



## TYRE KILLERS

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### Abstract

To avoid jumping of signals, Tyre killers should be installed in all the lanes of the cross road. Tyre killers should be made in such a way that they can move i.e; they can come over the road and as well as they can go beneath the road. The working should be in such a way that lane which has green light in that lane tyre killers should go beneath the road and rest of all the lanes having red signals should have tyre killers over the road. By this innovation we can control Signal Jumping. To avoid wrong route riding, Tyre killers should be placed at all the places on the road, their working should be in such a way that riders coming in same direction have no effect but people riding in wrong direction vehicle tyres are punctured in this way we can control wrong route riders. In this project we have modified the existing tyre killers we are fixing the tyre killers to single rod and in center of rod we are fixing perpendicular hollow rod with screw on other side. This is kept on nail of motor. If pulley rotates clockwise spikes come down and if anti-clockwise spikes go up. We complete the project in such a way that when red light comes the spikes come above the road and when orange light comes, the spikes should go beneath the road. As reported in the findings of an eight-year study conducted by the National Highway Traffic Safety Administration (NHTSA), there were on average 1,578 fatalities each year resulting from two-vehicle traffic crashes at intersections controlled by traffic signals. Approximately 51% of those fatal crashes were caused by drivers who ran red lights. Approximately 29% were caused by drivers who failed to yield the right-of-way at traffic signals.

### 1. INTRODUCTION

We have done a survey in urban and suburban communities. We have found that most people are preferring wrong

route and also some are jumping the signal to save their time. Now-a-days wrong route and signal jumping has also become a backbone for major injuries and death in



recent times. So we came up with an idea to install tyre killers on every cross road. Exemplary embodiments of the present disclosure are directed towards a vehicle traffic control system for detecting signal jump and method employed thereof. The system includes one or more traffic signals are signaling devices positioned at road intersections, whereby the signaling devices are configured to control flows of traffic at road intersections. So a thing called as 'Tyre Killers' will have to be used. Tyre killers are a metal strip that acts as a speed breaker for a person driving on the right side of the road, however it's spikes puncture the tyres of vehicles coming from the wrong side, basically allowing traffic to flow only on one side. These will be placed such that, if vehicles try to cross the signal line, then their tyres will be punctured, but as they allow one side flow of traffic, if any vehicle is stuck in the signal, with the tyre killers rolled upwards, then, that vehicle can easily come out and an accident can thus be avoided. So, the use of tyre killers tries to make this system full-proof. As reported in the findings of an eight-year study conducted by the National Highway Traffic Safety Administration (NHTSA), there were on average 1,578 fatalities each

year resulting from two-vehicle traffic crashes at intersections controlled by traffic signals. Approximately 51% of those fatal crashes were caused by drivers who ran red lights. Approximately 29% were caused by drivers who failed to yield the right-of-way at traffic signals. According to the study, drivers aged 65 or older were involved in 31% of all fatal crashes occurring at intersections and had a higher involvement in two-vehicle fatal crashes at intersections than any other age group. Older drivers were more involved in failure-to-yield accidents in particular. The most common scenario involved an older driver turning left in an intersection and being struck on the passenger side by an oncoming vehicle. Of the two-car accidents at intersections controlled by traffic signals, 43% were Straight Crossing Path (SCP) crashes and 31% were Left Turn Across Path/Opposite Direction (LTAP/OD) crashes. Approximately 65% of all accidents caused by failure to obey traffic signals were SCP crashes, and 69% of all accidents caused by failing to the yield right-of-way at traffic signals were LTAP/OD crashes. To avoid wrong route riding, Tyre killers should be placed at all the places on the road, their working should be in such a that riders coming in



same direction have no effect but people riding in wrong direction vehicle tyres are punctured in this way we can control wrong route riders.

## 2. RELATED WORK

Tyre killers are installed to reduce accidents from wrong lane driving. Tyre Killers are used to control the flow of vehicles in and out of a facility or through tactical roads. As any vehicle going through wrong way risks getting its tyres punctured by the embedded spikes. Tyre killers are essentially a metal strip that acts as a speed breaker for the person driving on the correct side. However, its spikes puncture the tyres of vehicles coming from the wrong side. It has been crash tested at Horiba, MIRA, U.K. wherein all 6 tyres of a 7.2 ton truck were deflated instantaneously. Special care is taken to ensure that the design encompasses the provision of drainage so that accumulated dirt and water can drain out instead of blocking the tyre killer mechanism. Inbuilt hydraulic hand pump gives the flexibility to use the device manually in case of power failure and secure the entrance. We have done a survey in urban and suburban communities. We have found that most people are preferring wrong route and also some are jumping the signal to save their time. Now-a-days wrong route and signal

jumping has also become a backbone for major injuries and death in recent times. So we came up with an idea to install tyre killers on every cross road. Exemplary embodiments of the present disclosure are directed towards a vehicle traffic control system for detecting signal jump and method employed thereof. The system includes one or more traffic signals or signaling devices positioned at road intersections, whereby the signaling devices are configured to control flows of traffic at road intersections.

