

A Study on Future Car Technology

Mudit Sharma
Assistant Professor
Dept. of Mechanical Engineering
*Jims Engineering Management Technical Campus affiliated with G.G.S.I.P.U
Greater Noida, India.*

Suraj Kumar
U.G. Student
Dept. of Mechanical Engineering
*Jims Engineering Management Technical Campus affiliated with G.G.S.I.P.U
Greater Noida, India.*

Utkarsh Mishra
U.G. Student
Dept. of Mechanical Engineering
*Jims Engineering Management Technical Campus affiliated with G.G.S.I.P.U
Greater Noida, India.*

Manash Dey
Assistant Professor
Dept. of Mechanical Engineering
*Jims Engineering Management Technical Campus affiliated with G.G.S.I.P.U
Greater Noida, India.*

Mrinal Abhinav
Assistant Professor
Dept. of Mechanical Engineering
*Jims Engineering Management Technical Campus affiliated with G.G.S.I.P.U
Greater Noida, India.*

Abstract— The venture here is about Power-Generating Shock Absorber (PGSA). The Power-Generating Shock Absorber (PGSA) changes over active vitality into power using a Linear Motion Electromagnetic System (LMES). There are somewhere around two elements who had invested energy and assets building up this idea: Goldner et al. furthermore, Oxen eider. An electromagnetic direct generator and regenerative electromagnetic safeguard is unveiled which changes over factor recurrence, dreary irregular straight dislodging movement to valuable electrical power.

Keywords: PGSA, LMES, NCER, Stepper Motor etc.

I. INTRODUCTION

The creative gadget accommodates superposition of outspread segments of the attractive motion thickness from a majority of adjoining magnets to deliver a most extreme normal spiral attractive transition thickness inside a curl

winding exhibit. Because of the vector superposition of the attractive fields and attractive motion from a majority of magnets, an about four-overlay increment in attractive transition thickness is accomplished over ordinary electromagnetic generator structures with a potential sixteen-overlay increment in power producing limit. As a regenerative safeguard, the uncovered gadget is equipped for changing over parasitic uprooting movement and vibrations experienced under typical urban driving conditions to a helpful electrical vitality for controlling vehicles and adornments or charging batteries in electric and non-renewable energy source fueled vehicles. The revealed gadget is prepared to do high power age limit and vitality change proficiency with negligible weight punishment for improved eco-friendliness.

Change of sound into electric vitality

Sound vitality is likewise a kind of wave movement. We are heard by others when we talk as a result of the sound vitality we produce. It is because of the impact of the air particles vibrating when we talk. The vibrating atoms hit our eardrums, which empower us to hear others talk. Sound

vitality might be changed over into electrical vitality for transmission, and later the electrical vitality can be changed over once more into sound vitality at the less than desirable end. A case of such changes could be found in the mouthpiece and the amplifier.

Sound, similar to warm vitality is effectively lost. The change of one type of vitality into another might be joined by misfortunes as sound as well as warmth that are regularly not alluring.

II. LITERATURE REVIEW

It gives a concise understanding through the writings which are as a rule altogether perused for understanding the vehicle over speed sign procedure and getting a thought of the work completed by the researchers in this car field. A ton of literary works including reading material, diaries, procedures and websites have been checked on. A portion of the essential and significant writing discoveries are talked about below. This ponder gives a thought regarding examination of different hot moving factory parameters however the exploration is somewhat lacking in the field of research for vehicle over speed sign and controlling procedure:

Dorle, et al., 2018 has proposed that breeze control is spotless and economical characteristic assets that still can't seem to be completely used in the car business and the crossover framework has been structured and introduced to create control which consolidates wind turbine and sun oriented board. The crossbreed show framework is sustainable power source framework, which helps preserve vitality by diminishing the utilization of fuel in vehicle.

Kumar, et al. 2018 has seen that the half and half model having all these three kinds of vitality including sunlight based, wind and commotion represent a mix of charging alternatives which isn't just progressively productive when contrasted with motor based vehicles yet additionally. greater condition well disposed being increasingly affordable in the meantime.

Bhatnagar, et al.,2012 has proposed that sound wave is a mechanical wave when it goes through a medium it bothers the molecule of the medium these aggravations made by sound could be utilized to create power.

Taha, et al.,2010 has expressed that the plan idea built up a sun oriented vehicle utilizing off-the-rack parts so as to lessen the improvement cost and has figured out how to cover just 20 percent of the all out separation required yet figuring out how to get positive reactions because of its common sense, novel idea and solace factors.

