**Title of the project**: Design and Analysis of Regenerative Braking System.

**Guide Name**:

**Student’s details**: Milan Lamichhane (16N31A03G8)

Surendra Yonjan (16N31A03H0)

Navin Bhetal (16N31A03H4)

IV B.Tech II Sem. Mechanical Engineering (C-Sec)

1. **Aim :**

Regenerative braking is an energy recovery mechanism that slows a vehicle or object by converting its [kinetic energy](https://en.wikipedia.org/wiki/Kinetic_energy) into a form that can be either used immediately or stored until needed. In this mechanism, the electric motor uses the vehicle's momentum to recover energy that would be otherwise lost to the brake discs as heat. This contrasts with conventional braking systems, where the excess kinetic energy is converted to unwanted and wasted heat by friction in the [brakes](https://en.wikipedia.org/wiki/Brakes), or with [dynamic brakes](https://en.wikipedia.org/wiki/Dynamic_brake), where energy is recovered by using electric motors as generators but is immediately dissipated as heat in resistors. In addition to improving the overall efficiency of the vehicle, regeneration can greatly extend the life of the braking system as its parts do not wear as quickly.

The aim of our project is to design a braking system which produces energy by dissipating heat produced by friction during braking.

1. **Objective of the project :**

In a regenerative braking system, the objective is to recapture the energy by product that results when the brakes are applied. In electric or hybrid automobiles, the electric motor that drives the car's wheels plays a major part during braking.

The Objectives of the project are:

1. The need for Regenerative Braking system.
2. The working principles of Regenerative Braking system
3. Advantages and limitation and related issues.

We may also improve the following

* 1. ToImprove Fuel economy of the hybrid vehicle
  2. To recover the energy loss during braking.
  3. To improve the performance of the system.
  4. To reduce the brake wear.

1. **Project methodology/approach :**

### Findings:

### The amount of electrical energy generated by conversion of energy.

### The wear and tear on the moving parts.

### Analysis on various physical quantities like force, pressure, displacement, moment, etc.

### Overall efficiency of the braking system.

### 

### Requirements for the project:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. no** | **Material** | **Cost** | **Type** | **Quantity** |
| 1 | D.C.Motor |  |  | 2 |
| 2 | Battery / Power Source |  |  | 1 |
| 3 | Shaft (Dia. 15mm) |  |  | 2 |
| 4 | Wheel |  |  | 1 |
| 5 | Brake Pad |  |  | 1 |
| 6 | Brake Shoe |  |  | 1 |
| 7 | Wires(metre) |  |  | 3 |
| 8 | Base Table |  |  | 1 |
| 9 | Bulbs |  |  | 2-5 |

### Duration of the project:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S no. | Activities | Work s in weeks | | | | | | |
| **0-1** | **1-2** | **2-3** | **3-5** | **6-13** | **13-14** |
| 1 | Selection of work |  |  |  |  |  |  |
| 2 | Literature |  |  |  |  |  |  |
| 3 | Methodology |  |  |  |  |  |  |
| 4 | Design, Assembly & Analysis of components |  |  |  |  |  |  |
| 5 | Fabrication and Testing |  |  |  |  |  |  |
| 6 | Report preparation |  |  |  |  |  |  |

### Usefulness of the project / usefulness of equipment in future:

### To develop a system which increases the battery efficiency of the electric vehicle

### A system can be used to develop power in trains.

### 