

Automatic Ignition Off For Bike When Brake Failure Using Limit Switch

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Abstract: *We cannot predict the Actual tendency of an accident at what time that is occurs so it is always preferred to be cautious while designing a system that is related to utility of general public . brakes failure is one of the most commonly seen automobile failure where a person or a family tend to loose not just a man or a person but also their livelihood .The accident rate in India has been increasing day by day and human errors tend to occur as the nature of doing a thing by a human includes errors .mostly todays technologies has emerged to be completely automated but still when it comes to vehicles the brakes tend to be applied normally by a human. Particularly in relation to human life and health Some special safety systems have been designed into cars for the security of the passengers only, while others have been built for the safety of others. This is a brake disaster warning route that continuously tracks the dynamic state of the brake. If the brake fails, the switch activates, and the ignition turns off automatically.*

1. INTRODUCTION

A brake is a mechanical expedient that slows or stops a moving object or prevents it from moving by hindering, restraining, or preventing motion. Contempt the fact that other devices of energy alteration can be used, among two surfaces pressed of. Regenerative braking, for example, transforms a significant portion of the energy into electric energy as well as heat energy, which can be retained or returned the form of under pressure oil or pressurized air, which is then converted into heat energy in the brake disc, fin, or rail. Other braking methods, such as transferring kinetic energy to a spinning flywheel, can convert kinetic energy into different types.

1.1 TYPES OF BRAKES

Foot Brake:

Footbrakes are generally used in any automobile to reduce the speed of the vehicle in tend that stops or tend to stop the momentum that is generated by the engine . For the commercial utility vehicles the brakes to be actuated manually with the help f a foot or either with the hand this is mechanically driven where the calipers are connected with the master cylinders that actually activate these brakes .For most of the commercial utility vehicles and seen in the formula race cars this pattern tends to be so similar for all the vehicles that are even having the automated transmission control.



Fig:1 Foot Brakes

Mechanical Brakes:

These brake will let to stop the vehicle by using mechanical energy energy. There are many sources of applying mechanical energy.

1.2 AIR BRAKE :

Air brakes are used based on the principle where the pressurized air is used for the application of the brakes the pressure that is required to drive the master cylinder is usually about 2000 pascals where in just the pedal when depressed cannot apply this so the pressure that is created using the vacuum is used to double or increase the pressure such that the master cylinders are actuated in order to deploy the brakes.

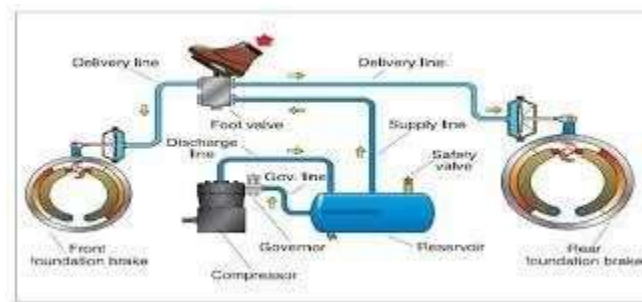


Fig. 2 Air Brake

1.3 Electric brake:

This provides the almost safety and security to the passengers they are travelling in the vehicle so when ever there is a harsh braking or the unwanted steep turns where the car doesn't have the control over the situation that tough times this EBD helps the drive to have full on control over the vehicle.

It s the complementary adoption that has brought up the value addition the customer value this system has brought the nearly relieved service of changing the batter frequently that makes customers relay on the adoption.



Fig. 3 Disc Brake

The brake disc (or rotor) is that the rotating a part of a wheel's hydraulic brake pedal assembly, contrary to that the restraint area unit applied. the fabric is usually grey iron, a kind of forged iron. the arrangement of the discs varies rather. Some area unit merely solid, however others area unit hollow out with fins or vanes change of truthfulness along the disc's 2 contact surfaces



Fig. 3 Disc Brake

When the brake pressure is applied at the foot lever by the motive force, the brake fluid goes through the hydraulic pipes of the brake towards the wheel cylinder settled at the brake shoes, that is then expands the brake shoes towards the outer facet of the brake shoes and comes in-tuned with the inner facet of the cylinder and because of this contact of brake shoes and drum, friction is formed between them i.e. the rotating half and also the non-rotating a part of the wheel that slowdowns the vehicle and stops it when a while.

1.4 Brake-by-wire:

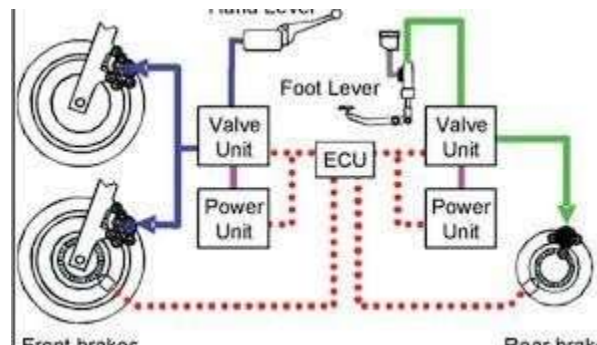


Fig. 4 Brake by wire

A scheme contained of electric wires that, once foot lever is pressed or lacking, events ohmic resistance and directs the signs to the car's pc, that here computes the practical force and smears it to the hydraulic ram scheme.

