AUTOMATIC VEHICLE HORN CONTROL SYSTEM

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Abstract - We have observed that majority of deaths and hundreds of serious injuries that occurs in the world is due to Road Accidents. The Elements that are projected in the existing system are unmanned collision notification, vehicle security, speed control and alcoholic detection system. But Lack of proper implementation of these led to the invention of other Traffic control systems hence in this paper, we make an attempt to propose a new automated vehicle horn control system. Having the grip while driving any vehicle or controlling our driving by robotic manner is one of the most important aspect that has to be introduced in our life at this vital hour. Our proposed system has the capacity to check for obstacle, and if any vehicle is at a nearby distance it senses it with the help of sensors in any and frequency horn will be reduced based on location and vehicle's speed.

***Key Words*:** Collision, sensors, frequency, vehicle speed

1. INTRODUCTION

Noise is a sound that is loud and unpleasant to hear which causes disturbance. Noise pollution have been increased due to the rapid growth of vehicle population in recent years. Noise level increases with increase in traffic volume. Like many other developing countries, traffic noise is major cause of environmental pollution In India. It has become a permanent part of urban and sub-urban life which cannot be resolved.

[1].India's Central Pollution Control Board (CPBC) states that traffic sound reaches levels of 100 dB in the streets with bus stops or places prone to more traffic can reach 125 db. The Centers for Disease Control have set a max of 15 minutes as exposure limit to 100 dB of sound, over which possible damage may occur. Drivers on roads often are found to have the tendency of using horns recklessly. This is a result of impatience, strong braking in busy road, in jam packed situations and often in crossings also while overtaking and speeding. Studies have shown that continuous honking is a common expression of growing impatience, rage, anxiety, stress and a truculent attitude. Also seen as a signature move of dominance on other fellow drivers . Often jaywalking pedestrians and inefficient traffic controlling also results in excessive use of horns but it is not due to the excessive number of vehicles on road or population. To a great extent honking depends on mentality of the person using it.

1.1 EXISTING SYSTEM

To avoid honking in traffic and to save city from noise pollution ,the traffic department is fining all those drivers who horn unnecessarily.

[3]The Government has created silence zones which include places near the hospitals and educational institutions in the city. This rule helps to reduce the disturbance to hospitals and educational institutions has also been successful in reducing the noise levels in surrounding areas.

[2].The RTO proposed the usage of dipper lights at night as an alternative for horns. These dipping lights at night which flashes in driver's eyes helps to increase the road safety and has greater impact than honking . This solution also helps to reduce the noise pollution through honking.The infrared signals or radio waves are used reduce the noise. The solution was to transmit data between vehicles using these signals to reduce the frequency of vehicle's horn.

1.2 DEMERITS OF EXISTING SYSTEM

1.21 Though there are many awareness programs against noise pollution due to honking, this could not help in reducing the noise pollution. Though Government has come up with many rules to control unnecessary honking in traffic signals etc,people tend to violate those rules. Only a minimum percentage of people tend to follow rules.

1.22 Horn signal was proposed to reduce the use of horn. A Bluetooth module is used for the communication between two vehicles by transferring the data signal. The data can be transmitted only over a short distance since the Bluetooth modules are used. In speedy roads or highways, the distance between two vehicles is large, it is beyond 100 meters which makes it difficult to use this system.

1.23 The use of dipper lights to increase road safety was proposed by RTO. The drivers can use lights instead of horn to indicate overtaking the vehicles in front. By flashing the headlights instead of honking reduces the noise pollution. But there are certain limitations associated with it, this solution can only be used during the night time and not during the day. And flashing of the headlights may affect the eye of the driver.

1.24 Infrared works in line of sight. The receiver and the transmitter needs to be in a straight line and in sync to catch the signal and process it further. This cannot be the case every time as the vehicles on road might not be travelling in a straight line always. As the radio waves are ubiquitous, it is difficult to sense the direction of signal transmission. In order to guess the direction of transmission, the vehicle should be provided with multiple trans-receivers. The system can decide the direction of the incoming transmission from another vehicle on comparing the intensity of the signal received. This method is inefficient when vehicles are on slopes.

2. LITERATURE SURVEY

[1.1] Intelligent transportation systems (ITSs) are advanced applications that provide innovative services relating traffic problems around the world. Traffic prediction is a highly researched area within ITS. These results are used by transportation practitioners to reduce obstruction and increase mobility. The framework for short-term traffic prediction call for two major blocks: a traffic estimator and its optimizer. The Multilayer perceptron Neural Network with back propagation learning algorithm are used to develop the traffic estimator. The optimizer is used for setting the optimal set of variables which is based on a specific kind of Genetic Algorithms called ‘‘non-dominated sorting genetic algorithm II’’ or briefly NSGA-II.

