



# Design and Fabrication of Self Rescuing System in Automobile

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## Abstract:

The Self Rescuing System, as the denomination implicatively insinuates it avails us to rescue our conveyance from a breakdown condition. Breakdown can occur when ever and where ever while driving a conveyance. So there should be some adscititious equipment for availing us during our desideratum and for our accommodation. This system is utilized for self pulling the conveyance while the breakdown condition, to a safer place. This can be done by pulling the conveyance from outside but it feels inconvenience to ask to somebody for avail. On that time we can utilize this system to pull the conveyance to a safer place. No desideratum to pull from outside. This will be very utilizable for ladies and handicap persons. If a car breakdowns in a hazardous zone such as a railway track, etc., it will be more efficient. In this system we just utilization of some gear setup to do this.

## 1. Introduction:

The self recuing system, this system is adopted for 4 wheelers. This is a system to rescuing our self from a breakdown situation, in lieu of asking avail to someone or pulling your conveyance by yourself to the off-road condition.

We designed this system be utilized in the front engine rear wheel drive. Why we cull this drive is because over 50% of conveyances in India are the rear wheel drive. It will be auxiliary in the place at no one is available, to pull the conveyance to a safer place. It will be utilizable for ladies, handicap persons, who are all driving alone for a long drive, etc., and avail us during a hard situations such us if our car breakdown in heftily ponderous traffic or if our conveyance ceased in a train crossing it will be more auxiliary.

Just we require to do is to rotate the hand wheel placed, adscititious by this project, in between the ear shifter rod (gear rod) and the hand brake lever.

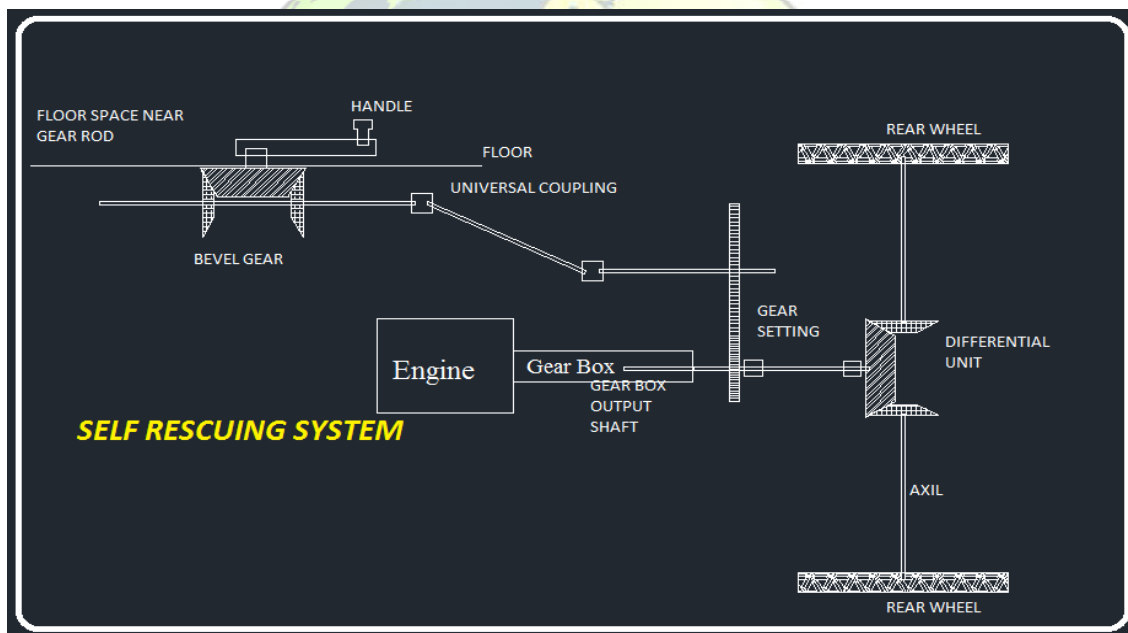


In this system we no need to even get down of the conveyance to move it.



There is no any heftily ponderous arrangement for this rescuing system. As in my design we just utilize some bevel setup to propel the conveyance by utilizing our simple hand rotation. This setup will be placed in between the gear shifter rod of the conveyance and the handbrake of the conveyance.

### 1.1 The line diagram of the Self Rescuing System,



- Software used - AutoCAD

### 2. Working:

This project works by utilizing the gears affixment only. While we are operating this system, ascertain that conveyance is in the neutral position then only the project will work opportunely.

