

AUTOMATIC PARKING BRAKE SYSTEM FOR FOUR WHEELER- A REVIEW

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ABSTRACT

In this world of mechatronics and automation, various systems have been developed to reduce time and human error. Automated braking system is a part of mechatronics. We have introduced the facility using a micro switch for an automated braking system that prevents the vehicle from rolling backwards. Our aim is to create a system that can prevent accidents when reversing heavy vehicles such as cars, trucks, buses and all vehicles with automatic braking systems. For this purpose, we have developed a model in which an automatic parking brake is applied to four-wheelers when ignition switch is turned off & releasing the automatic parking brake lock when the ignition is on.

Keywords: Hand Brake, Automatic, Parking.

I. INTRODUCTION

The present invention relates to a parking brake system for a motor vehicle comprising a control element and at least two electromechanical actuators for generating a parking brake force of a motor vehicle hand brake. The electric parking brake control unit of the electric parking brake device has an input section to receive signals for automatic activation and deactivation, but we have a fixed function and circuit to input signals from various micro switch, which is necessary to stop the vehicle. Therefore, when used in a vehicle that does not require an automatic control function and only requires a manual control function, the electric parking brake control unit can be used completely without connecting any signal line to the input section. A vehicle requiring both an automatic control function and a manual control function is equipped with an input section that can output signals for automatic activation and deactivation, whereby the electric parking brake control unit works cooperatively with another control unit.

II. ILLUSTRATION

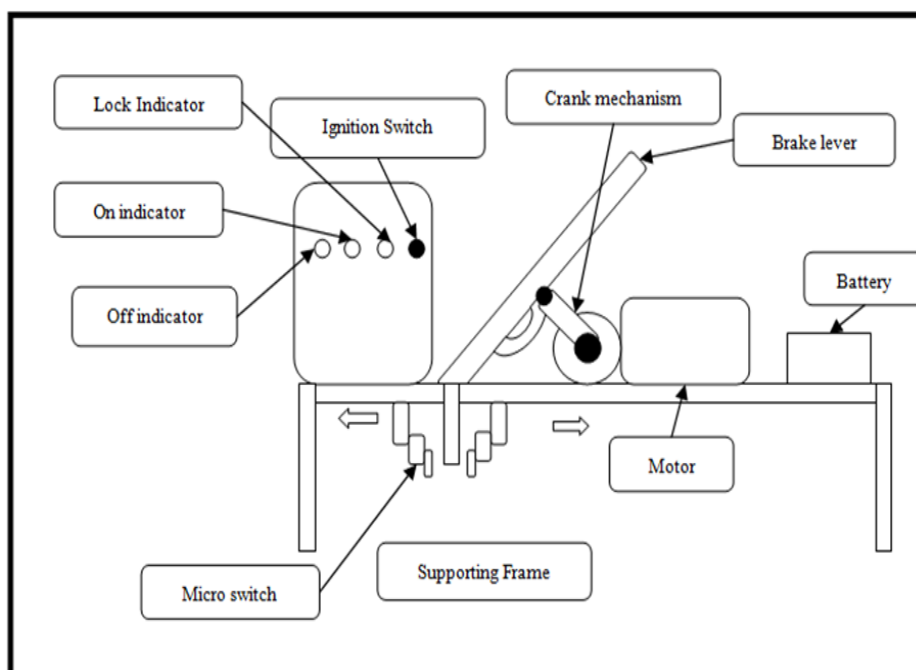


Figure 1: Block Diagram of Parking Brake System

Hand brake parking brake is the system used for safety in automobile vehicles; convectional system for operating handbrake is manual by lever Due to manual operating sometimes the brake remains engaged when vehicle is moving.

This condition may cause damage the system components, so to avoid we are design the control handbrake automatically without manual interface.

A tight handbrake is more difficult to use in an emergency situation, if you forgot to release the hand brake of driver your car, it may causes damage to the brake pads /shoes and drum.

III. RESULTS

3.1 Assembly

Pieces used in the Endeavour:

- Hand brake lever
- D.C. motor
- 12V Battery
- 12V D.C. Micro Switch
- Ignition Switch
- Indicator bulb

3.2 Construction and Working

Automatic braking for four-wheelers is a developed model that automatically releases the hand brake lever to the braking position when the ignition switch is off, and then the hand brake is locked and the hand brake is in the original position or unlocked when the ignition switch is on. First we purchased the hand brake and then collected the materials required for attachment like micro switch, on /off indicator, lock indicator, ignition switch, motor, crank mechanism, lever battery. After that, the frame was made and the hands were carefully placed on it. The brake lever and crank are connected to each other and then connected to the hand brake. Then the on/off indicator and ignition switch are connected in the same place, connecting the handbrake using their connection wiring. They are powered by a connective battery.

When the ignition switch is turned on, the hand brake is released with the help of a micro switch and when the ignition switch is turned off, the automatic hand brake is locked. This makes your car not move forward or backward.



Figure 2: Actual working of Automatic Parking Brake System

IV. CONCLUSION

We are developed a model which is automatic braking for four wheeler when lock the ignition switch then automatically hand brake lever in breaking condition & the releasing then brake lever when the On the ignition switch.

Our project achieves higher safety, reduces human effort, increases the efficiency, reduces the work load, reduces Human error and reduces maintenance

V. REFERENCES

- [1] E. Raffone, an Electric Parking Brake Motor-On-Caliper actuator model for robust drive away control design.
- [2] Driver brake response to sudden unintended acceleration while parking.
- [3] Táchira ET a1
- [4] Bensch ET al
- [5] McGraw Hil