



A Survey on Smart Pedestrian Line Crossing

Apurva Jadhav¹, Dipali Borade², Sharmin Shaikh³, Dhananjay Pawar⁴

Student, Department of E&TC Engineering, S.N.J.B's K.B.J.C.O.E., Chandwad, Nashik, Maharashtra, India^{1,2,3}

Assistant Professor, Department of E&TC Engineering, S.N.J.B's K.B.J.C.O.E., Chandwad, Nashik Maharashtra, India⁴

ABSTRACT: Smart pedestrian line crossing is a innovation which is really needed in our society to reduce the number of accidents occur day by day and also that the peoples should follow all the road safety rules. In these era of automation all things are going to be advanced technically and practically. One of the most important thing is traffic control On zebra crossing. Now a days, In our country many peoples do not follow the signal crossing rules and they runs the vehicle and crosses the line even at RED signals also and break the signal rules. To avoid this we make a system called smart pedestrian line crossing system. In this system we used At mega 328p as a controller. Which controls all the device which is connected to it and gives a output 16x2 LCD display, buzzer, and LED strip

KEYWORDS: ATmega328p controller, pedestrian crossing, traffic light management, intelligent transportation systems, smart city.

I. INTRODUCTION

Since people and vehicle are sharing the street, crosswalk extends viability of using the street in exceedingly thought area. Be that as it may, as the masses grows, this brings more unremitting mishaps and increasingly authentic injuries and consequently, nationals are endeavoring to reduce these mishaps by making headways and genuine endorsements. Such exercises pull down the total number of deadly mishaps yet tragically, number of passerby fatalities doesn't lessen for a long time. To be specific, this loss doesn't have a relative trademark contemplates to others. An assessment around 2014 in USA shows fatalities in 78% occurred in urban, 71% occurred at non-crossing focuses and 72% happened unmindful. Through this assessment, passerby fatalities are deducing vivaciously populated region makes progressively shot make a accident and an average affirmation makes less chance to recognize a walker or a vehicle.

Problem Statement:

This study seek to answer the following questions:

1. What the purpose of making a Smart Pedestrian Line Crossing?
2. What component should be used in the machine to provide simple and inexpensive means to accurately and positively control the comfort?
3. How acceptable is the project, in terms of convenience and efficiency, for the consumers ?
4. What price consumers willing to pay for the commodity?

All the above Questions shows or mentions the problem statement which are expected to be completed through this project and should be efficient and convenient for the consumers.

Need of System:

1. Number of road accidents will decrease.
2. Safety of peoples.
3. Follow rules.

Objectives of the system:

The researchers proposed this study with the following objectives:

1. The primary objective of the project is to reduce the number of accidents.
2. To provide safety.
3. To provide economical, reliable & easy to setup.
4. To determine the acceptability of the study in terms of convenience and efficiency.
5. To determine the acceptable price of the system to the consumer.

II. LITERATURE SURVEY

A review of completed and ongoing research has been conducted to identify current knowledge or methodologies that may be appropriate for predicting pedestrian effects related to roadway geometries and other factors. The review of literature and research in progress addressed the following issues:



- Current knowledge based on completed research concerning pedestrian safety and its relationship to pedestrian exposure and to geometric design, traffic control and other features that can be modified by highway agencies.
- Ongoing research on pedestrian safety relationships.
- Safety modeling approaches that have been applied to pedestrian safety in completed or ongoing work.
- Other safety modeling approaches including approaches that are being used in the development of other portions of the HSM, whether or not those modeling approaches have been applied to pedestrian safety.

