo avoid any delay in reaching its destination .train will always be on time at the station no delay will be caused which occurs in manual operation . security can be implemented by olacing tracker in the train in order to monitor the location of the train in case of any issue . solar panels can be used to generate power for the system there by increasing the efficiency of the system . As the system Is completely automated ,it avoids manual errors and thus provides ultimate safety to road users ,By this mechanism , presence of a gate keeper is not necessary and automatic operation of the gate through the motor action is achieved . microcontroller 8051 performs the complete operation i/e., sensing ,gate closing and opening operations is done by software coding written for the controller .The mechnism works on a simple principle and there is not much complexity needed in the circuit .Thus the automatic railway gate

control using 8051 micro controller is work efficiently and its reduces the human work and time . This is the easy to control the railway gate operation and it reduces the occurrence of faults.

FUTURE SCOPE

•If a vehicle is between the gates, then a GSM Module sends the message when an interrupt occurs

•So the train operator stops the train earlier

•If any obstruction in the track, then the GSM module will send the message to train operator

•If gate is repaired, the message is sent to the train driver

•Here there is no need of man: the circuit itself checks the presence of vehicle and automatically closes the gate by rising the buzzer. Once we switch on the circuit, it automatically performs all these actions without man power.

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