

DESIGN AND FABRICATION OF REGENERATIVE BRAKING SYSTEM

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ABSTRACT

Brakes are employed to stop or retard the motion of any moving body. Thus, in automobiles the brakes are having the most important function to perform.

In conventional braking system the motion is retarded or stopped by absorbing kinetic energy by friction, by making the contact of the moving body with frictional rubber pad (called brake liner) which causes the absorption of kinetic energy, and this is wasted in form of heat in surroundings. Each time while braking, the momentum of vehicle is absorbed that it has gained by it and to re-accelerate the vehicle we have to start from the scratch to redevelop that momentum by using the more power from an engine. Thus, it will ultimately result in huge waste of energy.

It will be good if this energy could be stored somehow and `reuse it next time while accelerating. That's the basic concept of regenerative ("regent") brakes, which are widely used in electric trains and the latest electric cars. Regenerative brake is an energy recovery mechanism which slows a vehicle by converting its kinetic energy into another form, which can be either used immediately or stored until needed. Thus, the generated electricity during the braking is fed back into the supply system (in case of electric trains), whereas in battery electric and hybrid electric vehicles, the energy is stored in a battery or bank of capacitors for later use. Energy may also be stored by compressing air or in a rotating flywheel.