III. SYSTEM DESIGN

A. Block Diagram

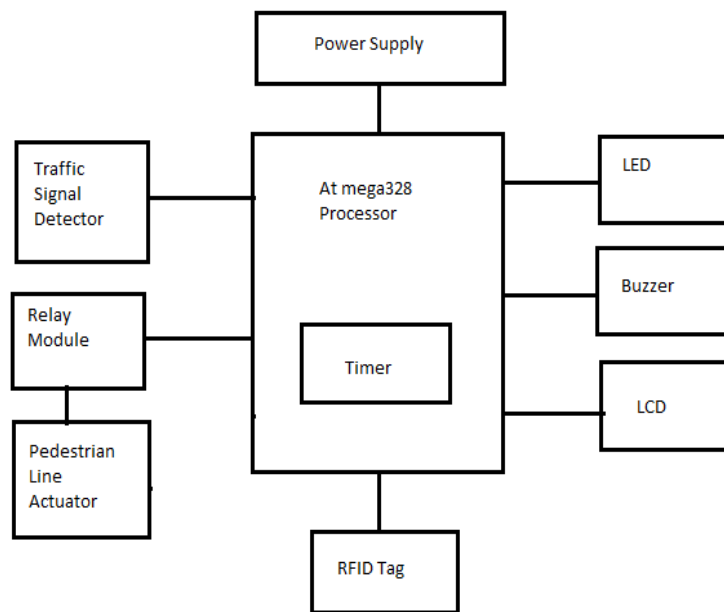


Fig 1. Block Diagram

- **ATmega328p:** It is an 8 bit and 28 pin microcontroller. It follows RISC architecture and flash memory of 32kb. In arduino UNO, UNO is based on atmega328p microcontroller.
- **Traffic signal Block:** It is used to detect the signal color. for traffic signal detector one timer is inbuilt in the processor for specify the signal at a particular time interval.
- **Relay module :** It is used to actuate the pedestrian line crossing actuators.
- **LED:** LED is an up to the signal detect is green. At the time when the plates of pedestrian line are upside LEDs are on.
- **Buzzer :** A line is drawn before the pedestrian line, when any vehicle touches the pedestrian line the buzzer is on and produces a beep sound.
- **LCD display:** It is used to display the message like 'hold on' or 'wait for 30 sec', etc.
- **RFID tag:** It stands for radio frequency identification tag. This tag is located on the front side of vehicle. In this project it is used to detect the special vehicles like ambulance, fire brigade, Police car, etc.



B. Flowchart

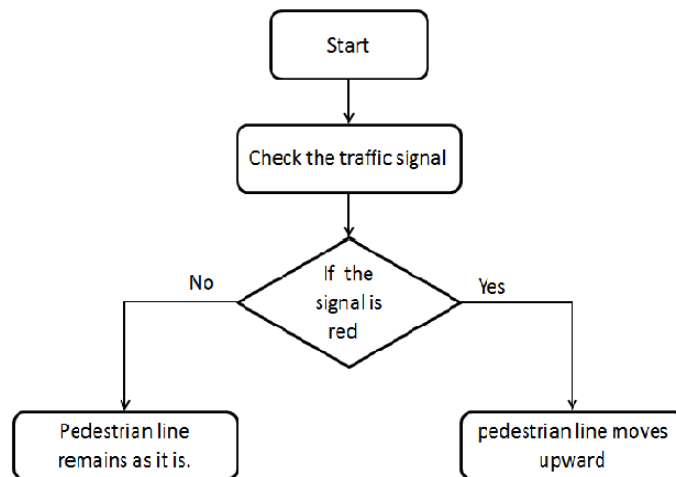


Fig 2. Flowchart

IV. SYSTEM WORKING

We are making a system called smart pedestrian line crossing system. In this system we used Atmega 328p as a controller, which controls all the device which is connected to it and gives a output 16x2 LCD display ,buzzer, and LED strip .Here 16x2 LCD display used to display used to display the same signal which is display on traffic signal. It is additional display used in our system.

In our system we used piezoelectric buzzer which operated on 10v DC supply buzzer is used, when vehicle's break the signal at the time buzzer will make sound. We use LED Strip as output of controller. It shows the RED, GREEN and YELLOW signal which shows on traffic signal at that same time this signals will show on the LED strip which is connected at some distance before main line which is placed on highway at signal area.

In our system we used RFID reader for detecting the tag which is place on some emergency vehicles like Ambulance, vehicles of police etc. Due to the use of RFID module emergency vehicles can easily cross the signal. This type of system will not stop the emergency vehicles even if there is RED signal.

We also used 2 types of relay, one is operated on 5v supply and second is operated on 12v DC supply. It acts as a switch or key. Which ON and OFF. We have also used the traffic signal reader which shows the signal notifications that is signal is RED, GREEN or YELLOW and use some pedestrian type metal plates which is mounted on main line of signal at signal area. Initially this plates are in downward.

But when some vehicles are trying to cross the main line at that RED signals. At that point LED strips shows the RED signal and blinks the LED. At that time this metal plates will move towards upward and stop the vehicles. only at RED signal this plates will move upward so that vehicles will not break the signal and signal breaking will stop and system will work smoothly.

V. FUTURE SCOPE

With recent development in technology, improvement would be to accommodate with smart traffic signal technology in all the signal areas. This system will play a important role in all the signal areas which reduce better performance to avoid signal breaking conditions.Its working is so easy and reliable and is very safe for emergency vehicles. There is no obstacle for special or emergency vehicles because of the use of RFID tag.

VI. CONCLUSION

In this paper, Atmega328p controller approach to deal with the dynamic management of traffic lights in pedestrian crossing has been presented. The suggested solution provides the possibility to change the phases of the traffic light taking into account the time of the day and the number of pedestrians about to cross the road. Infact , the number of accidents will reduce day by day because of this system. The project also provided extensive simulative assessments, regarding the distribution of vehicles and pedestrians' flow, the queues at the traffic lights, the number of stops, and several parameters for the evaluation of pedestrian safety.



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