Soni, et al.,2014 has proposed that cross breed vehicle is a blend of a traditional inward burning motor and an electric impetus framework which suggests that it very well may be driven on I.C. motor just as on electric power. The hugeness of electric power train is that it keeps running with lesser power misfortune, consequently improving the general

mileage. Empowering hybridization of vehicles can lessen of CO₂ outflow.

Prajapati, et al.,2014 has detailed that the advances utilized really taking shape of Hybrid Cars, for example, Hybrid Solar Vehicle, Hybrid Electric Vehicle and Plug In half breed electric vehicles and the clarification of such innovations, their capacity, downside of this innovation, proficiency of Hybrid Cars, Case considers on the present business mixture autos, for example, Toyota Prius arrangement, Astrolabe and so forth and the energizes and crude materials utilized in the Hybrid Cars.

Vinay, et al.,2017 has recommended that vehicles can possibly lessen petroleum derivative use, decline contamination, and permit sustainable power hotspots for transportation which have an electric engine and battery and can be halfway or entirely controlled by power. Numerous advancements like regenerative braking, electric engine drive, programmed begin or shutoff are being utilized in half breed autos to make them tantamount to ordinary vehicles.

III. COMPONENTS USED IN THIS MODEL OF CAR

1. STEEPER MOTOR

A stepper engine is an electromechanical gadget it changes over electrical power into mechanical power. Likewise it is a brushless, synchronous electric engine that can partition a full revolution into a far reaching number of steps. The engine's position can be controlled precisely with no criticism component, as long as the engine is cautiously measured to the application. Stepper engines are like exchanged hesitance motors. The stepper engine utilizes the hypothesis of activity for magnets to make the engine shaft turn an exact separation when a beat of power is given. The stator has eight shafts, and the rotor has six posts. The rotor will require 24 beats of power to move the 24 stages to make one complete insurgency. Another approach to state this is the rotor will move correctly 15° for each beat of power that the engine receives.

Types of Stepper Motor:

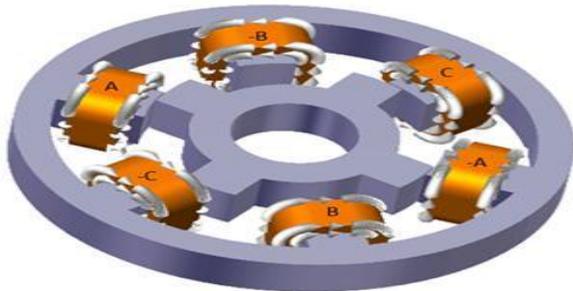
There are three principle sorts of stepper engines, they are:

- i) Perpetual magnet stepper
- ii) Crossover synchronous stepper
- iii) Variable hesitance stepper

i) Perpetual Magnet Stepper Motor: Permanent magnet motors utilize a lasting magnet in the rotor and work on the fascination between the rotor PM and the stator electromagnets.

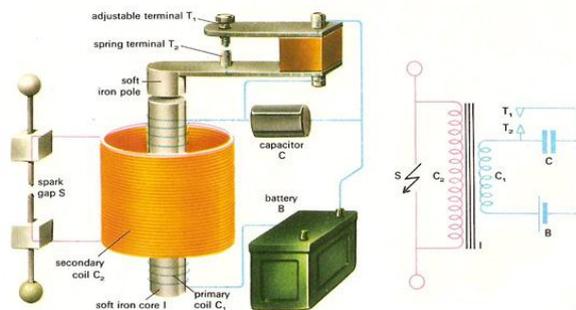
ii) Cross breed Synchronous Stepper Motor: Hybrid stepper engines are named in light of the fact that they utilize a mix of perpetual magnet (PM) and variable hesitance (VR) systems to accomplish most extreme power in a little bundle estimate.

iii) Variable Reluctance Stepper Motor: Variable hesitance (VR) engines have a plain iron rotor and work dependent on the rule that base hesitance happens with least hole, henceforth the rotor indicates are pulled in the stator magnet posts.



