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AUTOMATIC UNMANNED RAILWAY GATE CROSSING SYSTEM

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ABSTRACT
There has been a increment in the road traffics as well as the rail traffic, accidents at the crossing is increases and this is causes and difficulty to railways transportation. The main purpose of this model is to the provide by automated railway gate in the crossing and replaced by the gate operate by the manually. In this activity we will be proposed by a simply method for the at crossing in which we fixed by the IR Sensor on the railway track. The system reduces to take time for a gate closing. This variety of a gate will be situated in and without man crossing where the possibilities of accident are in high amount and relabled operation will be carried by automatic gate. IR Transmitter and Receiver are work at each rail track section and sends the message at each crossing and to a main control room.

INTRODUCTION
The main intention of a paper is to develop an economical train watching and protection system. Indian railway is the world 2nd rank railway transportation, in which 6,853 location and 63,028 kilometer of the path, 37,840 trains. 83 billion customer are and 492 milliones of plenty the freight cars. Of the 11 million people who climb on the train daily, 520 trains are daily on track each day, about 550,000 seats have in reserved passenger people. Crossroad could be a place wherever a railway and a road, or 2 railway lines, cross at identical level. It's known as crossway in North America. There are primarily 2 styles of crossroad they're manned crossroad and unmanned crossroad. Manned crossroad is generally unbroken closed to road traffic equipped with lifting barriers. Unmanned crossroad is employed for oxen crossing.
According by the railway department approximately 30348 crossings with man gatekeeper and without gatekeeper, (manned and unmanned) in India in that 11563 is a unmanned. Collision at without gatekeeper crossings are progressively a serious downside in India. In keeping with the report revealed in Times of India by News Network most accidents i.e. four-hundredth occurred at without gatekeeper railway crossing. Railroad connected accidents are additional dangerous than alternative transport accidents is a term of severity with death rate.
The quantity of deaths on railway track is on the increase within the past few years despite many measures taken by the authorities to contain such incidents. This arrangement helpful to in reduction of accident.
Railway Accidents is classified on the premises of a cause and result, study of that helps in preventing

similar ones in future. Head on collision: The train colliding on an equivalent track from opposite ends referred to as head on collision. Rear end collision: the opposite kind is once a train collides into the opposite that's before of it, referred to as aposterior collision.
Derailments: A train could de rail on the merely straight track which will caused by the rail accident.
Curve, mishap of the train is in thes lot of common once there's a curve on the track inflictings an accident.
Junctions a train may additionally
get the rail on the a junction, that place wherever 2 track are converge by in to one, or one is diverged in to the 2. Accident contributors like trains visibilities advance signal signs, active warning signal, driver nature, driver disturbed by wrong signal at night and risk taking are known common people issues contribute to the vehicle and train crossing accident.

PROBLEM STATEMENT

FIG NO.1Current Situation Of Railway Crossing .

FIG NO.2 Railway crossing without gate.

Last September, 8 people dead in the Bihar due to a train bus collision at an unmanned. In the another insident, 15 peoples was killed and 2 others seriously injured when the Mathura Kasganj express rammed into a jip at unmanned crossing in Hathras, UP. According the ministry of railway, in 2014-15 at the 130 people are died in the incident at unmanned crossing. And the 58 dead in the year of 2015-16 and also 40 people dead in 2016-17.in 2017- 18,26 people died from in April 1 to the December 15,2018,there are 16 people are deaths.

OBJECTIVE

The end function of this is to develop an "automated railway gate crossing system" to replace the present deployed system in the railway industry. With sensors which will be implementing easily in road in especially at crossings. With in which increase of a vehicle daily, It becomes the more difficult to manual operate gate and it is time consuming at level crossing. As a result, often accidents are occure and many peoples are injured bad and the sometimes its become a very serious condition when people dead due to the type of accident. This project will be help to the reduce accident in our society by introduced automatic railways crossing system.

