

AUTOMATIC ROAD SPIKER

Prof. Laxman¹, Pavan.S², Shiva kumar³

*¹Asst.Professor, ^{2,3}UG Students, Department of Mechanical Engineering,
Shri Pillappa College of Engineering, Bangalore (India)*

ABSTRACT

This motor mainly deals with the speed control of a Motor using a remote controller. The type of speed control that has been chosen here is pulse width modulation (PWM). This project deals with development of DC MOTOR control using switch 12V DC Motor drives widely use Micro controllers. The project detail design and complete hardware based high performance DC drive control system will be implemented. Most recently new requirements have arisen. These include faster torque control update with flexible design capability of motion peripherals for high performance military drive applications, Pulse width modulation type of speed control is chosen here because of high accuracy, high reliability, quick response and high efficiency.

I. INTRODUCTION

Automatic spike barrier is many used for controlling of traffic in main junctions. automatic spike barrier can be designed as per the requirement as per our requirement we will design for 2 meters wide make spike made up of tapered steel of height of 150 mm spaced maximum 200mm centre to center capable of taking impact load of 10 ton truck, mounted on MS channel of suitable thickness. In the lowered position the tyre killer is flush with the road surface thus completely inconspicuous Allowing even the heaviest vehicles (almost 20 tons) to enter the secured area. It is controlled by high speed cylinder. And electric motor is also installed in water proof lockable steel, the time required for blocker to move up and down ranges from it.

As per our knowledge our nation is seventh largest country in the world in area wise, but exponentially raises in population count as second place in this planet, being populated dense country, every individual demanding utility vehicles for transportation. This above factors leads to traffic jam in the vicinity of safety zones, today modern spectrum, our updating technology should pave its attention on traffic to avoid unnecessary hazardous circumstances more specifically in traffic signal spots, due to our case studies on traffic signal, crafted our attention on present traffic signal, people are even break the traffic signal when does it comes to red light, some citizen cross the road, sometimes it will lead to accident. To avoid this accident or any other hazardous condition. We have finally developed mechanism it will approximately compensate this kind of activity in the traffic signal.

In this modern country no even urban city eventually town in our nation hit by trafficking, due to sustainable economic development, our project work virtually focus on traffic signals, in that humps place virtual roll to avoid signal jerk traffic in signals.

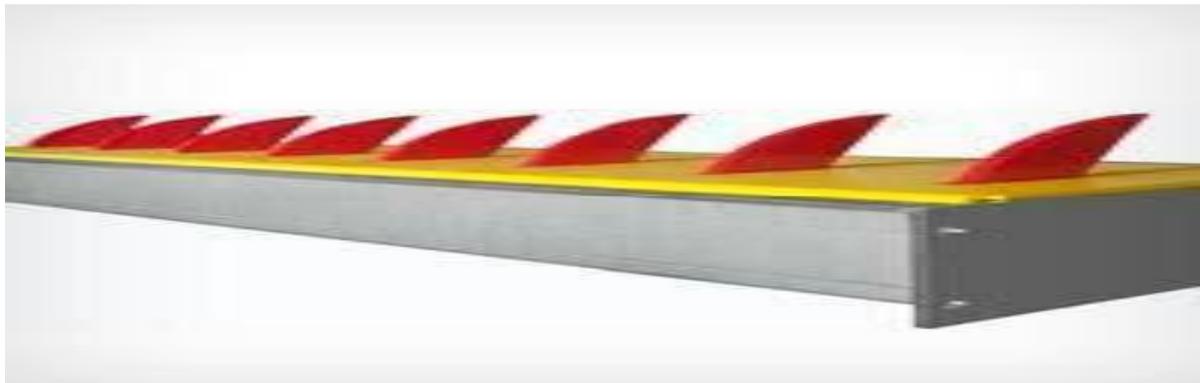


Fig.1.1 Spiker

The series mode range of spike barrier has been designed for situations where it is imperative that unauthorized vehicles are stopped or where barriers do not provide a high enough deterrence.