2. INDUCTION BREAKING COIL

An enlistment curl or "flash loop" (obsoletely known as antideuterium or Ruhmkorff loop after Heinrich Ruhmkorff) is a sort of electrical transformer used to deliver high-voltage beats from a low-voltage direct flow (DC) supply. To make the transition changes important to prompt voltage in the auxiliary curl, the immediate current in the essential loop is more than once hindered by a vibrating mechanical contact called an interrupter. Imagined in 1836 by Nicholas Callan, with extra research by Charles Grafton Page and others, the enlistment loop was the primary sort of transformer. It was generally utilized in x-beam machines, sparkle hole radio transmitters, curve lighting and quack restorative electrotherapy gadgets from the 1880s to the 1920s. Today its solitary normal use is as the start curls in inner burning motors and in material science training to exhibit acceptance.



3. GEARS

Gears are rotating devices having cut teeth which mesh with another toothed part in order to transmit the torque. Equipped gadgets can change the speed, torque, and course of a power source. Riggings quite often produce an adjustment in

torque, making a mechanical favorable position, through their apparatus proportion, and in this manner might be viewed as a straightforward machine. The teeth on the two lattice outfits all have a similar shape. At least two cross section gears, working in a grouping, are known as an apparatus train or a transmission. An apparatus can work with a direct toothed part, called a rack, creating interpretation rather than rotation. The outfits in a transmission are practically equivalent to the wheels in a crossed, belt pulley framework. Favorable position of apparatuses is that the teeth of a rigging avert slippage. At the point when two apparatuses work, on the off chance that one rigging is greater than the other, a mechanical preferred standpoint is created, with the rotational rates, and the torques, of the two apparatuses varying in extent to their diameters. In transmissions with numerous apparatus proportions, for example, bikes, cruisers, and autos—the expression "gear" as in "first apparatus" alludes to a rigging proportion as opposed to a real physical apparatus. The term portrays comparative gadgets, notwithstanding when the apparatus proportion is consistent as opposed to discrete, or when the gadget does not really contain gears, as in a persistently factor transmission.



4. RESISTANCES

Obstruction is a proportion of the resistance to flow stream in an electrical circuit. Resistance is estimated in ohms, symbolized by the Greek letter omega (Ω). Ohms are named after Georg Simon Ohm (1784-1854), a German physicist who examined the connection between voltage, current and opposition. He is credited for detailing Ohm's Law. Resistance estimations are ordinarily taken to show the state of a segment or a circuit. The higher the opposition, the lower the present stream. On the off chance that strangely high, one conceivable reason (among many) could be harmed conductors because of consuming or consumption. All

conductors radiate some level of warmth, so overheating is an issue frequently connected with obstruction. The lower the opposition, the higher the present stream. Conceivable causes: protectors harmed by dampness or overheating.



5. CAPACITORS

A capacitor is an idle two-terminal electronic device that stores electrical necessity in an electric field. While some capacitance exists between any two electrical transmitters in proximity in a circuit, a capacitor is a portion proposed to add capacitance to a circuit. The capacitor was at first known as a condenser. The primary name is still extensively used in various lingos, anyway not ordinarily in English. The physical structure and advancement of sensible capacitors change extensively and various capacitor types are in like way use. Most capacitors contain something like two electrical channels normally as metallic plates or surfaces disengaged by a dielectric medium. A channel may be a foil, thin film, sintered spot of metal, or an electrolyte. The non-driving dielectric acts to manufacture the capacitor's charge limit. Materials regularly used as dielectrics join glass, ceramic, plastic film, paper, mica, and oxide layers. Capacitors are commonly used as parts of electrical circuits in various ordinary electrical

Contraptions. Rather than a resistor, an ideal capacitor does not scatter essentialness.



6. DIODE

A diode is a specific electronic fragment with two terminals called the anode and the cathode. Most diodes are made

with semiconductor materials, for instance, silicon, germanium, or selenium. A couple of diodes are incorporated metal anodes in a chamber discharged or stacked up with an unadulterated fundamental gas at low weight. Diodes can be used as rectifiers, banner limiters, voltage controllers, switches, banner modulators, banner blenders, banner demodulators, and oscillators.

The focal property of a diode is its penchant to transmit electric stream in only a solitary bearing. Right when the cathode is antagonistically charged in regard to the anode at a voltage more noticeable than a particular least called forward breakover, by then current courses through the diode. If the cathode is sure concerning the anode, is at unclear voltage from the anode, or is negative by a whole not actually the forward breakover voltage, by then the diode does not lead current.



IV PROPOSED DESIGN

The proposed design is made by using CATIA software. It gives information about all arrangements of various parts using in this model. It's basically based on different design of experiment, which investigates the effects of multiple variables simultaneously.

