**AUTOMATIC BREAK IN HILL STATION**

# SYNOPSIS

The proposed mechanism is to reverse break using ratchet gear. By reverse locking the differential the differential is disengaged from the axle. Thus the power is directly transmitted to the axle and hence to the wheels. This will considerably reduce the power loss in some occasions when unwanted loss is happening due to the transmission if power from the shaft to the ratchet gear and then to the axle and hence to the wheels. So in mechanism the unwanted power loss in the due course of transmission through the gear wheel is reduced.

# INTRODUCTION

A ratchet is a device which is used in vehicles over a few decades and **when a vehicle is negotiating a turn, the outside wheel travels a greater distance and turns faster than the inside wheel. The ratchet gear is the device transmitting the power to each wheel, allows one wheel to turn faster than the other.**

Degrees of automation are of two types, viz.

* Full automation.
* Semi automation.

In semi automation a combination of manual effort and mechanical power is required whereas in full automation human participation is very negligible.

### BLOCK DIAGRAM

SOLINOID VALVE

**FLOW CONTROL VANVE**

IR TRANSMITTER

PNEUMATIC CYLINDER

CONTROL UNIT

BREAK ARRANGEMENT

##### IR RECEIVER

**POWER SUPPLY**

**AIR TANK (COMPRESSOR)**

**WORKING OPERATION**

The **IR TRANSMITTER** circuit is to transmite the Infra-Red rays. If any obstacle is there in a path, the Infra-Red rays reflected. This reflected Infra-Red rays are received by the receiver circuit is called “**IR RECEIVER”.** The IR receiver circuir receives the reflected IR rays and giving the control signal to the control circuit. The control circuit is used to activate the solenoid valve.

If the solenoid valve is activated, the compressed air passes to the Single Acting Pneumatic Cylinder. The compressed air activates the pneumatic cylinder and moves the piston rod. If the piston moves forward, then the breaking arrangement activated. The breaking arrangement is used to break the wheel gradually or suddenly due to the piston movement. The breaking speed is varied by adjusting the valve is called **“FLOW CONTROL VALVE”.**

**APPLICATION**

* For automobile application
* Industrial application

### ADVANTAGES

* Brake cost will be less.
* Free from wear adjustment.
* Less power consumption
* Less skill technicians is sufficient to operate.
* It gives simplified very operation.
* Installation is simplified very much.
* To avoid other burnable interactions viz.… (Diaphragm) is not used.

### DISADVANTAGES

* Additional cost required for doing modification