Spike barriers are available in a wide range of sizes and impact ratings. The range includes units for cost effective parking control applications, through to units for high security military sites and embassies. The higher specification models are designed to withstand massive impacts while remaining operational.

Spike barriers are available in standard sizes and ratings, or can be customized utilizing the latest CAD techniques for any specific application very quickly.

II. WORKING PRINCIPLE AND CONSTRUCTION

A screw jack or a jackscrew is operated by turning a lead screw. The height of the jack is adjusted by turning the lead screw. This can be done either manually or by integrating an electric motor with it. This integration is our project. Main frame is constructed to the required dimension. Jack body mounted on support base which is welded in the main frame. DC geared motor mounted at one end of the lead screw of the jack. Micro controller operates the DC motor according to the requirements. Battery is required for the power supply which is connected to the DC motor and the micro controller. Solar cell is added to charge the battery and to get sufficient power to operate this system.

III. REQUIRED THINGS

1. SCREW JACK
2. MS SHEET METAL AND HALLOW PIPE

3.MOTOR

5..BATTERY 12V 7.5amps

6.BALL BEARING

7.MICRO CONTROLER (8051)

8.RELAY

9.SOLAR PANNEL

IV. BLOCK DIAGRAM

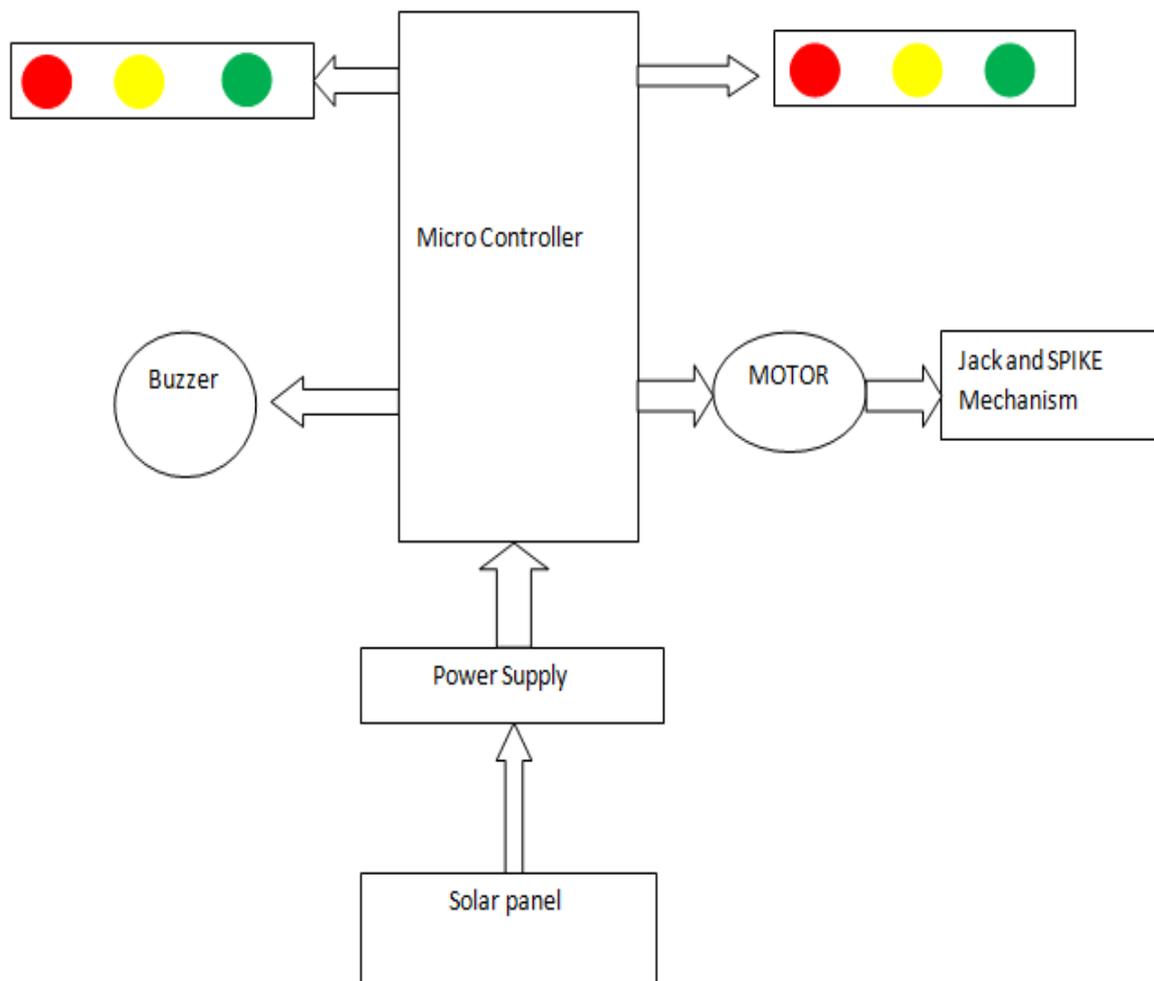


Fig4.1 Block Diagram