If a car breakdowns in the centre of the road, just simply rotate the handle/wheel provided in the system in between the gear rod and the hand brake. That handle is annexed to a pinion. The pinion will rotate the hypoid gear affixed with it (in

which the rotation is transmitted to  $90^\circ$ ). That gear will be annexed to the spur gear with the more immensely colossal diameter and has more no of teeth. This spur gear is affixed to another spur gear which is at the gear box output shaft. Since conveyance is at neutral it has been disconnected from the engine so that rotation is marginally more facile. Then conclusively, as in the mundane car/conveyance the rotation is sent to the



differential, from where the puissance has been distributed to the wheels. The rotation has been

scarcely arduous to rotate. This is the main quandary in this system.

### 3. Literature Survey:

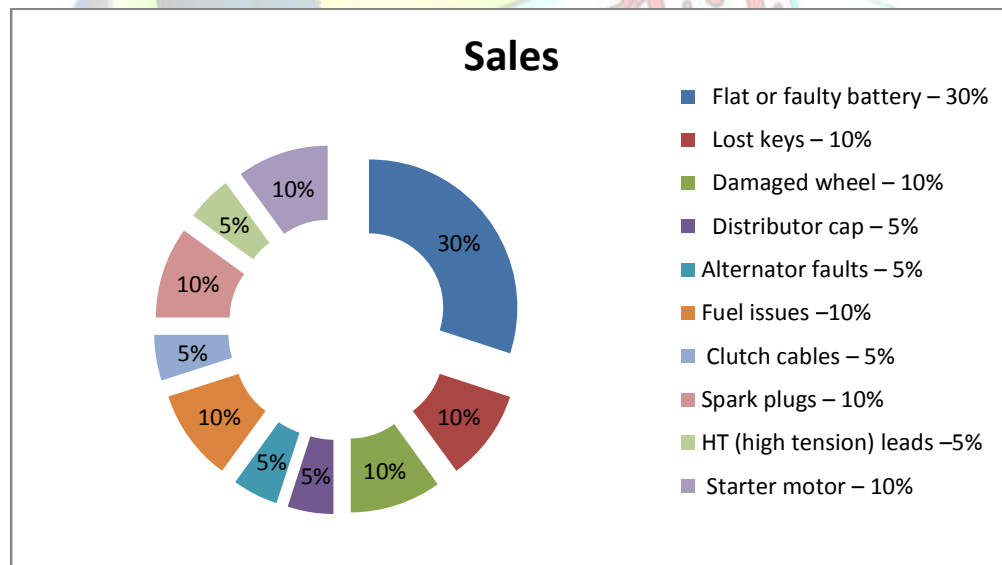
There is only the towing method to rescue the conveyance from the breakdown condition. They will tie a rope in between the both conveyances and the driving conveyance will be at front and the driven will be followed by it. The conveyance will be towed to the place wherever the conveyance owner's needed.

There is another type of rescuing the conveyance. But it is not for the breakdown conveyances. It is utilized for move the conveyance from the slippery snowed road by utilizing the rope and a stick. This type of rescuing system was not been implemented until now in any conveyance and additionally not done as a project work.

#### 3.1 Main causes of the Breakdown:

- Flat or faulty battery – 30%
- Lost keys – 10%
- Damaged wheel – 10%
- Distributor cap – 5%
- Alternator faults – 5%
- Fuel issues – 10%
- Clutch cables – 5%
- Spark plugs – 10%
- HT (high tension) leads – 5%
- Starter motor – 10%

#### 2.2 Chart Representation:



#### 3.3 Discussion on break down:

These are the main reasons of conveyance breakdown. The inopportune maintenance, carelessness of the driver, carelessness of the

employee (whom it has been given to accommodation), etc, may leads to these quandaries.

