PREVENTION DEVICE FOR BLIND SPOT ACCIDENT DETECTION AND PROTECTION

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Abstract - *A blind spot accident detection device for protection against misshapenness such as automobiles collisions, obstacles, and accident that leads to great loss of human lives and can have disastrous results. Technology used for this purpose worked by detecting the other automobiles, obstacles and bystanders. By detecting, the device triggers a timer that delays the activation of alarm circuitry for a brief period of time. This time delay is used to minimize the triggers of nuisance alarm by a momentary intrusion in the hazard zone. If the obstacle's is still detected after the time delay, LED`s and audible alarms are triggered to alert the system operator of the dangerous situation. The alarms remain activated for a particular time period, allowing the operator to clear the dangerous zone.*

Key Words: **Automobiles, Circuit, Hazards, Mirror, Sensor System**, **etc**

1. INTRODUCTION

Blind Spot Accident Prevention System (BSAPS) is expected to increase road safety and to detect the road capacity for on road automobiles. Several of these systems will enter in the market, some sooner, some later. Furthermore, the current implementation of BSAPS is based on sensors. This is also lack of information for users, willingness to accept and pay for the new technology. The area most commonly referred to as blind spots are the rear quarter blind spots, areas towards the rear of the vehicle on both sides. Vehicles in the adjacent lanes of the road may fall into these blind spots area, and a driver are not able to see them using only the car's mirrors. Other areas that are sometimes called blind spots area are those that are too low to see behind and in front of a vehicle. in cases where side vision is hindered, left or right area can become blind spots.

The overall objective of BSAPS is to develop a comprehensive framework, to analyse and detect the obstacles (entity) with high positive expected impact. In the first stage of blind spot accident prevention system, radio waves were transmitted and received at receiver-end of the sensors when an entity is detected. In the second stage, the radio waves that were received at receiver's end activate the circuit. The output from the device can be presented in the form of glowing LED`s and audible alarms.

1.1 Example of How the Accident Caused by Blind Spot

Fig. 1.1 shows an example of how the accident happened due to the blind spot area. Blind spot can occur in front of the driver when the A-pillar, side-view mirror, and interior rear-view mirror block a driver's view of the road. Behind the driver, there are additional pillars, headrests, passengers, and cargo, this may reduce driver visibility. Blind spots are affected directed by vehicle speed, since they increase substantially the faster one goes. Besides that, blind spot increases with vehicle size. Nowadays, there are many vehicles have gotten longer, bigger and higher on the road. As the result, this will cause the probability of blind spots for these vehicles have also gotten bigger.

Therefore, this Mitigating Blind Spot Ultrasonic Sensor system was specifically designed to overcome the number of accidents involve because of the blind spot problem. Objective of this system is to make driver know when a blind spot occurs around the vehicle area. This system will use ultrasonic as the method to detect the vehicle at blind spot area. Blind spot area to the side and slightly behind driver fields of vision that is not reflected in the vehicle rear mirror and requires the driver to turn their head quickly to monitor the area before making any action such as changing the lane. A problem will be occurring when a vehicle approaching another vehicle blind spot and the driver unable to see the vehicle decide to change the lane. location of cars on road and the driver's view in side mirror and rear mirror was shown.

At the right side, the blue car is in the green car blind spot area and drivers are able to see a little part of the blue car and assume the location of the green car is far behind from his car. Then, when treasures decide to change the path accident may occur in addition, many road accidents are occurring in blind spot region especially in highway due to overtaking, being overtake or changing the lane action. Many times, some drivers are too focusing to judge their blind spot region and loss focus to the road in front of them. These actions may lead them into accidents that contribute into harm ness loss and even death. The effect of the accident will bring reversal to any involving party. Awareness from the problem, many gadgets had been developed to monitor the region such as blind spot mirror but it less effective as accident still occurs because the device accuracy is depending on the driver. Thus, a device that can

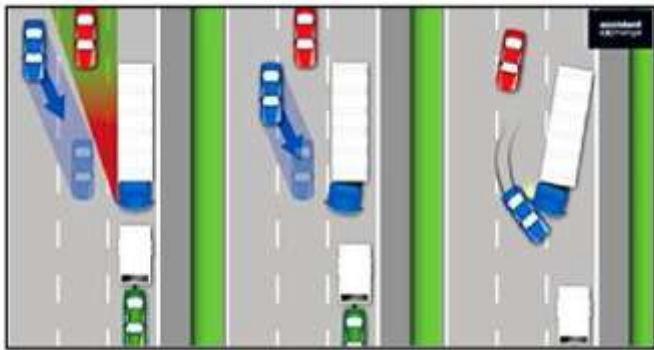detect vehicles presence in blind spot area the driver had been invented to ensure the road user safety.