V. PRESENT PROBLEM

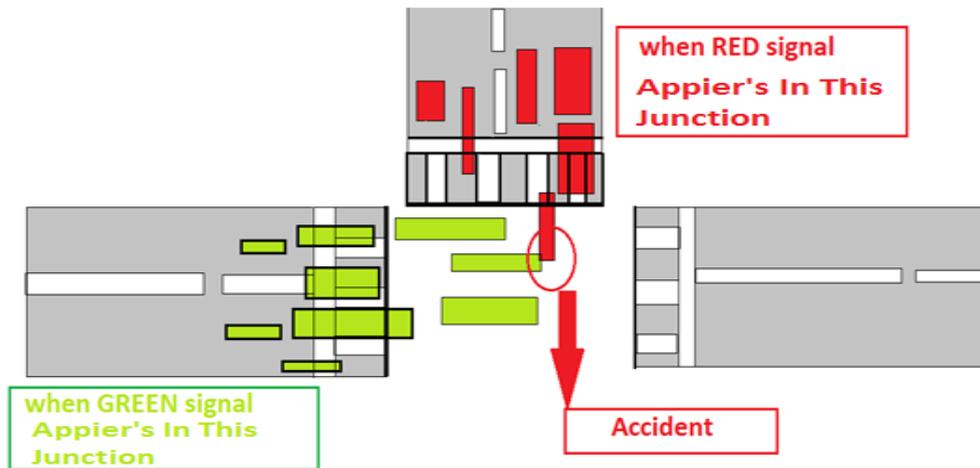


Fig 5.1 present problem

VI. HOW TO OVER COME

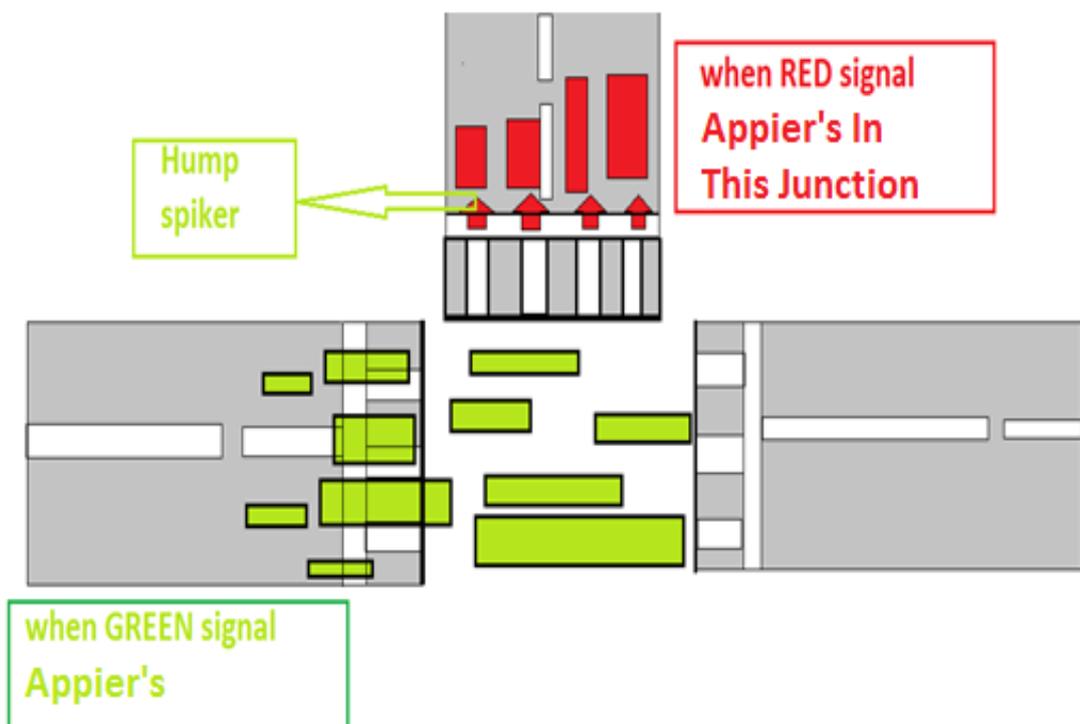


Fig 6.1 How to over come

In this modern country no even urban city eventually town in our nation sarcasm hit by trafficking, due to sustainable economic development, our project work virtually focus on traffic signals, in that humps place virtual roll to avoid signal jerk traffic in signals.

Our mechanism really focusing on studs in humps, which make vehicles unnecessarily crossing the humps even though in signals.

Once signal is ON, in the humps stud (spikes) emerges and stop vehicles, for this mechanism requires motor to supply power for spike to emerge spike housing on the chain pulley, at the time when the timer is integrates to the signal lamp. This work model type of pro type and in the future some progress work can be achieved.

VII. FINAL ASSEMBLY



Fig 7.1 Final Assembly

VIII. RAISE AND LOWER OF SPIKER



Fig 8.1 Raise and lower of spiker

IX. ADVANTAGES

- Simple mechanism.
- Cost effective equipment.
- It controls the accidents.
- High precision timer over traffic signals.
- Maintain the traffic signal

X. APPLICATIONS

- It is used in **Traffic signal**.
- It is used in **restricted area such as Defence**.
- It is used in **parking area like in Malls, Hospitals, and Hotels**.

XI. CONCLUSION

