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AUTOMATIC BRAKING SYSTEM USING MAGNETIC REPULSIVE TECHNOLOGY

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Abstract:

This invention is a process technology based on permanent magnet repulsion field principles. This process can be used for safety of most types of transportation traffics as well as mobile objects in warehouse operations. Main components of this process invention are permanent magnets which generate a repulsive force field through their like poles. The repulsive field effect of interaction between the like poles of permanent magnets works as a non-contact protection cushion to prevent direct collisions or mitigate the colliding impact in traffic collision accidents.

Keywords: Invention, Field effect, Cushion, Mitigate.

1. INTRODUCTION

Driving is a compulsory activity for most people. People use their vehicle to move from one place to other place. The number of vehicle is increasing day by day. Proportionally the numbers of accidents are also increasing. Nowadays, the numbers of accident is so high and uncertainly. Accident will occur every time and everywhere and cause worst damage, serious injury and dead. These accidents are mostly caused by the delay of the driver to hit the brake. The increasing demand for flexibility as well as technological Even though there are several advanced technological innovations are available today for vehicle safety, the growth in the number of accidents is continues regularly. Most of these accidents are especially due to collision or intersectional accidents.

One of the most important causes behind the intersectional accident is bad weather conditions. Recently it has been reported that nearly 36% of the accidents in the India are occurred due to bad weather conditions. Here bad weather condition means a high rain or high snow falling or bad dark light etc. in those specific conditions the drivers feel very hard to drive to recognize the vehicles and speed of the vehicles which passing around them and may cause to severe accidents. The main target is, vehicles can automatically brake due to obstacles when the sensor senses the obstacles. The breaking circuit function is to brake the car automatically when the sensors detect any. Automatic Breaking is a technology for automobiles to sense an imminent collision with another vehicle, person or obstacle or a danger such as a high speed approach to a stop sign and to respond with the breaking system by either recharging the brakes or by applying the brakes to slow the vehicle without driver input. Efforts have been reported for sensing vehicle surroundings with different visible, non visible (infrared) light and timeof-flight sensors. Although ultrasonic sensors are well accepted technology for distance sensing applications.

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2. SYSTEM MODELLING

The new permanent magnets produced by modern new material technology such as nanotechnology enable a broad application of this process invention. The development of the Nanotechnology opens tremendous prospect for production and application of new materials with unique properties including magnets that this new process invention would greatly benefit. An alternate preferred method is to use short distance radio communication so that a vehicle can receive position information from all nearby vehicles.

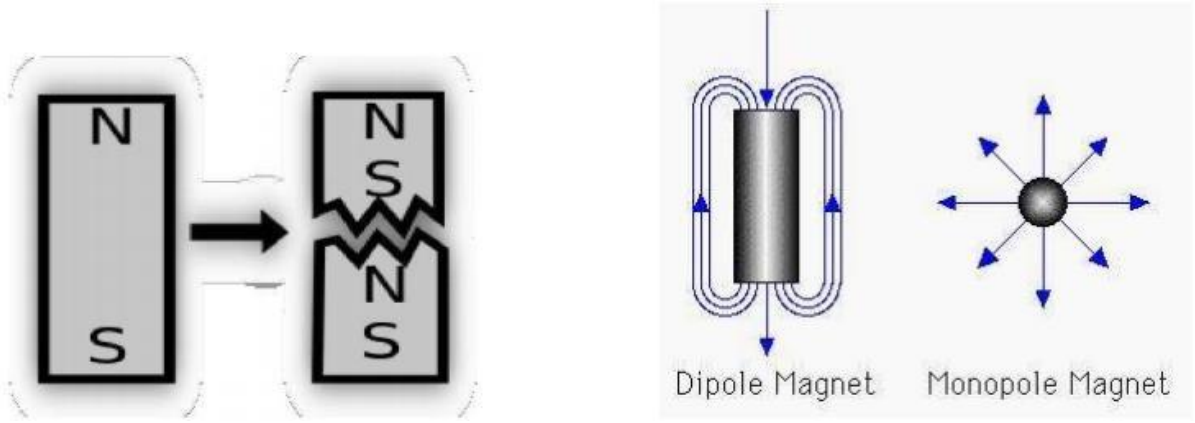

Fig.1. System Modelling

An improvement in this system would use a rotating aperture that would only allow communication from a limited angle at a time further reducing the chance for multiple messages to interfere with each other. Each vehicle transmits at all angles but receives at only one angle at a time. If a line of sight system were used, an infrared or MIR system would be good choices. In the infrared case, and if an infrared system were also used to interrogate the environment for non-equipped vehicles, pedestrians, animals etc., as will be discussed below, both systems could use some of the same hardware. LIDAR is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light. It is low cost, compact and light weight. Depending upon the strength of the magnets, repulsion occurs. This repulsion occurs within a particular distance. ground which is accelerating at a speed of 100Km/hr which is about to collide with another moving object. During the point of collision, the distance sensor which had already been installed in the vehicle gives an input to the alarm, which gives an alert to the person who is controlling the vehicle. This will then automatically activate the automatic brake system. In the automatic brake system the vehicle will come to a complete stop gradually when applying brakes automatically to a maximum extent of deceleration of 0.4g, when it is about to collide.

