

# Development of Brake Failure Indication System

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**Abstract** - Now a day, Machines are widely controlled by control system. To meet the need of exploding population economic and effective control of machines is necessary. The aim is to design and develop a control system based an automatic break failure indicator. Automatic break failure indicator and auxiliary braking system is consisting of automatic control unit and frame. The switch is used to detect the break wire, the control signal to the alarm unit. Similarly, the auxiliary brake is fixed to the wheel frame. This functions of this unit to help the driver to indicate the vehicle brake failure and thus ensures safety of the passengers. The main reason is brake failure, it caused to due to poor maintenance as well as product defect, in order to safe guard the valuable human for accident the accident monitoring of brake is very important thing in automobile. Vehicle safety is the avoidance of automobile accidents or the minimization of harmful effects of accidents, in particular as pertaining to human life and health. Special safety features have been built into vehicles occupants only, and some for the safety of others. We have pleasure in introducing our new project "Automatic Braking Leakage or Wire Failure Detection System". This is equipped by switch and auxiliary braking unit. It is genuine project which is fully equipped and designed for automobile vehicles.

**Key Words:** Brakes, linkage, cable failure, passenger safety.

## 1. INTRODUCTION

A brake is mechanical devices that restrain, or prevents motion, slowing or stopping a moving object or preventing its motion. Most of the brakes generally uses friction between two surfaces pressed together to change the form of the kinetic energy of the moving object into heat, despite the fact that other methods of energy conversion may be employed for the same. For example, regenerative braking converts a large amount of the energy to electrical energy along with the heat energy, which may be stored or can be sent back to the source for later use. Some other methods convert the kinetic energy into potential energy in such stored forms as pressurized oil or pressurized air. Magnetic fields are used in Eddy current brakes to convert kinetic

energy into electric current in the brake disc, fin, or rail, which is converted into heat energy. Still there are other braking methods to transform kinetic energy into different forms, for example by transferring the energy to a rotating flywheel.

**1.1. Problem Statement of project:** Nowadays accidents may occur due to various reasons; the foremost reason is brake failure and is caused due to poor maintenance as well as product defect. • In order to safe guard the valuable human life from these accidents; there is a need for monitoring of braking system in automobiles. • Vehicle safety is the avoidance of automobile accidents or the minimization of harmful effects of accidents, in particular related to human life and health. • Special safety features need to build into vehicles occupants only, and some for the safety of others.

**1.2. Objectives:** The main objective of this project is to avoid accidents due to brake failure. The specific objectives of this project were:

- 1) To design & development of system for the protection of lively hood.
- 2) To reduce accidents of vehicle due to the brake failure.
- 3) To sense the change in Brake linkages difference while brake failure.
- 4) To connect the indicator with a sensor to indicate the brake failure

**1.3. Scope:** This system will be used in all types of vehicles to avoid the accidents due to the brake failure and provide safety of driver and passengers. This system also successfully installed in the heavy vehicles like two wheeler and mopeds etc.

**1.4. Methodology & steps to solve the problem:** The below flow chart shows the sequential operation/steps that will be performed during the project process.

## 1. Proposed Methodology:

Basic Information & Literature survey. This project report discusses about how to use literature data & identify the problems from field. By studying the literature of previously available system that help in

maximizing the output by minimizing the effort, cost, time & money in future develop new machine.

## **2. Proposed Methodology:**

Identify & Design of Machine Components Available in Market. This project work will first introduce the background of the study. Presents the design constraints that influence on the use, efficiency & benefits their impacts on machine. After that machine parts design all different existing machine assembly units will done to make a probable machine model.

## **3. Proposed Methodology:**

Selection of Components for Machine as per design specifications. We will discuss the construction & working of system components. Various resources and factors were considered for getting the information on the project: First, the requirement of the field is to identify. The specification of the material is thought according to the need. Then, the allocation of budget is taken into consideration. Different research papers were read, we visited many markets & fields. Guidance was taken from college staff regarding the initial research of project. The Resources/Consumable required are: The main components of machine are to be purchase.

## **4. Proposed Methodology:**

CAD modeling & Fabrication of Machine parts. This project work will start to manufacture after purchasing of required specification material & making sample simulations which will be easy for visualization. After that manufacturing procedure of machine will be done, after this cost estimation of machine will calculate

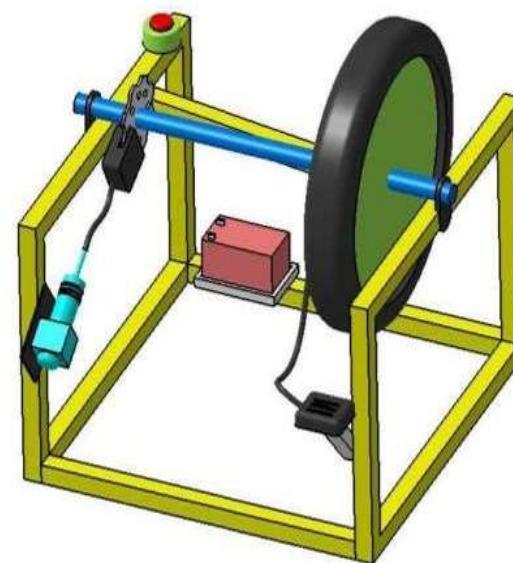
## **5. Proposed Methodology:**

Assembly & Testing of Machine. Finally, after complete manufacturing procedure, will test the working model which will satisfy probable objectives or not. After that complete working & satisfied testing will discuss advantages & applications of the machine while performing satisfied operation with complete report writing.

## **3. CONSTRUCTION & WORKING:**

The Brake failure Indication System consists of following main components are given below,

- 1) Wheel
- 2) Shaft
- 3) Bearing
- 4) Brake Set
- 5) Battery
- 6) Infrared Sensor
- 7) Buzzer & Indicator



**Fig.3.1. Brake failure indication system.**

## **ACKNOWLEDGEMENT**

The heading should be treated as a 3<sup>rd</sup> level heading and should not be assigned a number.

## **4. ADVANTAGES & APPLICATIONS**

### **4.1. Advantages:**

1. No need of external power supply it can be powered from the vehicle's battery itself.
2. Power consumption is comparably less.
3. Operating principle is very easy.
4. Installation is simplified very much.
5. The safety of driver is ensured
6. Brake failure is notified to the surrounding traffic via parking lights.
7. The cost of installation is low.

### **4.2. Applications:**

- 1) This system may be applicable in all types of vehicles with mechanical braking systems to avoid the accidents due to the brake failure.



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