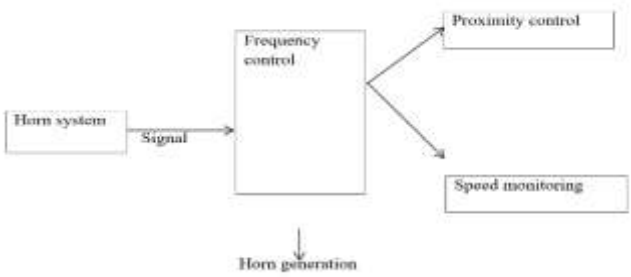
[1.2] Driverless metro trains consists of automatic vehicle horn control system which has components like a control unit, the horn is connected to control unit ,which receives command from the control unit. The horn operating system configured to acquire information about current or concerned location and the driving direction of the vehicle. It is used only in driverless metro trains and the frequency of the horn is constant.

[1.3] The Android application called BLE-Horn, using Bluetooth Low Energy to realize bidirectional many-to-many communications. The BLE has advantages like battery consumption is low, latency is low, low cost and it is also widely supported by smartphones. They use a collision warning algorithm to detect potential collision of the system. It has some disadvantages like it cannot be used for long distance wireless communications unlike cellular and Wi-Fi devices. It supports with in 200 meters of Line of sight.

[1.4]Travolution-An Embedded System In Passenger Car For Road Safety. Motivation behind this project is to make a positive impact on road safety and road discipline by attempting to make an embedded system. This tackles almost all the concerned problems of road accidents like breaking traffic signals, drink and drive and much more. In this proposed system several features are added like Vehicle speed control in variable zone where the vehicle speed is controlled in different areas, Horn control of the vehicle in no honking areas which controls the noise in prohibited zones, Red light traffic control where vehicle is automatically stopped when the light is red, Automatic collision notification which notifies the nearest relative of the victim, the vehicle security which notifies the owner and the police if the vehicle is stolen and Alcohol control where the ignition stops working if alcohol is detected. So with this, an embedded system of less cost has been developed which has reduced accidents and also has increased safety.

3. PROPOSED SYSTEM

3.1 DIAGRAM



3.2 MODULES

1. Horn System: To the horn system GPS is connected. Horn system has two modes:- Auto and Manual. In auto mode if the GPS location is near school, colleges and hospitals then horn should be disabled. If not, horn will be enabled but the frequency of which will be controlled by the frequency control. When the GPS is not near any of these locations then, it is in manual mode. We can honk but, its frequency will be less.**2. Proximity Control**: Proximity control finds the minimum distance between the vehicles. When the vehicle is at a close proximity It gives signal to the frequency controller.

3. Speed monitoring: The speed monitoring is done by the speedometer of the vehicle marked with the speeds from 0kmph to 60kmph etc based on the speed of vehicle horn frequency varies. If the speed is 0 then the intensity of horn will be zero.

4. Frequency Control: Frequency control is the center unit which controls the frequency of horn based on sensor inputs, speedometer input and GPS inputs. In our proposed system we have fixed frequency to 90-100 decibels.

3.3 SYSTEM OPERATIONS

When the system is in auto mode then it should identify locations like school, colleges and hospitals and it sends these input to frequency control ,frequency control disables the honking near these locations. If the vehicle is not near any of these locations then the horn will be controlled manually and the frequency of which depends on the input given by the proximity control and the speed monitoring system. If the speed is 0 then the honking frequency should be zero.

4. COMPARISION

4.1 Table

Existing System	Proposed System
In the existing system, a lot of noise pollution is created.	The proposed system reduces noise pollution caused by honking.
Horn is not disabled based on the location.	The horn is disabled in no honking zones such as schools, hospitals, etc.
The frequency of horn is constant and cannot be varied.	The frequency of horn is varied based on the distance between the vehicles. The frequency is low when the vehicle is closer and vice versa.
Unwanted honking in the traffic signals causes noise pollution.	Horn is disabled in traffic signals (speed is zero).

The above table compares the existing system and the proposed system. We can clearly see that the proposed system overcomes the drawbacks of the existing system.

5. CONCLUSION

Our proposed system decides the frequency in which the driver can honk and if the vehicle is near, the honking intensity decreases. The horn won't work if the vehicles are in signals. The GPS system tracks the location and controls the horn. It doesn't work in no honking zones. Therefore our system ensures that noise pollution is reduced.

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