



# SECURE BRAKE AUXILIARY SYSTEM

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**Abstract:** With the nonstop advance of society, the persistent improvement of the times, people's living guidelines proceed to progress, individuals proceed to make strides the interest. With the fast advancement of vehicle fabricating, the car will be all over the tens of thousands of family units, the increment in car activity, a coordinate result of the frequency of activity mishaps. Brake framework is the ensure of the security of the car, its specialized condition is sweet or awful, specifically influence the operational security and transportation productivity, so the brake framework is completely dependable. The prerequisites of the car on the braking framework is to have a certain braking constrain to guarantee solid work in all cases, light and adaptable operation. Ordinary braking ought to be great execution, in expansion to a foot touchy, the crisis brake four rounds can not be as well long, not halfway, not ring.

**Keywords:** Secondary braking system, overtravel switch, Electric circuit, buzzer.

## 1. INTRODUCTION

The brakes in automobiles play a crucial function as a control system that can be utilized to slow down the speed of the vehicle or hold it stopped. recent advancements in the automotive industry. The development of numerous safety measures aims to increase braking effectiveness. such as electronic brake distribution, sensor-based brake detection, ant-locking braking systems, and many more. These systems are installed on the braking system's pressure lines. All systems remain inactive and the driver loses control of the car if the system loses pressure. Even if the globe is becoming more contemporary, we still have a lot of issues. One of these issues

is mishaps. Accidents during travel are something that everyone tries to avoid, however occasionally they are unavoidable. These days, accidents may be seen all around the world. Thousands of lives are lost as a result of it. There are more cars on the road than ever due to the growing population, which increases the likelihood that the brakes will fail. While other nations implement corrective measures to avert accidents, our nation, India, does not take as many steps in this regard. A frequent reason for collisions is braking failure. Brake failure may be the cause of an accident. My project's brake failure warning is crucial in preventing accidents in such circumstances. A circuit known as a brake failure indicator circuit continuously checks the brakes. Every time you apply the brake, the sensor that is connected to the circuit alerts you to the possibility of a brake failure by keeping an eye on the brake switch. This invention has to do with developing and designing braking systems.

## 2. PROBLEM STATEMENT

Nowadays mishaps happen due to part of reasons; one of the most reasons is the brake disappointment. In arrange to secure watch the profitable human life from mischances; the observing of brake is an basic thing in vehicle. Car is prepared by Mechanical Frameworks and control units Which tends to fall flat in case any breakdown is happened so to maintain a strategic distance from the misfortune of Human life as well as Vehicle the said extend is proposed.

## 3. OBJECTIVE:

The most objective of this extend is to maintain a strategic distance from and decrease the mishaps. Which are happening due to brake disappointment within the case of heavy-duty vehicles and little vehicles. There are a few few destinations which are:

- a) To spare life. To dodge little number of mischances caused by brake to degree the alter in water powered / Discuss weight.
- b) To show the disappointment of brake switch.
- c) It can control all the moving units within the vehicle.
- d) To recognize whether the brake is working or not.
- e) To associate the audio-visual pointer with a sensor.

- f) To degree the fluid braking weight. To show the disappointment of brake switch.
- g) It can control all the moving units within the vehicle.
- h) To distinguish whether the brake is working or not.
- i) To associate the audio-visual marker with a sensor.
- j) To degree the liquid braking weight.

#### 4. LITERATURE SURVEY

Street mischances are a common put in today's situation. Mischance anticipation has been one of the driving zones of investigate. In Indian situation ordinarily vehicles are prepared with ABS, footing control, brake help etc. for driver's security. This paper centers on a framework known as 'Intelligent braking system' which utilize a few sensors to reply when crisis conditions happen. The savvy braking framework is planned for avoiding parcels of mishaps. It works consequently not physically so chances of disappointment of this framework are less due to this the chances of mischances is additionally decreased. It may be a combination of gadgets and mechanical building. It is an electro-mechanical gadget which is planned to anticipate mishaps and misfortune of human lives. The depleted writing think about has been carried out on Different ways of Planning of Programmed braking framework or cleverly braking framework. On the other hand, we have found different fabricating strategies to create this extend. The discoveries of different researchers within the field of plan, creation and examination of said extend have been displayed underneath. The existing approaches in anticipating mishaps are: Honda's thought of ABS which makes a difference the rider get bother free braking encounter in sloppy and watery surfaces by applying a disseminated braking and anticipates slipping and wheel locking Volvo propelled XC60 SUV which was prepared with laser helped braking. Usually able to sense a collision up to 50 MPS and apply brakes naturally Disadvantages within the existing approaches: ABS can as it were offer assistance in case the rider applies it in right time physically and keeps up the separate calculations. ABS has its possess braking remove Volvo's laser helped braking may not work effectively in precipitation and snowfall season and laser is effortlessly influenced by air conditions. The fundamental work of a brake in a control transmission framework is to halt and/or hold the stack. There are numerous reasons to utilize brakes which are generally related to progressed efficiency or security. Brakes are habitually utilized to control deceleration, give exact situating, or increment cycle rates, in this manner progressing efficiency. Brakes can

also be utilized for tensioning. The so called “failsafe” sort brake like the taken a toll viable Stearns spring-set electrically discharged circle brake has an included feature Because the brake is set by closing off electric control, it'll consequently set when there's a control disappointment. There are numerous sorts of braking frameworks that can be utilized with a control transmission framework. The Venture work will incorporate the plan of the brake disappointment location framework. Working, development, its feature scope etc, Brake location is the framework is the security framework which can give emergency braking within the case of crisis.

