



## **GEARLESS TRANSMISSION**

### **INTRODUCTION:**

Previously, in the paper on dual engine (thermal energy motor), we saw about gearless transmission and now, in this paper, let us see in detail on how a gearless transmission would work and also about how beneficial it would be compared to a geared transmission.

### **WHY GEARLESS TRANSMISSION:**

Gearless transmission is a concept that would simplify the driving experience, making it easy for the beginners and comfortable for city traffics. Nowadays, it could be commonly found that people prefer automatic transmission over manual transmission and also, the manufacturers have started to include automatic options as a variant in every model they have.

What is automatic transmission? Automatic transmission is a concept where the ECU will change the gears as per the speed of the car without it being shifted by the person driving the car manually. When users are towards comfort and ease and that the industry is adapting to user preference, how can the driving mechanism be made more simplified and user friendly? This is when the concept of gear-less technology sparked.



What is a gear-less technology? Gearless technology is where the entire transmission assembly as in the conventional pattern is replaced by an alternative technology where the automobile unit is maneuvered by connecting the engine power and torque directly to the wheels according to the pressure implied by the user to the accelerator pedal.

Here the speed and pulling force for movement of vehicle is controlled by the flow of propelling medium unlike the mechanism of transmitting the power generated due to the rotation of gears found in the conventional design. The geared transmission in the current conventional pattern of automobile architecture is mostly used for keeping the engine's RPM low while travelling at high speeds for an increased engine life and to provide the commuters a comfortable cruising experience without any inconvenience. Whereas, in the gear-less transmission, by placing a low gear ratio rear differential in place of the geared transmission we can accomplish high speeds with low RPMs enabling the engine a better lifetime and the commuters the same comfortable driving experience as in the geared transmission in addition making the automobile more economic during and after sales.

By having no gears the entire driving characteristics of a car would depend on how the person wants to drive without the complexity of adjusting the gears with the speed every time.

As the world and automotive manufactures are moving towards a easy to drive mechanisms, this gearless transmission would help not only reduce the overall



driving effort but also from manufacturer's point, this would enable a economic production cost as the entire transmission assembly is being replaced.

### **HOW IT WORKS:**

Now let me explain how the gearless transmission works.

### **STEP BY STEP:**

- Once you start the car there will be paddles located behind the steering wheel, right one for forward and left one for reverse.
- Pull the right side forward paddle once to start moving forward and left side reverse paddle once to move backwards.
- By pressure given to the accelerator the fuel will accordingly be sent to the engine making power and torque.
- Power and Torque will be sent a differential gear from the engine through a driveshaft.
- From the differential gear the power will be split to the wheels.
- And once you get to a halt the cars, brakes engage by itself safely.



Now let me explain how this concept works in detail.

This concept works with no gears-shifter or transmission, So it totally removes the transmission from the car, making driving easier, as this car uses no gear-shifter, once you start the car there will be paddles placed behind the steering wheel, right side paddle to move forward and left side paddle for reverse, after pressing the forward paddle the car will start to move, and the moving speed will be controlled by the accelerator pedal and the power generated from the engine will be sent to a differential gear via driveshaft, differential gear which will assist the car by supplying constant power and torque to the wheels to keep the car moving, and the acceleration will pump the fuel from the fuel tank to the engine combust and convert fuel into mechanical horsepower and torque and will be sent to differential gear then to the wheels, directly from the engine without a transmission which will make the driving not only easy and simple but reaching higher speeds will be quicker without having a lag that will be created in a car which has transmission due to the transmission shifting time.

#### **WHAT IS DIFFERENTIAL GEAR:**

Differential gear is a power supply train that has three shafts where the rotational speed of one shaft gets divided to other two.

In detail, differential gear is an arrangement that allows gears to divide the power sent from the engine equally to the wheels. When a car travels on a



straight line the wheels spin at a same speed but when the car makes a turn the farther outer wheels spins faster than the inner wheel, And the differential gears are used for the same to distribute the power to the wheels equally depending on the traction of the wheels so the power is not being wasted. The differential gear can be made in different ratio's on the performance expected for the vehicle.