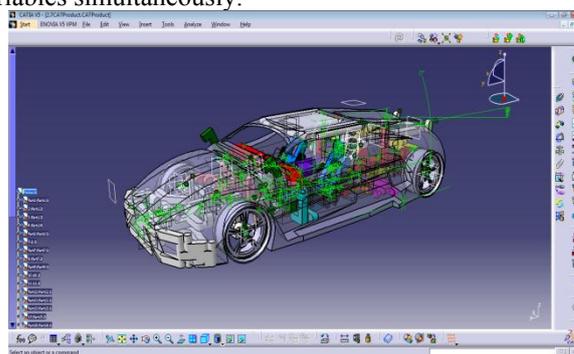


Fig.1. Proposed Design 1

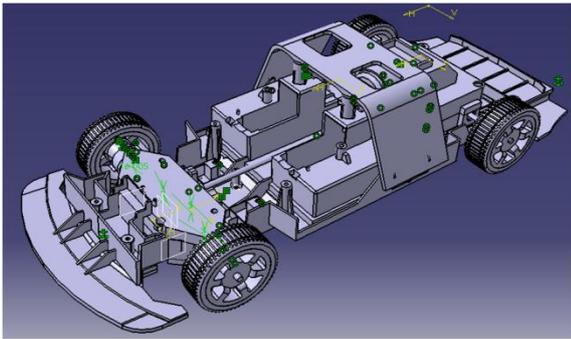


Fig:2. Proposed Design 2

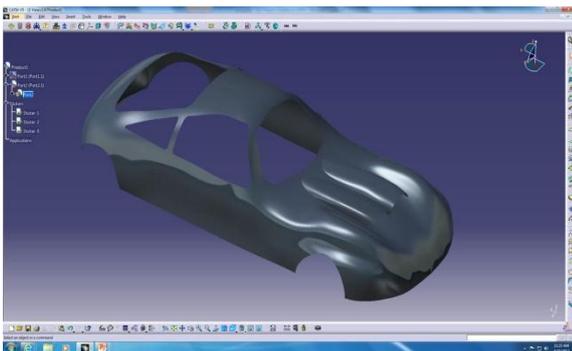


Fig: 3 Proposed Design 3

V. CONCLUSION

In present research when the non-renewable resources of energy are getting exhausted very quickly, not only they pose harmful effects to the mankind but also is the biggest threat to the nature, animals and our climate. Use of renewable energy sources like solar, wind and ambient noise harvesting system can be effectively used to run automobiles. With the help of prototype designed using these systems can significantly improve the efficiency significantly by charging the battery in scarcity of fuel in

emergency conditions. Also being friendly with the environment, the system is also more economical as compared to the convention systems.

1. Efficiency of solar system is the highest as comparison to other two wind and ambient noise system.
2. But in case of ambient noise and wind system, efficiency of ambient system is more as comparison to wind system

REFERENCES

- III. V VPrathibha Bharathi, V Pandurangadu and V V Naga Deepthi, "Car run by Solar Energy," International Journal of Mechanical Engineering and Robotics Research, Vol 4; Issue:1, January 2015.
- IV. Swapnil M Dorle, Ameya V.Borgaonkar and Dipankar Shinde, "Solar and Wind Powered Electric Car," International Research Journal of Engineering and Technology, Vol 5; Issue:2, February 2018.
- V. Rajesh Kumar, Rinku Sharma, Deependra Pratap Singh, Santosh Kumar Awasthi, "Comparative study of efficiency of Solar, Ambient noise and Wind energy for Hybrid Car," International Journal of Applied Engineering Research, Vol 13; Number:11,2018.
- VI. Shalabh Rakesh Bhatnagar, "CONVERTING SOUND ENERGY TO ELECTRIC ENERGY," International Journal of Emerging Technology and Advanced Engineering, Vol 2; Issue:10, October 2012.
- VII. Rushikesh Trushar Soni, "Hybrid Electric Vehicle," IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), Vol 12; Issue:2, March-April 2015.
- IX. Karan C. Prajapati, Ravi Patel and Rachit Sagar, "Hybrid Vehicle: A Study on Technology," International Journal of Engineering Research & Technology (IJERT), Vol 3; Issue:12, December 2014.
- X. Vinay K M and Isaac Raju, "Hybrid Electric Vehicles," International Journal of Engineering Trends and Technology (IJETT), Vol 50; Number:2, August 2017.