

WEARING OF SEATBELT IS MANDATORY FOR IGNITION OF ENGINE

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Abstract - An Major causes of death in road accidents are carelessness in safety while driving. In 2012, more than half of all people who died on Utah's roadways weren't buckled. Hence wearing seat belts might have reduced serious crash related injuries and saved life. Hence "Driver Assistive Safety System" (DASS) comprises of techniques which inculcate the mandatory safety precautions via alarm, visual indicator, ignition and speed control. This paper describes safety system which ensures that the driver and co-passenger wear safety seat belt while driving a car. The driver assistive safety system works on "ignition interlocking" and "speed control" concept.

Key Words: Driver assistive system, Ignition interlocking, Mandatory seat belt. System to avoid major injuries sing seat belt.

1. INTRODUCTION

Early attempts to use technology to increase seat belt usage were not met with positive public acceptance. For example, in the early 1970s seatbelt ignition interlocks that prevented drivers from starting their vehicles without first buckling their seatbelts met with considerable resistance and were subsequently eliminated by an act of Congress (Kratzke, 1995). Subsequent efforts have focused primarily on public education, police enforcement, and enhanced seat belt reminder systems. Here is the table view of protection by seatbelt.

1.1 EXPERIMENTAL SETUP

There are different components are used in this seatbelt mechanism:

- Load cells
- Retractor
- Adjuster
- Tongue connector
- Buckle connector
- Anchorage fittings
- Electrical connections and Belt.

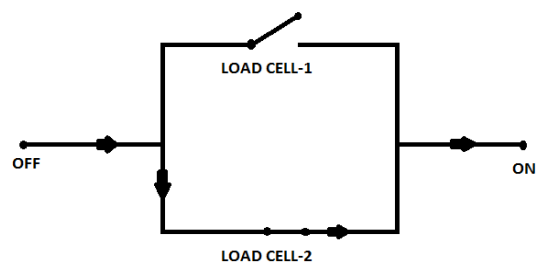
1.2 WORKING OF MECHANISM

- Load cell is a type of device which performs the function of converting force into an electric output which can be measured.
- In normal seat belt system there is no connection between ignition and seat belt. But, here we would like to discuss about some components and it's

working by which we can connect this sensors to the ignition switches.

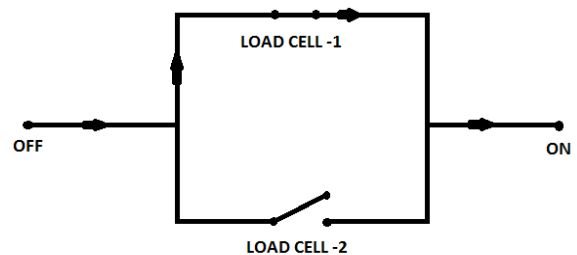
- There are mainly two load cells are fitted in the circuit, which helps to turn on the power in various condition. Which is shown below.
- Where,
- Load cell- 1:- Detects Seat belt is wore or not.
- Load cell- 2:- Detects driver is on the seat or not.

Condition-1



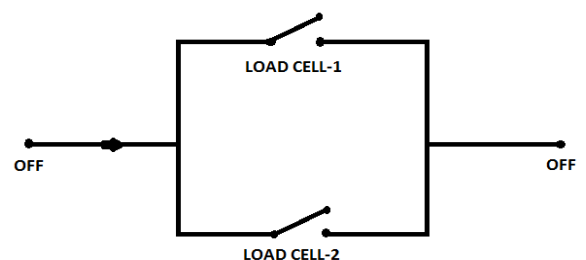
In this condition if driver is not on the seat then it is in the engaged position, so power is transfer from "off" to "on".

Condition-2



In this condition the driver is on the seat at that time the load sensor-2 is activate and disengage the path. So that there is only one path is left to turn on the engine.

Condition-3



In this condition driver is on the seat but he did not use seat belt so both the connection are disengaged so the power can't supply to the other side to turn on the engine.

2. ASPECTS AND FUTURE APPLICATIONS

Nowadays, the use of vehicles increase, and with a huge increment vehicles usage the rate road accidents also increases which leads to deaths and major injuries. To avoid this problems there are many components use for safety purpose and SEAT-BELT is one of them.

Table -1: PROTECTION BY SEATBELTS

Vehicle	Occupant	Protection Device	Effectiveness in Preventing Fatalities
Car	Driver	Lap/Shoulder Belt	42 +/- 4%
Car	Right Front Passenger	Lap/Shoulder Belt	39 +/- 4%
Car	Left Rear Passenger	Lap Belt	19 +/- 10%
Car	Right Rear Passenger	Lap Belt	17 +/- 9%

- Some people don't wear seat belt while driving for different reasons, but this system forces them to wear it because they cannot start the engine without wearing it.
- Sometimes occupant wear it to start the engine and then open it after ignition, but there is Load cell in the path of the ignition.

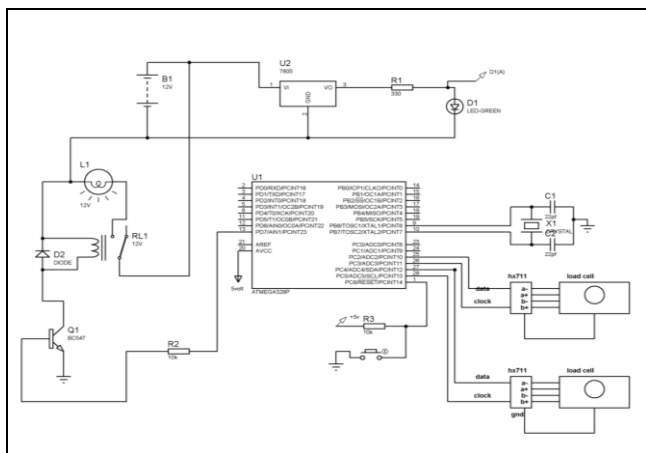


Fig -1: Circuit Diagram

- There is another Load cell in the path of the ignition system. Sometimes, when vehicle is under maintenance, the worker needs to start the engine for observation. At this time they can't sit on the chair, so the other Load cell connect the ignition path and allow the engine to start if there is no weight on the chair. The weight can be set above 40 KG.

- So, these load sensors force occupants to wear seat-belts, which helps to protect the passengers from severe injuries while clashing of vehicle.
- As people start wearing seatbelt then in future it helps to decrease the rate of deaths done by car accidents.

3. CONCLUSIONS

- By viewing and studying all the things we have concluded that for safety of the people seat belt is mandatory but some circumstances make it optional. Seat belts are by far the most important safety feature of your car. No matter what speed you are going, or how far you will be travelling it is extremely important to always have your seat belt on. If you are wearing a seat belt at the time of a crash, your risk of being killed is reduced. Seat belts protect the driver against injury in a collision. They lessen the chance that you or your passengers will be thrown against the dashboard, through the windshield, or out a door that has sprung open in a crash. In addition, seat belts help keep you behind the wheel and in control of the car if you have to swerve, brake abruptly, or are struck by another vehicle.

So, for removing this optional feature, our study about this project makes it compulsory for all the drivers and passengers. It will help to protect the riders of the vehicle from severe injuries and sometimes death therefore this system should be imposed in the vehicles to make transportation more safer. By all the point of view we can say that this is the best way to make "Wearing of Seat Belt " compulsory.

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