The important objective is to the improved safety, minimizes travel timing and increases capacity of infrastructure. This is a improvements are advantageous to health economy and to the environment. Reduces time delay at the crossing and saving more travel time is the main goal of intelligent systems for transportation.

Besides that, the usage of guards (personnel) to physically control (open/close) the gate involves heavy use of man power which is directly contributes to inefficient because sometime its take a more much time.

METHODOLOGY

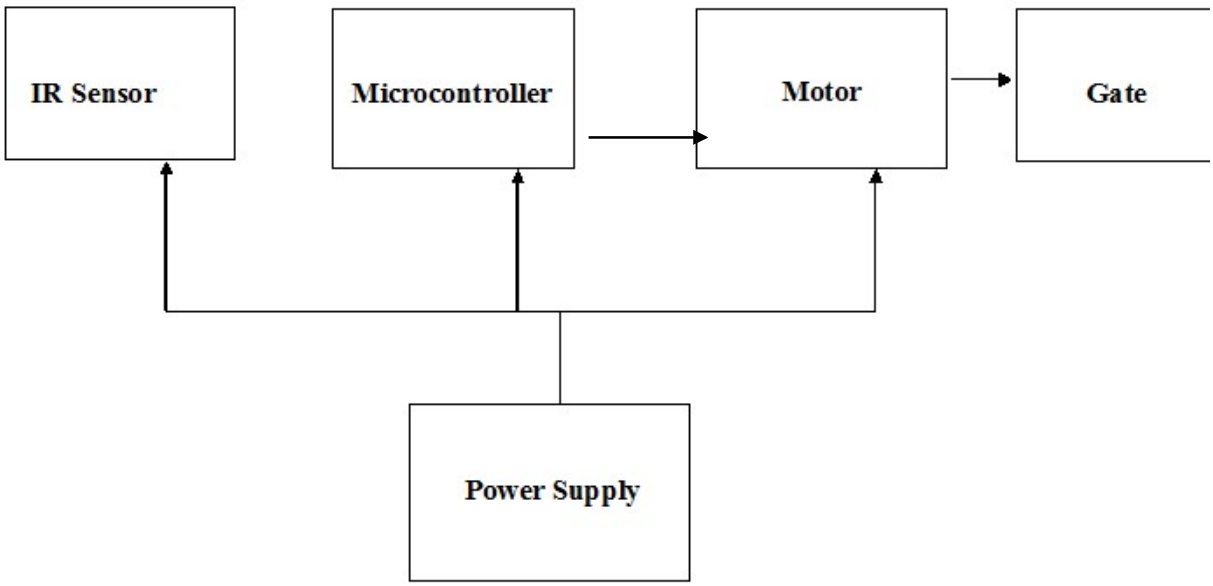
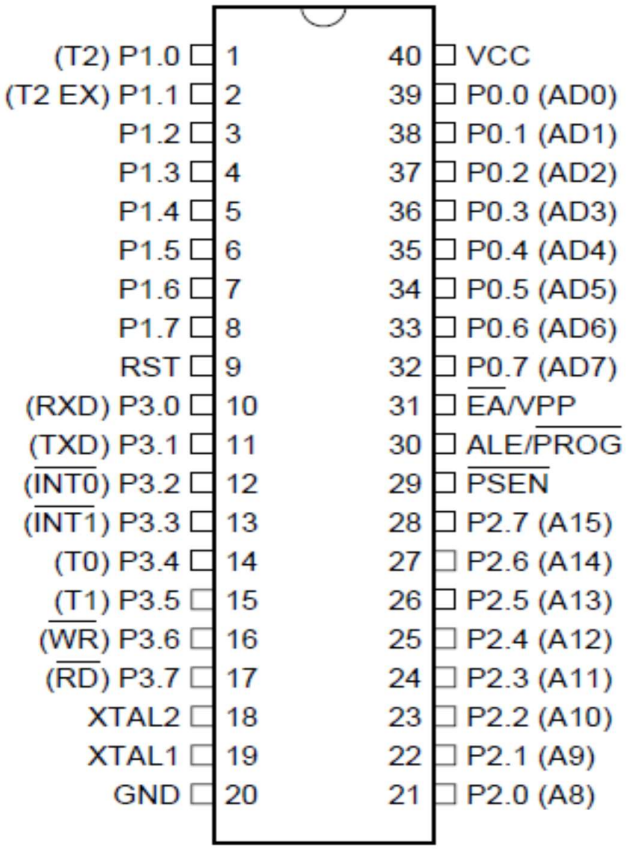