Fig-1.1: Accident Caused by Blind Spot

1.2 System Description

This system is a nearest detection device which uses radio frequency waves. It includes five parts - Front sensor, left side sensor, Right side sensor, LED meter and Audible alarm.

1.2.1 Front Sensor

The front sensor basically helpful for detecting seasonal black spots (In case of fog, failure of front lights). This sensor by sending radio waves will detect presence of any entity and warns about the upcoming dangers in cases of temporary blind spots.

1.2.2 Left and Right-Side Sensor

Basically, airstrip avoid at back of vehicle from clockwise covering whole back area which depends on type of vehicle and basically at the extreme left of that strip we employ a left side sensor and, on the thesaurus, right side of that we employ a right-side sensor

The fig.1. 2.2 represents left side sensor detection of blind spot as it is noted that LED`s of left-hand side are glowing indicating presence of obstacle or an entity
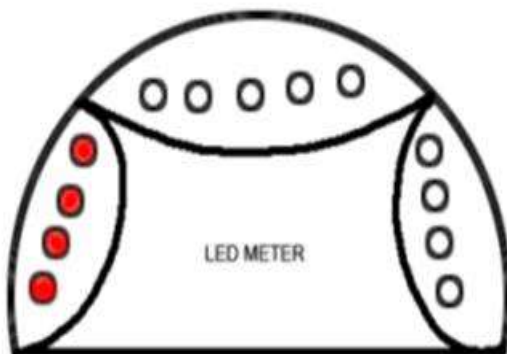
Fig-1.2.2: Left Side Sensor LED Meter

The fig.1.2.3 represents right side sensor detection of blind spot as it is noted that LED`s of right-hand side are glowing indicating presence of obstacle or an entity.
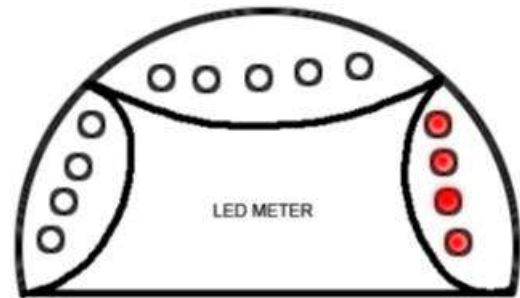

Fig-1.2.3: Right Side Sensor LED Meter

The fig.1.2.4 represents front sensor detection of temporary blind spot as it is noted that LED`s of top (front) side are glowing indicating presence of obstacle or an entity.
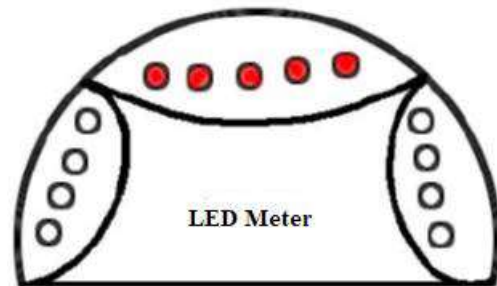

Fig-1.2.4: Front Side Sensor LED Meter

2. Field of Invention

The present invention relates a blind spot accident detection and more particularly to a proximity detection device for detecting the presence of a person within a radio frequency zone of a radio frequency transmitter. Upon detection, the device set on the audible alarms and illuminates the LEDs defining the presence of a device in radio frequency zone. After the clearance of devices from radio frequency zone, alarm and LED`s are triggered off.

Referring to fig.2 the system circuit block diagram is now described. The device uses detection circuitry, employing one or more sensor means, to detect a presence in the RFR zone. The detection circuit may use, as sensor means, ultrasonic, passive, infrared (IR), active IR, or other sensors, either individually or in combination. The sensor elements of the preferably embodiment have an angular response pattern that nearly matches the antenna beam pattern and the detection circuit's sensitivity is set to detect motion at a distance at which the RFR, which is expressed as a power density quantity, doesn't exceed the maximum permissible exposure limits. This safer distance is determined by direct measurement of the power density or by calculation using the theoretical effective isotropic radiated power of the communication system. This will define a predetermined area that the sensors of the present