## 3. IMPLEMENTATION

We have done a survey in urban and suburban communities. We have found that most people are preferring wrong route and also some are jumping the signal to save their time. Violating traffic rules and regulations can be dangerous to you as well as other road users. One such common traffic violation is signal jumping. Most people are jumping the signal to save their time. Ignoring a red-light signal can be dangerous as it may lead to fatal accidents, and you will also receive a challan for jumping the signal. Now-a-days signal jumping has become a backbone for major injuries and death in recent times. The objective of this paper is to automate the operation of railway crossing gates. The basic need of



automation of railway gates arises from the fact, that, almost all the Railway gates in India are operated manually. The manual operation of Railway gates leads to a lot of time wastage and accidents also occur at unmanned Railway crossing gates. To curb these two shortcomings of the present, manually operated railway gates, our paper describes a new technique that could eliminate manually operated gates and automate the opening and closing of railway gates by using Arduino Uno(microcontroller), Vibration sensors, Laser sensors and a new device called Tyre killers

**Components:**

- **Red, Green and Yellow LEDs**
- **Screws and Nuts**
- **Metallic rods(or iron rods)**
- **Pulleys**
- **Nylon thread**

We will modify the existing tyre killers. We will use a mechanical system such that when red light comes then we we will rotate the liver of the tyre killers .So that the tyre killers comes above the road .And when green light come s then we rotate the liver so that it goes beneath the road .The signal will work based on the Arduiouno microcontroller .We complete the project in such a way that when red light comes the spikes comes above the road and when

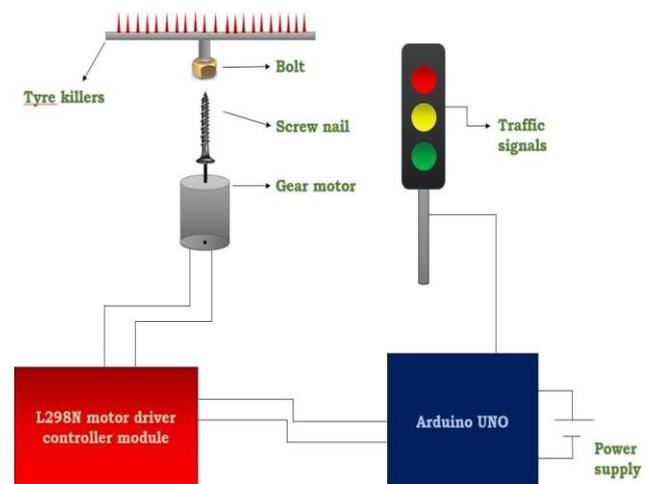
orange light comes, the spikes should go beneath the road. In this proposed system we have tried to implement a simple yet effective solution for the level crossing and with the use of the new technology this new system can sustain longer. A question might arise in the minds of people, that if the automatic operation of traffic gates was so easy, then why was it not performed. One of the main reason behind that is, this system is not full proof. The major drawback of this system is that, while the gates are closing, if any vehicle is present between the gates (on the tracks), then that vehicle will be trapped between the gates and it will collide with the train, thus resulting in an accident. So to overcome this difficulty, it would have to be made sure that when the train is detected, vehicles on either side of the tracks do not attempt to cross the railway line. So a thing called as 'Tyre Killers' will have to be used. Tyre killers are a metal strip that acts as a speed breaker for a person driving on the right side of the road, however it's spikes puncture the tyres of vehicles coming from the wrong side, basically allowing traffic to flow only on one side. So, after the train is detected by sensors, red lights will flash with a buzzer siren, and after a few seconds tyre killers will roll up on either side of the road. These

will be placed before the traffic gate. These will be placed such that, if vehicles try to cross the railway line, then their tyres will be punctured, but as they allow one side flow of traffic, if any vehicle is stuck on the railway line, with the tyre killers rolled upwards, then, that vehicle can easily come out and an accident can thus be avoided. So, the use of tyre killers tries to make this system full-proof. With this proposed system a way can be made for the more effective modernization of the Indian Roadways. Automatic operation of tyrekillers at is mainly based on idea of reducing human interference at railway crossing thereby reducing the chances of error which are occurred due to human mistakes. The Automation of traffic lights also ensures that the Opening and Closing of tyre killers will be on right time even if there is delay in train schedule which also helps in reducing traffic jam at traffic signals.

#### 4. EXPERIMENTAL RESULTS

In automatic operation of crossing gates firstly we used vibration sensors to detect the incoming train which is placed around 1Km away from the crossing gate. After the vibration sensor we used laser transmitter and laser receiver placed on either side of the track. Once vibration sensors detects the vibrations from the

train the laser sensor is turned ON and the laser beam falls on the laser receiver. When the train passes through the laser beam it restricts the beam from reaching the receiver. Here if the receiver is not able to receive the laser beam for 3 seconds it confirms the presence of train and this 3 seconds delay also eliminates the errors such as a bird flying through the laser beam.



**Block Diagram**



**Prototype of the project**



## Business Model

### 5. CONCLUSION

In this proposed system we have tried to implement a simple yet effective solution for the level crossing and with the use of the new technology this new system can sustain longer. With this proposed system a way can be made for the more effective modernization of the Indian Railways. Automatic operation of Railway gates at is mainly based on idea of reducing human interference at railway crossing thereby reducing the chances of error which are occurred due to human mistakes. To avoid jumping of signals, Tyre killers should be installed in all the lanes of the cross road and should be controlled by Arduino, by this innovation we can control Signal Jumping . And this project created a lot of awareness among the people that they should follow the traffic rules .This project helped to reduce accidents a lot,probably

signal jumping also decreased. Further , it can also be used for various applications like at Toll Plaza's, parking lanes ,and at junctions

### 6. REFERENCE

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# International Journal For Advanced Research In Science & Technology

A peer reviewed international journal

[www.ijarst.in](http://www.ijarst.in)

**IJARST**

ISSN: 2457-0362

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Abdul Wahid, Muhammad Hassam Khan,  
Muhammad Bilal Shah, “Enhanced Car  
Number Plate Recognition system

(ECNPR) by improving efficiency in pre  
steps”2017 International Conference on  
Communication Technologies 978-1-  
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