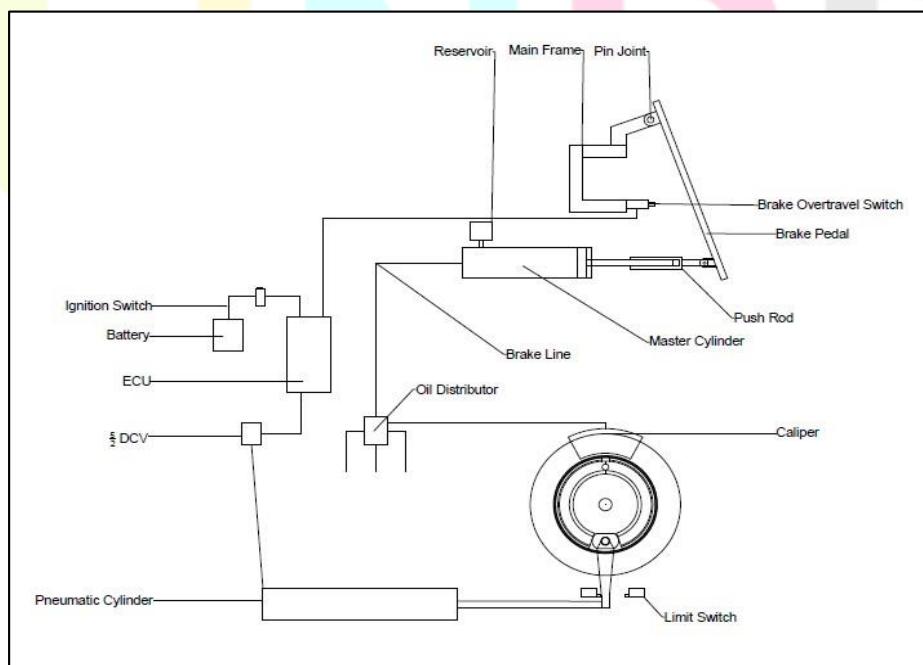
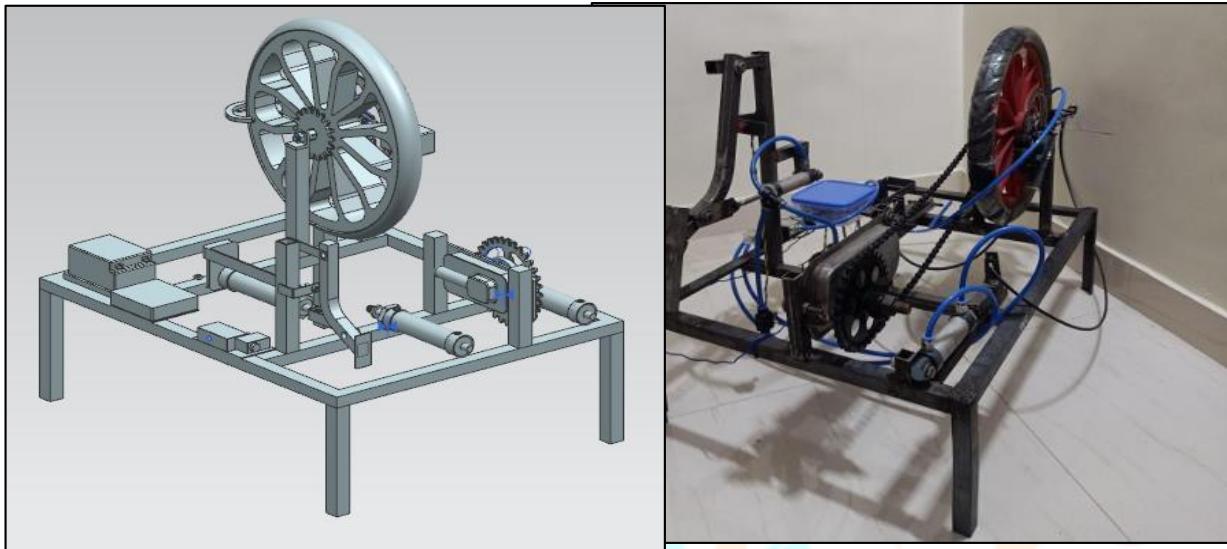
## 5. VALIDATION OF PROJECT