### **BENEFITS OF HAVING GEARLESS TRANSMISSION:**

Now let me explain what are the benefits of having a Gearless Transmission.

- Makes driving simple and easy - Focus while driving can just be on the clearance without diverting attention to gear shift to match with the speed of the vehicle.
- Maintenance friendly, as there is no transmission and clutch system, the vehicle will be free of wear-tear that is present in the current architecture.
- Significant cost reduction in vehicle production cost, The Transmission and the clutch system plays a huge role in escalating cars manufacturing cost, so by removing those the cars overall reduces cars production cost.
- User Friendly, Removing the gears from the car will makes the car versatile which will help it in reaching more users.

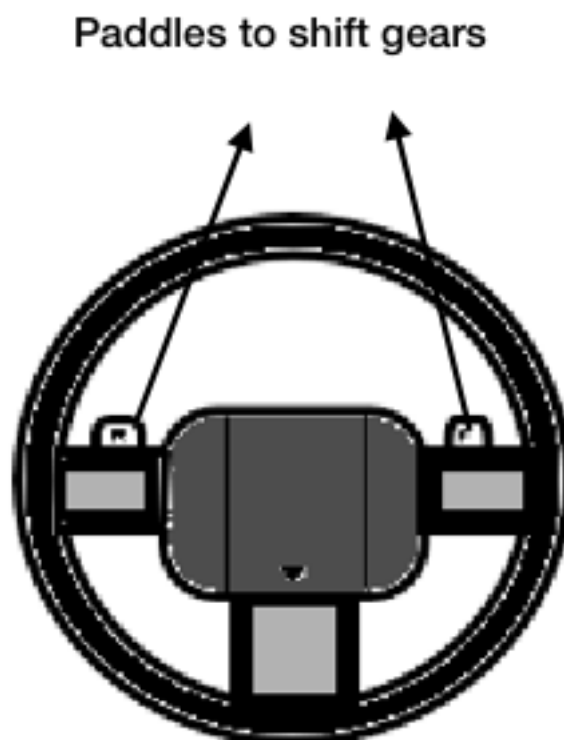
- Reliability, As there will not be any failure that a Normal geared car has this will increase a car's life and make it a reliable transport media.
- Flexibility, this technology can be implemented in all types of vehicles not only cars making all source of transport a ease to drive.

These are the benefits of having a Gearless transmission, and it is basically simplifying the driving mechanism from what it is right now to provide the user the most comfort and convenience possible to drive the vehicle.