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3. ANALYSIS

Fig.2. Vehicle Detection

The intention of this method is to avoid from accidents from taking place. The stereo multi-purpose camera (SMPC), i.e. is a camera for short and "5D Vision" technology, the range of visual for the vehicle is greatly increased. This camera which provides spatial intelligence of up to 50 meters in front of the vehicle and there is an environment recognition of 500 meters. Vehicles driving ahead and pedestrians also have a variety of traffic signals and on-road markings that are detected and have been assigned a spatial grouping. The data from short-range ultrasonic sensors that are positioned all around the vehicle as well as from long-range ultrasonic sensors with an approximate-range detection capability provides data on the distance from detected objects. This so-called "sensor blending" enables the interactive cooperation of the vehicle's active and passive protective and safety technology. The detection of moving object is very important and very essential for intelligent vehicles. It produces a framework to detect objects that are in motion on road using astereo camera. Here this kind of approach also enables an assist to further develop the system to be able to detect slowly moving object in a very disturbed environment. The magnitude of the reference signal or the amplification factor of the amplifier is controlled to maintain a constant ratio between the average of references signal and the average of the amplified signal. This allows the ultrasonic sensor to examine the existence of vehicles. Once this is complete the sensors give an alarm as to an obstacle detected. The processed signal will be send to the breaking circuit. The breaking circuit here is also known as the Emergency Breaking System. The Emergency System is known as an independent road safety system designed for vehicles. This is able to detect incidents where the speed relative to this and the distance between the target and the host suggests here that a collision is impending. At the breaking circuit, brake pressures are applied here automatically. This provides the maximum brake boost instantly as soon as the driver engages the brakes. After this if the driver's steering actions or the brake that he applies is not sufficient to avoid a collision then the Emergency Breaking System with the maximum pressure given by the brakes will be to support mitigation of the impact. This system is recognized as Emergency Breaking

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System and it ensures full reduction in speed. The emergencies breaking system plays a major role in this and it is the highest escalation step for a very safety system to immediately respond to a critical incident.

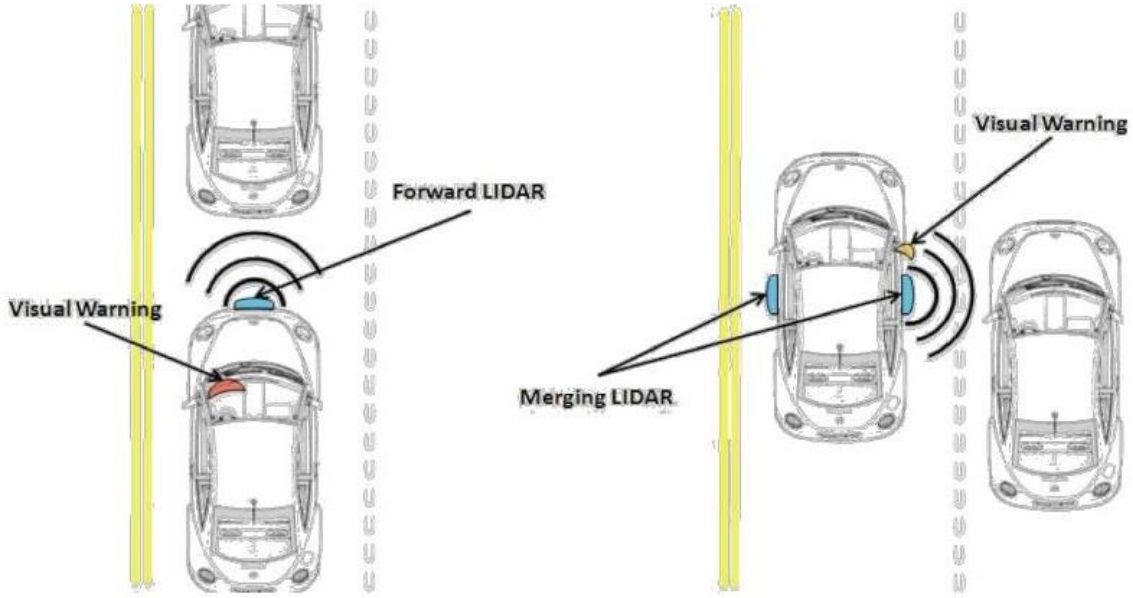

Fig.3. Design

Programming or burning a microcontroller means to transfer the program from the compiler to the memory of the microcontroller. A compiler is software which provides an environment to write, test and debug a program for the microcontroller. The program for a microcontroller is generally written in C or assembly language. Finally the compiler generates the hex file which contains the machine language instruction understandable by a microcontroller. It is the content of this hex file which is transferred to the memory of the microcontroller. Once a program is transferred or written in the memory of the microcontroller, it then works in accordance with the program. A programmer A is a hardware device with dedicated software which reads the content of hex file stored on the PC or the laptop and transferred it to the microcontroller to be burned. It reads the data of the hex file by connecting itself to the PC via a serial or USB cable and transfers the data to the memory of the microcontroller to be programmed in accordance with the protocols as described by the manufacturer in the datasheet.

CONCLUSION

The vision of this design and develop a control system based an intelligent electronically controlled automotive breaking system which is called as “Automatic Breaking System”. It is used for big networks where the large number of vehicles used like for bus station’s by using camera. By using camera we can get the online information. We can surely get the information about the vehicle condition. It is helpful to public sector and users. It is also avoids the traffic jams and protect to vehicle from accident.

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