Fig no: 3 Block Diagram Descript

HARDWARE & SOFTWARE

FEATURE OF MICROCONTROLLER

The AT 89C52 provide the standard : 8K byte of the Flash memory, 256 byte RAM, 32 I/O line, three 16-bit timers or counter, six-vector and two-level of interrupt architecture, and a full duplexd serial port, on the chip oscillate, and with clock circuitry. In addition, of AT 89C52 is the designed for the static logic operation and down to the zero frequency,it is also support two software are selectable to power or saving mode.



➢ MICROCONTROLLER AT 89S52 DISCRIPTION

The Microcontroller IC 89S52 has a 256x8 bit internal RAM which is the mostly important feature for this applications. Here 8 to 10 readings can be recorded by in a RAM and after each half of an hour to achieving data logging.

The Timer and Counter is a application of the 89S52 is to be the used to count the pulse from on the proximity sensor. The also interrupt pin is INTR 0 is used to the switch into the different settings modes of an a serial channels is used to get the interface with pc for the data logger applications.

The AT 89C52 provide the following important features of : 8K bytes of the Flash memory, 256 byte of RAM, 32 I/O lines, three 16-bit timer or counter, six-vector and two-level interrupt architecture, and a full duplex serial port, on-chip oscillator, and the clock circuitry. In addition function, of the AT 89C52 is design is the static logic for the operation is also down to the zero frequency with the supports of two softwares is also selectable for the power saving modes.

The also Idle Mode is stops to a CPU while the allowing to a RAM, timer or counters, serial port, and with

the interrupt system to the continues the functioning. The Power down Mode is also save the RAM content and but a freezes the oscillator, disabl all the other chip functional.
Sensors the next hardware reset

- **Sensor uses in the motion detector**:

Ultrasonic Send the out pulses of the ultrasonic wave to be the measures and reflection off the moving object.

- **Microwave**

Sensor send out the microwave pulse and the measures and reflection of the moving object. Similarly to the police radar gun.

- **Infrared sensors**

Two IR sensor pairs are used for transmitting and receiving signals.