invention will monitor for the presence of a person or object. The sensors used in the example illustrated in fig.2 are an ultrasonic transducer pair, transmitter and receiver. An ultrasonic detection circuit or other detection means connected to the sensor means controls sensor signal transmission and monitors sensor output signals at the receiver. The ultrasonic detection circuit as an intrusion, causing the output of the detection circuit to go active that is to be asserted, will interpret aberrations in the received sensor signal.
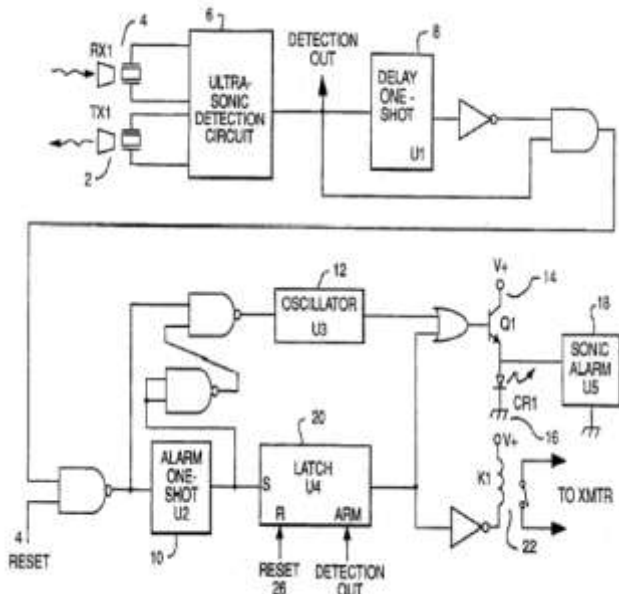

Fig-2: Circuit Diagram of accident prevention system

3. Blind Spot Accident Prevention system

The overall process block diagram conducting in this project is shown in Figure 3 This block diagram explains the steps taken in this project. For the overall, this project work when the ultrasonic sensor detects the difference signal(voltage) which emitted a signal that is acceptable. The data received are in analogue signal and the voltage range is from 0V received up to 5V. The data obtained will then be filtered using the concept of stochastic coding and adaptive filtering.

This data is filtered because usually, the data obtained with ultrasonic interference with other ultrasonic signals. After the data was filtered, the analogue data will be converted to digital form. Analogue to Digital Converter process will be used in this process. The overall process block diagram conducting in this project is shown in Figure 3.2 above. This block diagram explains the steps taken in this project. For the overall, this project work when the ultrasonic sensor detects the difference signal(voltage) which emitted a signal that is acceptable. The data received are in analogue signal and the voltage range is from 0V received up to 5V.
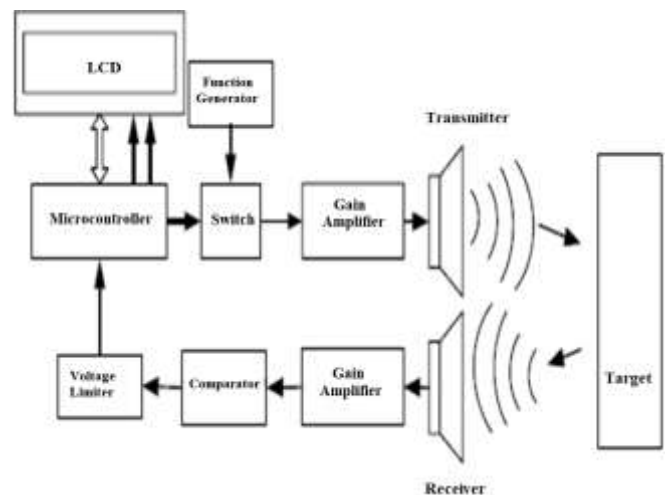

Fig- 3: Block Diagram of Accident Prevention system

3. CONCLUSION

The overall objective of blind spot accident prevention system is to develop a comprehensive framework, to analyze and detect the obstacles (entity) with high positive expected impact. In the first stage of blind spot accident prevention system, radio waves were transmitted and received at receiver-end of the sensors when an entity is detected. In the second stage, the radio waves that were received at receiver's end activate the circuit. The output of the the circuit can be presented in the form of glowing LED`s and audible alarms. This blind spot accident prevention system by usage of sensors detect the blind spots in the sensors range and indicates the presence of entities (automobiles) and as the detection is made with LED`s and audible alarm are triggered. After the passage of an entity from the area, the LED`s and audible alarms are trigged off indicating the driver for comfort passage to right or left accordingly. Thus, this system will help a great deal in increasing road safety, reduces accidents and misshapenness.

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