In this modern country no even urban city eventually town in our nation hit by trafficking, due to sustainable economic development, our project work virtually focus on traffic signals, in that humps place virtual roll to avoid signal jerk traffic in signals.

Our mechanism really focusing on studs in humps, which make vehicles unnecessarily crossing the humps even though in signals.

Once signal is ON, in the humps stud (spikes) emerges and stop vehicles, for this mechanism requires motor to supply power for spike to emerge spike housing on the chain pulley, at the time when the timer is integrates to the signal lamp. This work model type of pro type and in the future some progress work can be achieved.

REFERENCE

1. Design of machine elements by V.B. Bhandari
2. A text book of machine design by Rajendra Karwa
3. Analysis and Design of Machine Elements by V K Jadon, Suresh Verma
4. Tribology in Machine Design by T. A. Stolarski
5. A text book of Machine Design by R.S.Khurmi,J.K.Gupta
6. Design of Machine Elements by Farazdak Haideri
7. Machine Design by S.G.Kulkarni
8. Design of machine elements by K.Rao

BIOGRAPHICAL NOTES

	<p>Prof.Laxman is working as Assistant professor in Mechanical engineering department for last 5 years and he also worked as assistant professor in R R institute of technology. He received is M.Tech in Thermal Power engineering from visvesvaraya technological university. His research interest is in the field of heat exchangers, biodiesel engineering etc..</p>	
	<p>U G STUDENTS</p> <p>PAVAN.S</p> <p>SHIVAKUMAR</p>	