In order to detect the efficiency and its working of Brake failure indicator, several tests were conducted. Before releasing it as a new product into the market, every product undergo testing. so product testing is essential to verify the working of the product. The test should be decided in order to verify whether the product satisfied all the objectives. Therefore, with the help of this tests, we find out whether the “Brake Failure Indicator” is working properly or not. Brake failure indicator is a device which is used to avoid accidents. The brake failure indicator circuit is a circuit that constantly monitors of the condition of brakes and gives an audio-visual indication. When the brake is applied the green LED blinks and the piezo buzzer beeps for around one second if the brake system is intact. If brake fails the red. The circuit will work only in vehicles with negative grounding. It also gives an indication of brake switch failure. In hydraulic brake systems of vehicles; a brake switch is mounted on the brake cylinder to operate the rear brake lamps. The brake switch is fluid operated and doesn't function if the fluid pressure due to leakage. The fluid leakage cannot be detected easily unless there is a severe pressure drop in the brake pedal. This circuit sensor the chance of brake failure by monitoring the brake switches and reminds you of condition of brake every time the brake is applied. The circuit comprises of Pressure producing component, pressure cylinder & a mechanically operated limit switch & a LED set for the indication purpose. We have tested the System with the appropriate pressure & with various test conditions. Once we release or leak the pressure from the pressure cylinder it immediately actuates the limit switch & the connection to the motor gets shut off automatically so the propelling of vehicle will be stopped. & Similarly, on the other hand circuit will engage the LED & Buzzer connection for the user awareness. As drivers, we need both of these features as much as we need to breathe in and out. If driver ever been in a vehicle that did



not stop, driver know the sheer terror that brake failure can cause. Whether driver's vehicle is quipped with disc or drum brakes, driver expect them to work when driver hit the brake pedal.

## 6. PHOTOS



## 7. ADVANTAGES

1. Brake failure detection system plays an important role in the emergency Condition.
2. Brake failure detection system is fully automatic system which proves to be handy in accident conditions.
3. The brake failure detection system can be operated or handled by any one who lacks in knowledge.
4. More cabin space of passengers as this whole unit requires less space and it is fitted on chassis of the vehicle.
5. It can be used in heavy load carrying vehicles due to brake failure chances in hilly climbing regions.
6. This whole system does not require any working medium as it works on air which is directly collected in compressor from nature.
7. This system parts can be easily found in market as their various applications.
8. This system proves to be easy to handle as it has easy design.
9. The brake failure detection system is automatically activated when engine ignition is ON.
10. This brake failure system can be fitted in any vehicles including heavy load carrying vehicles even if they are already manufactured or in use.

## 8. DISADVANTAGES

1. Brake failure detection system can be fitted in any vehicle but the initial cost is high as its complicated position in vehicle.
2. Brake failure detection system needs to be maintained and serviced properly at the scheduled maintenance of vehicle.
3. Maintenance cost is comparatively high due to cylinders and compressor.
4. Pneumatic cylinders of high strength and pressure is required to stop the vehicle Increasing the units total cost.
5. The driver of the vehicle, totally cant relay on this system for its safety.
6. In future reducing the parts and including automation needs research.
7. Installation of this whole system is complicated as it is fitted on the vehicle chassis and not easy to access.

## 9. CONCLUSION

In this endeavor of capstone of venture we all caught exceptionally great involvement of making our extend (brake disappointment discovery framework). Whereas doing so we have experienced and confronted different building angles. Such as Determination of venture, choice of fabric and analyzing its different properties and

diverse sorts. Planning the plan of the extend. Analyzing the push acting on the venture whereas working and calculating the specified measurements to which the extend is to be made. By utilizing required required fabric. finding and proficient way to make the venture we taken after and worked and by considering all the focuses specify over. and made our extend in given time constrain. At final we tried and analyzed and tried our extend climate it meets our necessities. In this way we completed our capstone venture. and we arranged and delicate duplicate and introduction of extend.

## 10. FUTURE SCOPE

Long term scope is to plan and create control framework based on an car braking framework is called "Programmed Braking Framework. The Programmed Braking Framework with ultrasonic sensor would alarm the driver when the separate between vehicle and impediment is in inside the detecting extend zone at that point the brakes are connected. By making it more secure, this framework will give way better ensure for vehicle's security and dodge misfortunes. In this manner, the security framework of vehicles will be created and may have more showcase requests. With combination this sign framework & Ultrasonic sensor location framework able to progress one of the security highlights of vehicle. It can be advance utilized for expansive sort of verwhelming vehicles like buses, trucks, cranes, tractors, etc. Able to without a doubt get the data around the obstacle detection sense zone concurring to vehicle condition. It is verily valuable to open division and clients. It is additionally dodging the mischances in expansive or metropolitan cities. So, we feel it could be a superior thought for naturally braking & sign of vehicle with direct taken a toll.

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