



COMBINED PADEL FOR BREAK AND ACCELERATOR

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ABSTRACT

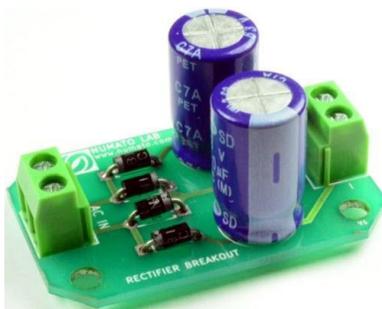
The present paper deals with design, construction and working of accelerator and brake operated by one pedal, which may be a technique for reducing road accidents. The main objective of this innovation is to eliminate the operator's risk of pressing the wrong pedal at the time of emergency as well as reduction in the driver's reaction time to switch from accelerator to brakes or vice versa. This new mechanism is designed in such a way that it can be used in any type of automotive vehicle. The mechanism used for combined brake and accelerator is simple and can be adopted conveniently. At the present time automobiles are equipped with independent pedal controls for operating the accelerator and brake, these pedals being operated by right foot and since the two functions are opposed and incompatible it is necessary to leave one pedal free in order to operate the other. It can therefore be supposed that some drivers have difficulty in removing their foot from the accelerator pedal and transferring it to the brake pedal quickly in emergency situations. To solve this problem, a new brake pedal and accelerator system is designed. The detailed design of combined pedal mechanism is modeled using CATIA V5 R20. Then a prototype has been prepared which confirms the required mechanism and finally tested for its working. Therefore, it gives an optimized design for new combined pedal mechanism. Hopefully this project will help everyone to understand how implemented mechanism works more efficiently, which can help to reduce the accident that may happen in each day.

KEYWORDS :**1.Introduction****1.1 Components used in work:****1.1.1 Metal shaft**

A shaft is a rotating machine element, usually circular in cross section, which is used to rotate the wheel which is driven by the motor and the iron plate which is mounted on the shaft that can be used to stop the wheel

1.1.2 Rectifier

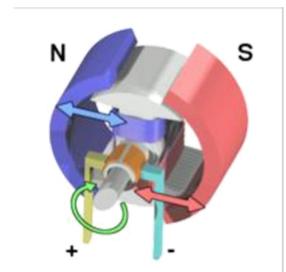
A rectifier is an electrical device that converts alternating current (AC), which periodically reverses direction, to direct current (DC), which flows in only one direction.

**1.1.3 RELAY**

A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid-state relays. Relays are used where it is necessary to control a circuit by a separate low-power signal, or where several circuits must be controlled by one signal.

1.1.4 PEDAL

There are two pedal we used in this one is used to disconnect the current by the meter and the dc supply source than second pedal is pressed to break in downward and when we release it should move upward and act as accelerator.

**1.1.5 DC MOTOR**

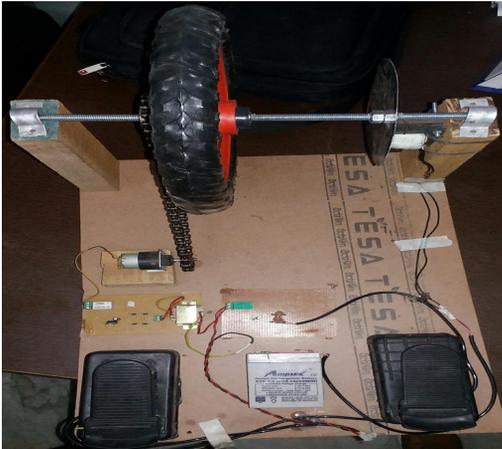
DC motors were the first type widely used, since they could be powered from existing direct-current lighting power distribution systems. A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings.

6.Chain drive

Chain drive is a way of transmitting mechanical power from one place to another. It is often used to convey power to the wheels of a vehicle, particularly bicycles and motorcycles. It is also used in a wide variety of machines besides vehicles.

2.Working Principle

The basic principle of project is that, brake and accelerator can be used by the help of same foot because the brake is applied to stop the wheel and pedal move downward and if we release the pedal and move upward the wheel will accelerated with the help of current supplied to the motor that can be connected with the wheel, first the we supply the dc current to the transformer which convert dc to ac in 12V that can be used by motor to run the wheel than for stopping the wheel we first press right pedal which can connected to relay that cut the supply of current and then press the left pedal to stop the wheel. In order to eliminate such kind of problems, a combined pedal mechanism is designed to function as both brake and accelerator, which can be adopted by driver quickly and effortlessly. This new mechanism enables the driver to control acceleration and braking using one foot, which will lead to reduction in stopping distance, misjudgment and ultimately decrease in number of road accidents that may happen each day.



3. SPECIFIC ADVANTAGES AND DISADVANTAGES

It is a straightforward installation with a simple construction and easy operation. Once installed, only the more noise is created due to the use of iron plate on a regular basis so that the noise can be reduced by using the rubber. The system requires little maintenance.

A combined pedal only works on electromagnetic break. It is ecofriendly, automatic gear shift according to speed increase.

3.1 Benefits and Features

Safe, efficient and comfort driving through haptic driver information

- No driver distraction from visual or acoustical information
- Faster driver reaction time
- Reduce fuel consumption
- Applicable to electrical vehicle, trucks and hybrid cars
- Driver information: haptic signal (warning, indication and guidance)
- Design is modular & scalable

Interaction with battery management, surrounding sensors and engine management, as well as eHorizon.

4. CONCLUSION

With the above study we can conclude that this new mechanism results in avoiding interference of braking during acceleration and vice versa. Moreover, it is advantageous over conventional pedals. This combined pedal mechanism thus provides a driving control which permits the quick and smooth transition from acceleration to braking, without needing to transfer the foot from one pedal to another. The rapid increase in number of vehicles on roads day by day, demands an exploration of such mechanism to get rid of driver's effort and reduce road accidents.

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