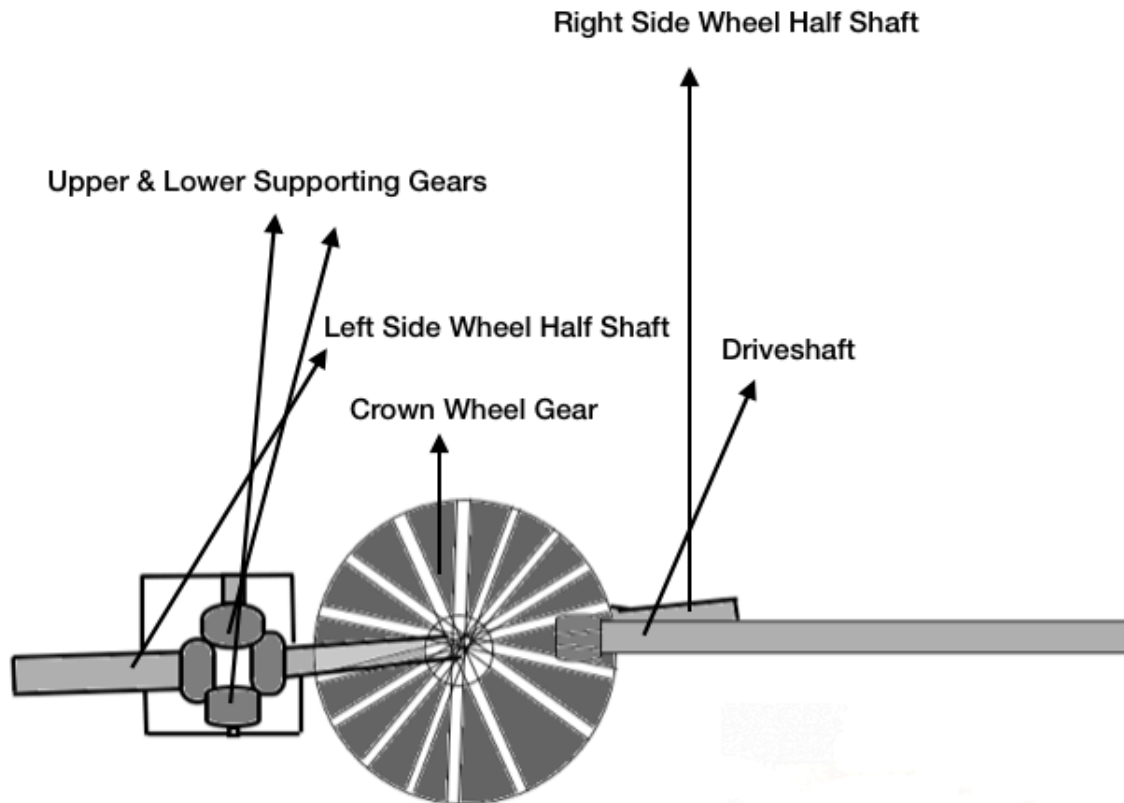
#### **DIAGRAM:**

Now let me show you all a basic diagram on how the gearless transmission will look like when it is in a car.