1.5 Advanced Emergency Braking System (AEBS):

Associate self-directed security scheme that uses the devices to watch a vehicle's immediacy to others within the space close to or encompassing and mechanically applies alternative slowing apparatuses to avoid crash on the rim of happen.

2.LITERATURE REVIEW

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3.EXPERIMETAL WORK

INTRODUCTION OF CREO :

CREO is one in all the foremost fashionable and powerful coming up with tool employed in the industry. With all the recognition of CREO the mandate of CREO documentation has additionally accrued within the industry. The area unit varied versions of CREO. The foremost updates version of CREO is CREO four and CREO documentations with this version is wanted within the market. Even with this accrued demand, several style engineers still don't have complete considerate concerning this tool. thence this journal are centered on delivering the essential info concerning CREO. CREO is that the updated form of Pro-E computer code.

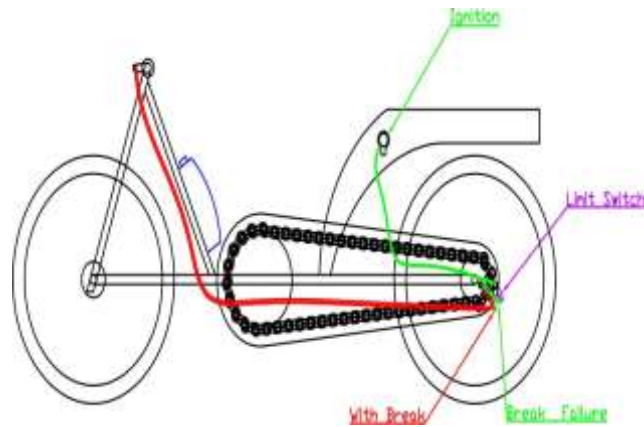
2D CAD Desgin :

Fig. 5 2D CAD design

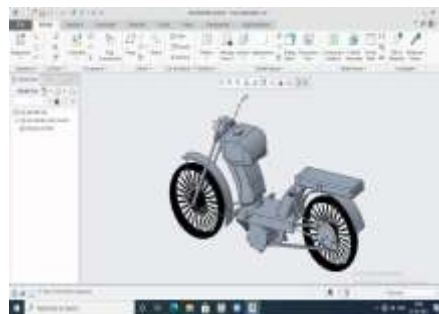
3D CAD Desgin:**Isometric Projection:**

Fig. 6 3D design

Engine Off:

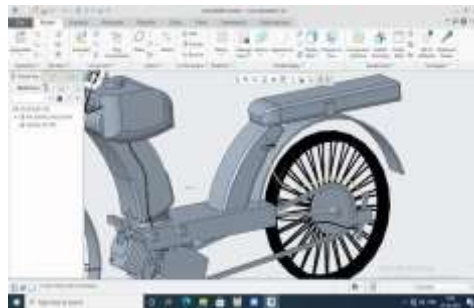


Fig. 7 Engine system

PICTURES AFTER FABRICATION :



Fig. 8 Pictures after fabrication



Fig. 9 Fabricated braking system

4.ADVANTAGES:

- No one would like of external battery. Circuits are often powered from the vehicle's battery itself.
- Power consumption is comparably less.
- It isn't rely on the gasoline level.
- Operating principle is extremely straightforward.
- Connection is abridged a great deal.
- The safety of driver is ensured.
- Brake failure is alerted to the encircling traffic via buzzer.
- The value is low.
- Avoiding accidents.

5. DISADVANTAGES:

- Additional electronic circuit are required.
- Space to be engaged by device ought to
- Be designed whereas implementation.
- Initial value are high.

6. APPLICATIONS :

- 4 wheeler tender
- 2 wheeler tender
- Mechanical Winch
- Mechanical

apparatus

Table 1 :Listing of the tools that we have used in the making of this project.

The total cost for those tools combined is :

S No.	Tools Name	PRICE
1	Limit Switch	350/-
2	Two way relay	250/-
3	Battery	600/-
4	Buzzer	250/-
5	Wiring	500/-

Table 2: Below table is our work schedule the total time taken to complete this project :

S.No	Work	Time Duration
1	Literature Survey	10 days
2	Problems Identification	5 days
3	Methodology	5 days
4	Design of Components	10 days
5	Testing and analysis of components	15 days
6	Review of Results	5 days
7	Report Preparation	10 days

7. RESULT AND DISCUSSION

- ❖ This project will not let the vehicle to crash to the opposite vehicle or object. It will turn the ignition off and let the vehicle stop in less time.
- ❖ During this system the elements used square measure 2-way relay, buzzer, battery, motor, wiring system. and at last, the braking system put in within the two-wheeler by mistreatment these elements the foremost effective system is to be engender.
- ❖ The most advantage of the system is that it's compact in size, and also the installation value is incredibly less. If this technique is put in in vehicle then accident thanks to breakdown gets reduced, because the results of these the speed of accident thanks to breakdown get reduces

8. CONCLUSION

- ❖ This project is done with the easy procedure that cut back the speediness of accident because of equipment failure or any mechanical failure of the components.
- ❖ . This implicates and displays the indicator of hazardous actions through a continues monitoring systems that it's the leading effective in indicating the current dynamic condition of the vehicle.

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