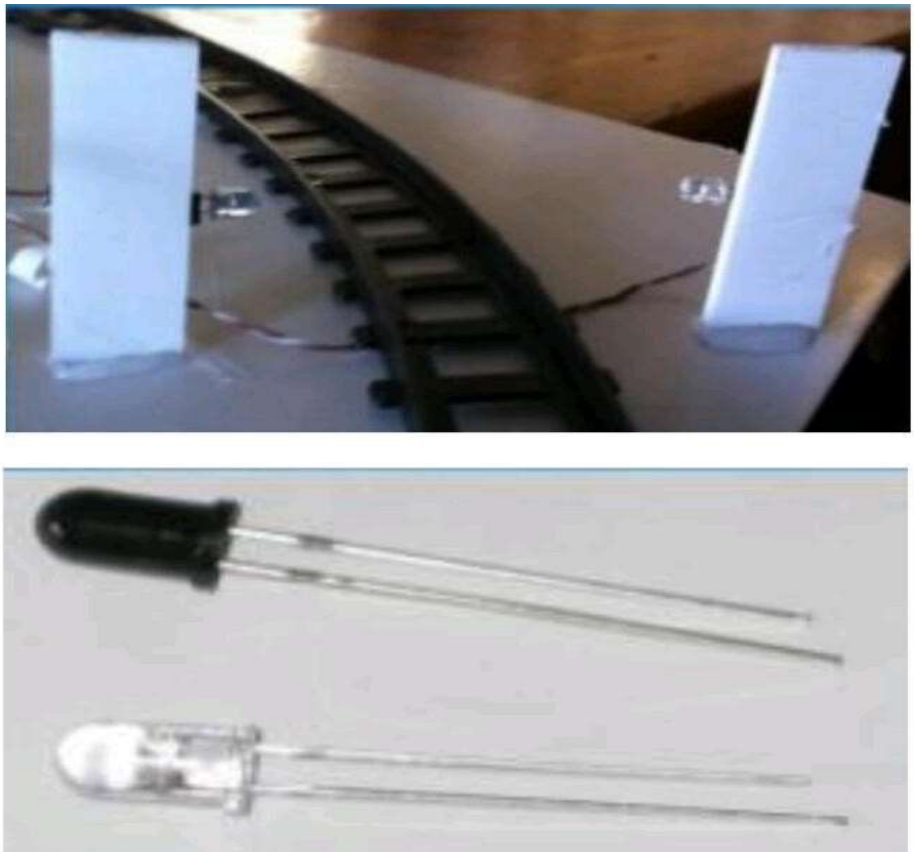


Fig no 5 :IR LED

IR Circuits

This circuit has two stages:

- **IR Transmitter**

The transmitter unit consisted of the infrared LED and it is associated with circuitry. The IR LED emits the infrared light is to put on the transmitting unit. The Infrared LED is driven through the transistor.

- **IR Receiver**

The receiver is a consists of sensor and the associated with circuitry. In the receiver section, will be the first part of a sensor, and which is detects the IR pulse transmitted by the IR-LED.

DC motor

DC motor is the electrical motor it is converted electric energy in to the mechanical energy. It is mostly use common type rely and the force will be produced to magnetic fields. DC motors is the first motor it is widely used and power from existing in direct- current light in the power distributions system. The DC motor speed also be controlled by the wide ranges using this variable supply and voltage or the changing currents in a field windings. High efficiency, high quality low cost DC motor and the gearbox for a robotics applications.

It is Very simple and available in market at the specified size. Nut with the threads on the shaft to a easily connected and internal thread on the shaft for simply to connecting to the wheel.

Features

- 3.5 is a RPM to the 1000 RPM and the 12V supply DC motors with the Gearbox, RPM it may be vary when its operating from the 3V to 15V
- 5kgcm torque
- 3000 RPM of the base motor
- 6mm shaft diameter and with the internal hole
- 125gm weight
- Similar sizes of motor is available with the different rpm
- No load current = 60 mA (Max), Load current = 300 mA (Max).

16X2 LCD Display:

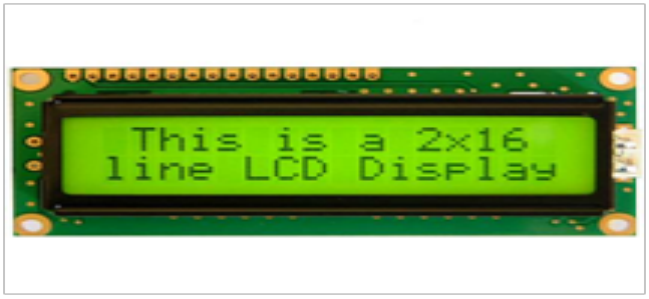


Fig. 20 LCD Display

LCD indicates different mode settings & set point adjustment. Also 16 char are divided in to the indicated speed output. In the LCD Display used here is 16 characters by 2 line display.