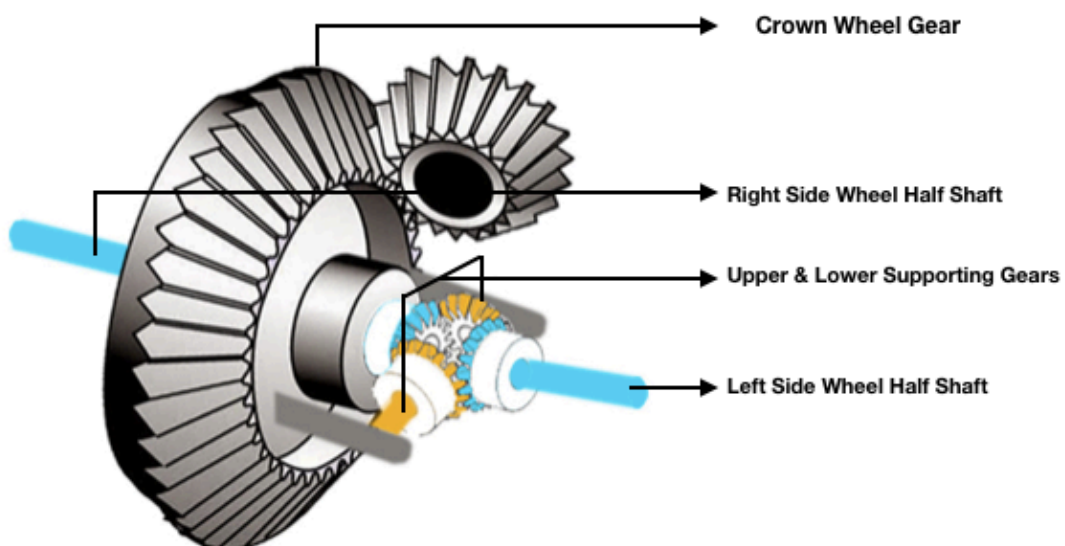
#### **Steering Wheel:**



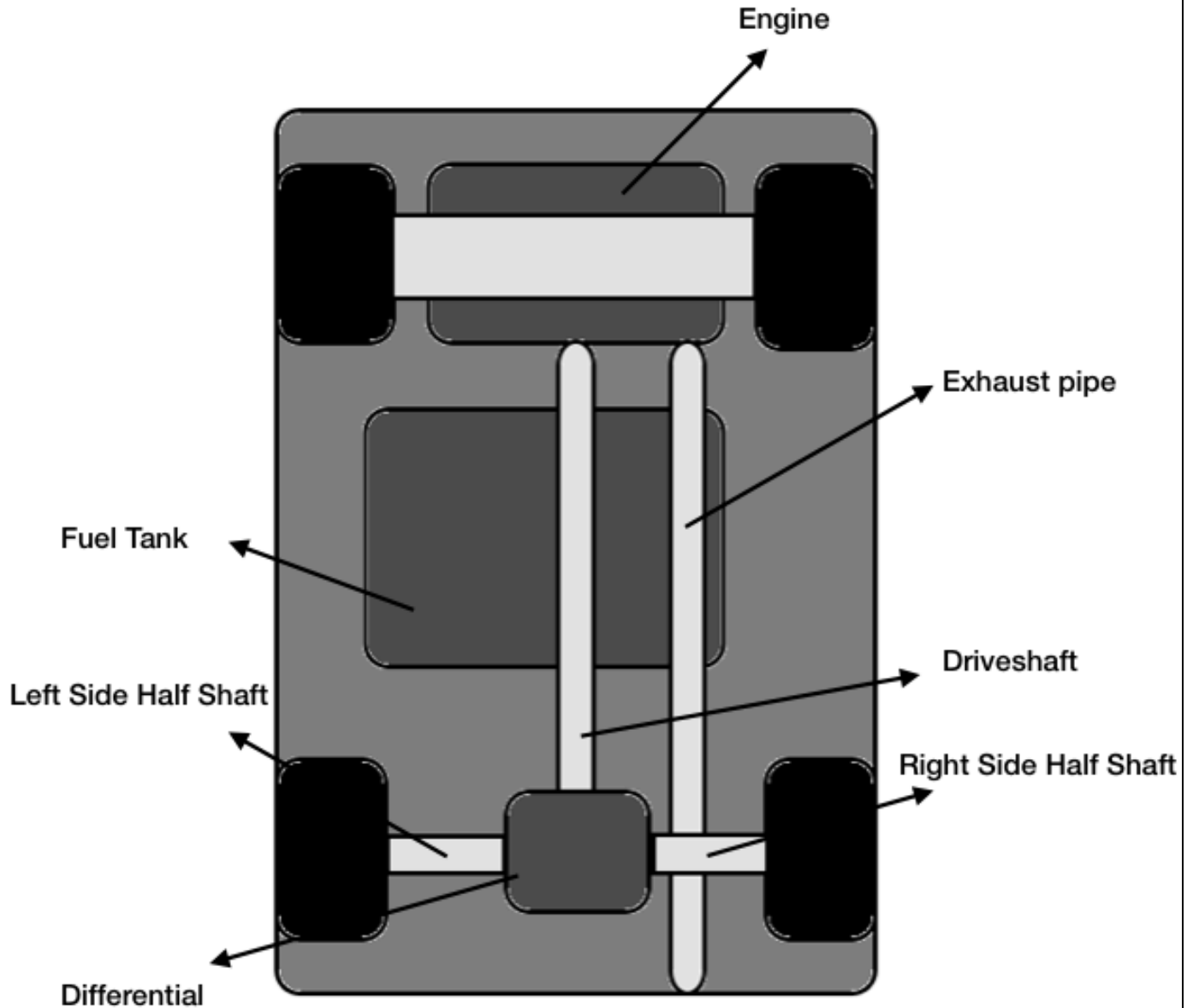
## Differential:



## Another view of Differential Gear:



## UNDERBODY:







## CONCLUSION:

So, this is the gearless transmission concept that makes us design cars that is easier for driving and user friendly for consumers, this design reduces manufacturing cost of a car which will automatically reflect on the vehicle's purchase cost, making the purchase more value for money. Customizing a car with this technology will be easier and simple as just by swapping a rear gear differential ratio will reflect on a distinct change in the vehicle's overall driving characteristics. I hope this concept helps in making cars affordable and live easier with it.