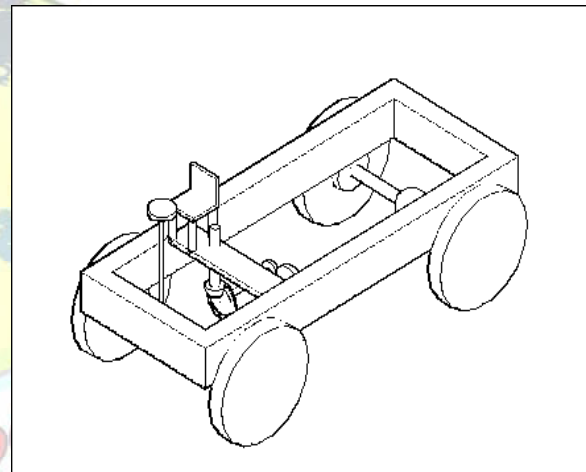


Due to the modern inventions like ECU conveyance accommodation has become more facile as well as arduous. The entire modern conveyance invented or been relinquishing is along with this setup only. It controls the total conveyance system from crank, cam, piston situating, wheel speed sensing, error spotting, etc. The difficulties are: only after code clearing (for some paramount work sensors) the conveyance will commence, otherwise it won't start.

In 2014, AAA (AAA-American Automobile Association) responded to more than 29 million calls for roadside assistance, with the majority (17 million) due to battery failure, flat tires and keys locked inside the conveyance. On that time of waiting we can move the conveyance to a safe place from the road to avert traffic jam, without perturbing others.



#### 4. Model of the project:



#### 4.1 Photo copies:

##### Side views of the project:

##### 4.1.1. Front view:-



##### 4.1.2. Back side view



4.1.3. Top view:



4.1.4. Right side view:





#### 4.1.5. Left side view

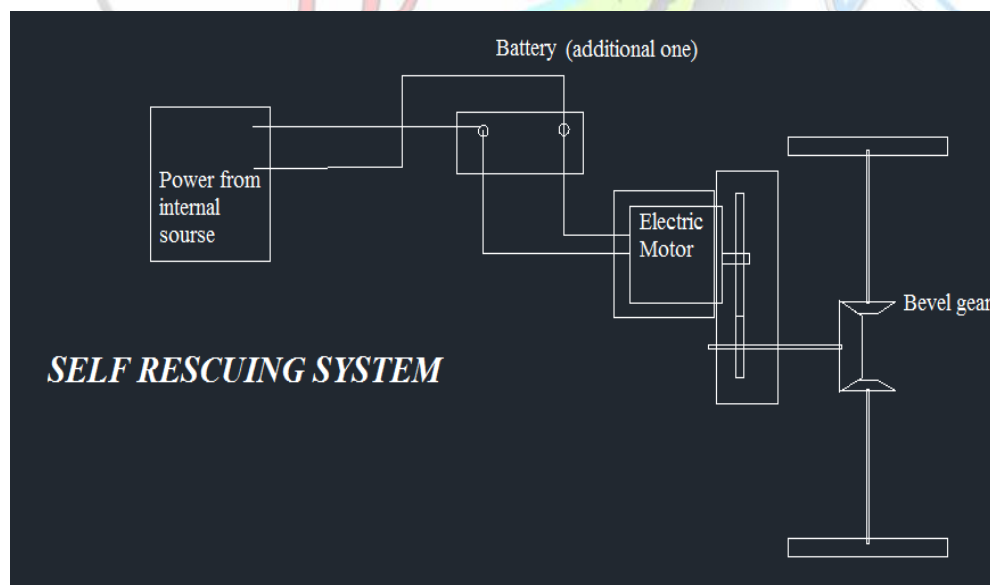


#### 5. Implementation:

While implementing this system in the conveyance our hand power will not be adequate to move or propel the conveyance from inside. On that time some special mechanism can be utilized in this place or even a simple electric motor can be fine-tuned at the bottom of the conveyance to propel the conveyance. The potency supply for the motor can be taken from the vehicle's free

kineticism while it is in kineticism and store it in another minuscule size battery, kept under the conveyance by annexing it with the frame or chassis, which will be adequate for the motor capacity. This system will be very use full for all conveyance drivers.

##### 5.1 Line diagram of the self rescuing system for implementation:





Here the front bevel setup is superseded by an electric motor and a battery. For charging the battery the power supply can be taken from the suspensions (i.e.) using the up and down movement of springs.

#### **6. Conclusion:**

This method is concerned for the application of self rescuing of a conveyance from the centre of the road to off-road. This will be more auxiliary to reduce the traffic jam. This does not give any solution to the breakdown but only helps us to move the vehicle. It will be more useful while

we are driving alone. If a weak person or a cardiac person drives a car he can't pull the car, he definitely needs a help of others on that time it will be more useful. For the majority of the car breakdown this system can be used and move the vehicle

#### **7. Reference:**

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- [3]. Khurmi, R.S., Gupta,J.K., "A Textbook of Machine Design", S Chand Publications, 2015.

