
Enrichment in Safety System by Utilization of Safety seat belt in Automobile Vehicle System

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ABSTRACT

We all are using and entertain with driving vehicles. Vehicles are manufactured under the strict government rules and relations by various manufactures. Manufacturer always provided safety features but some time we, users ignore the safety importance and not follow the purpose of safety system intentionally or by mistake. There are certain safety and security concern about which you must aware while driving an automobile vehicle out of them one of them is safety belt. Here in this paper attempt is towards utilization of safety belt system to enrich safety of vehicals user.

Keywords: *Human error, Safety belt, Vehicle design, Sensor, Limit switch, Push switch.*

INTRODUCTION

Vehicle safety is concern with the safety system for all riders and presently helpful to minimize crashing of vehicles which finally reduce human injuries in the case of vehicle accident. Substantial and evidence-based improvements have been made in the last 15 years and Research has identified large scope for enriching vehicle safety [1]. The European Commission has recommended that if all car manufacturer are designed their vehicles and provide the safety equipments as normally find in high class vehicles, majorities of accidents can be avoided [2].

We actually find numbers of human injuries during the accident of automobile vehicle but they can minimize by utilization of proper safety aids provided by manufacturers. Users are many time ignore the safety system and due to that after the accidents they have to pay a lot.

SEAT BELT SAFETY SYSTEM

All the manufactures are provided seat belt system for the safety of rider. We know that most of riders are not wearing a seat belt during driving intentionally or due to human error. A seat belt safety system designed for present class vehicles are elements of a common electrical circuit operative to control the drive system and due to that in advance model of automobile vehicles visual as well as audio signal is provided if seat belt is not used [3]. But still this system is not related to vehicle engine operation. Even when occupied seat is not engaged in the seatbelt holder means user is not using provided safety belt system then also vehicle can operate.

Here we developed the system for wearing a seat in such a way that if rider doesn't wish to wear a safety seat belt vehicle will not start ignition. This system forced to rider to wear a safety belt. One more thing enrich this system is regarding radio or tape operating system. If rider doesn't wish to wear a seat belt he or she will not entertain with radio or tape.

WORKING DESIGN AND INSTALLATION OF SAFETY SYSTEM

Micro limit switch is fitted in the seat belt connector (seat belt holder) at calculated seat belt angle as shown in figure:1. The limit switch is connected with Arduino circuit with cables as shown in figure:3.

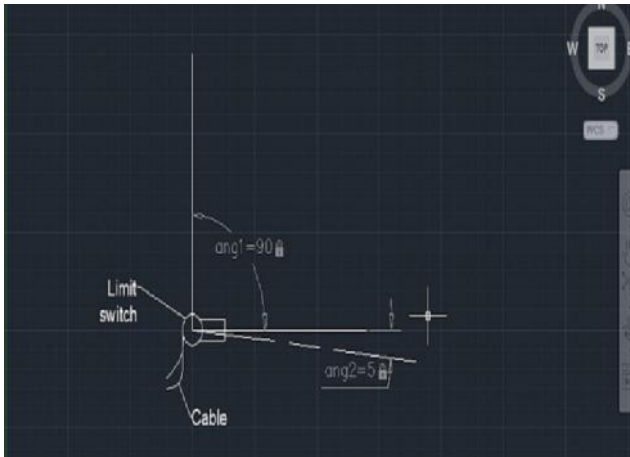


Fig.1 Seat belt angle

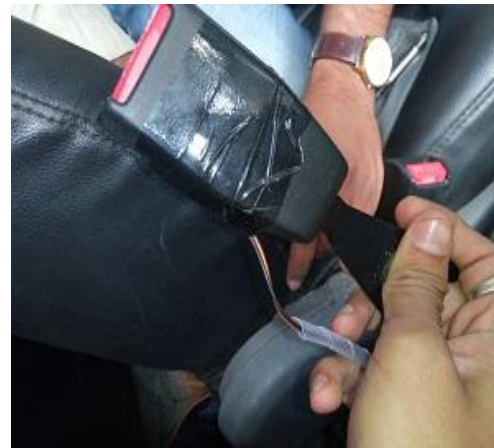


Fig.2 Fitted limit switch in seat holder

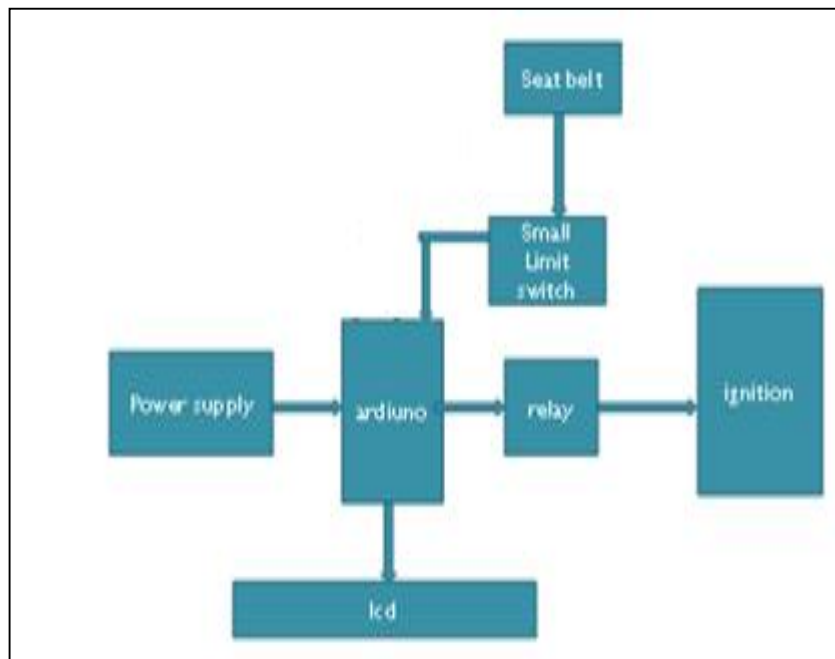


Fig.3 Circuit diagram



Fig.4 LCD



Fig.5 Controller

Power supply to the engine and tape is provided through relay controller, so engine or tape will not start until seat belt is in engage condition. Small LCD screen is also fitted on controller for identification of problem why engine or tape is not started? This will be helpful for new operator of vehicle who is not aware about modified safety system. If seat belt is not engaged the message 'safety belt open' will display on that screen.

CONCLUSION

The modified developed safety seat belt system is very much helpful for minimise human injuries during accident and reduce human errors. This developed safety seat belt system is affordable and can easily fitted in any automobile vehicle.

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