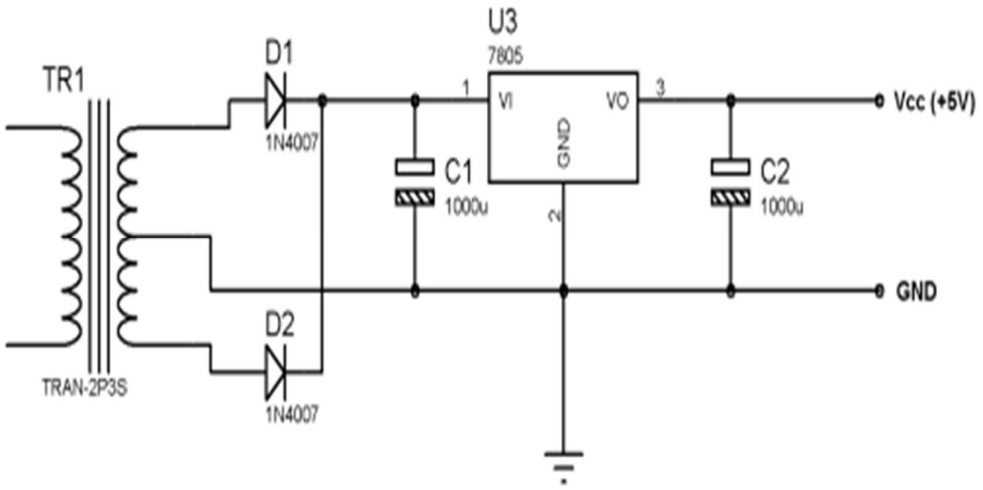
In the 16 character in both lines are equall and divided in to the indicated commands with the speed.

In sub routine 'Enter Speed' and 'Current Speed' message, the set Speed value is the indicated on a screen.

In this project a LCD is used to interfaced with the 0-port (D0-D7) i.e. in the from of 32 pin number to Pin 39 number. The other words a data-bus D0-D7 is also connected the 0-port of a IC 89s52. RS pin is directly connected to the 11 number pin of the controller and also another important pin EN (LCD enable) is also to direct connect to the 14 number pin of a controller. On a other hand to pin R/W of LCD is also connected to a ground. The LCD interfacing is done here for the indicating different display messages to the user. Interfacing is also given in to detail and they are follows:-

In this equipment the LCD which is used is 16X2 type. i.e. 16 characters per row and two rows. The feature of the LCD is to shown the status of the events and performed with the respective circuit and to the display those resulting parameter on the is have to be display on a screen required condition.

POWER SUPPLY:



The microcontroller also needs a +5V DC, and these specifications indicate the use of a low-cost, ubiquitous linear regulator National Semiconductor LM7805. The LM 7805 required and a input voltage of at least in 7.5V in order to guarantee of the regulation, so the unregulated power supply should be supply at this voltage is a under worst-case current is consumption and assumed to be a about 200mA. Because the full-wave rectifier is also used for the efficiency (diode D1and D2), we can also assumed in around about 1.4 Volt to be the lost across on the bridge (0.7 Volt per conducting diode).
We there are need of a transformer is selected is T1, and the rating is 9-0-9 secondary at the 500 mA.

Advantages

i. High and long read range.
ii. High Accuracy .
iii. Automatically detect the train.
iv. Lower working cost.
v. Poor sensitive in electromagnetic interference, vibration, shock, temperature.
vi. Real time display information processing.

Application

1. At railway crossings
2. At toll naka
3. At company entrances gate
4. At apartment entrances gate

CONCLUSION

The accidents are avoided at places where is a no person managing the railways crossing gates. Here we will the DC motor can be used to the opening and closing of a gate by automatic when it is rotated in the direction of clockwise or the direction of anticlockwise. When the train arrival in the sufficient distance between crossing and train the transmitter is IR senses and then generates appropriately signal, and then at that time receiver IR receiving the signal from sensor and generated the interrupt. By automating then the crossings will be many accidents in a crossing can be the brought almost to the zero. When the train approached by the near railway crossings the gate are closes automatic and when train run, the away from crossing thens gate will be opened by automatically.

FUTURE SCOPE

It is a working prototype model and more will be done in it. At the current situation Indian railway is also suffering from crossing accidents but this project will be solution on that problem. This is a low level project but it can be implement in future and secure many live.

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