

SMART INTEGRATED ELECTRIC VEHICLE SELF CHARGING SYSTEM

¹Vipin Gupta, ²Sarvesh Kumar, Ashish Yadav, ⁴Shailendra Tiwari, Mrs.Chandra Rani

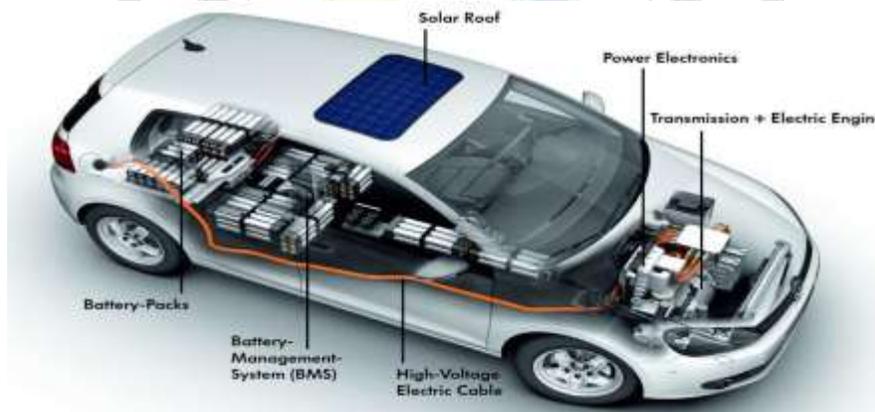
^{1,2,3,4}Student, ⁵Associate professor Electrical & Electronics Engineering Department, Rajarshi RananjaySinh Institute of Management & Technolog Amethi (U.P), 227405, India

Abstract-The EV (electric vehicle) market in India is at a nascent but promising stage .India’s technology for electric vehicle is different from that of the West due to the unique environmental condition and driving pattern .Hence, investment to make electric vehicle technology affordable is immense. Realization require a consistent Government policy. Considering the Government’s proactiveness lately, we see electric vehicle evolving starting with three wheelers and two wheelers, followed by the city bus and passenger car – starting with fleets. ‘MY smart integrated self charging system in electric vehicle’ is beneficial for environment condition and work on green and no polluted transportation. Paper is written on after seeing present fossil fuel source in the world. Very easy and usable technique is used in my system which is expressed by review paper.

Keywords- Brushless DC motor, solar system, Electric vehicle, Propulsion, Voltage

I. Introduction

An EV is powered by an electric motor instead of gasoline engine .The electric motor gets energy from a controller , which regulates the amount of power –based on driver’s use of an accelerator pedal .The EV uses energy stored in its rechargeable batteries, which is recharged by our smart integrated self E vehicle charging system. In this system wind turbine and dynamo are used for charging the heavy duties batteries .whole prototype is based on renewable energy because renewable energy is occurred by inexhaustible source. EV first came in to existence in the mid of -19th century, when electricity was among the preferred method for motor vehicle propulsion , providing a level of comfort and ease of operation that could not be achieved by gasoline cars of the time .As we know Electrical vehicle based on electric propulsion system . NO internal combustion engine is used . All the power is based on electric power as energy source. The main advantage is high efficiency in power conversion through its proposition system of electric motor. E vehicle is being used in many countries with free parking and lower tax is taken from E-vehicle so at least we can say huge profit will be occurred when smart Integrated electric vehicle self charging system is applied in the commercial EV (electric vehicle).



II. Back ground of system

On the basis of very less resource of petroleum oil a integrated system is developed in which no requirement of petroleum oil .It is totally dependent on renewable energy .In this system heavy duty batteries is charged by rotation of wind turbine solar panel and dynamo.

III. Objective of system-

- Pollution free transportation
- Low maintenance cost
- Get multiple output
- No use of fossil fuel
- Self charging system

IV. Detail Description of Integrated system

‘Smart integrated Electric vehicle self charging system’ is very efficient for transportation because by this system fair of transportation will be reduced because low cast is used for operation .Many technical instrument and devices are used for developing this system such as wind turbine, solar panel , heavy duty batteries , dynamo .these discussed devices applied at a particular place . Main motive of the system is to charge the batteries which rotate the motor which connected through the shaft of wheels . Generated power by these devices goes to the power controlling

devices which provide required power to the batteries when generated power is more than consuming power then power controlling device manage the power. Brushless DC motor is used in the Electric vehicle for better performance and Ac induction motor is also used.

- **Wind turbine**

Wind turbine is a device which change the mechanical energy in to electrical energy .Her e mechanical energy come from air due to this vanes of turbine rotate due to this electric power is generated .This power is used charging the batteries and driving the vehicle .



- **solar panel**

solar panel is used in this system to convert solar power in to electric power .It is applied on roof of electric vehicle for suitable operation .Solar panel is very important component of the system because electric vehicle proceed standing state to running state due to solar power at this time wind turbine and dynamo do not work.



- **Dynamo**

Dynamo is a device which is used in this system or converting mechanical rotation in to the electricity .This device is directly connected to shaft of wheels which generate mechanical rotation.



- **Heavy Duty Batteries**

Heavy Duty Batteries have a high source of potential voltage to serve the purpose .It can give long fulfill the needs .Now a day it is being to effectively used to run heavy vehicle too.



V. Efficiency of EV applied Integrated system

Electric motor is more efficient than internal combustion engines in converting storage energy in to driving vehicle. Gasoline engines effectively use only 15% of the fuel energy content to move the vehicle or to power accessories , and diesel engine can reach on board efficiency of 20%, while electric vehicles have on board efficiency of around 80%.

VI. Advantage of the System

- High Efficiency
- Multiple task
- Eco Friendly
- Suitable Transportation
- No Pollutant Emission

VII. Application

- This type of vehicle will be used in low cast transportation
- It can be used in large Industries for local transportation
- It may use in distribution of goods in cities
- It will be in passenger vehicle

VIII. Result

Using the above explained integrated system, many costs can be optimized effectively such as labor cost etc. This system will be effective to reduce the petroleum uses. In this technical era people does not want to more labor so this system make the work easy like goods transportation and passenger transportation at low fair. This type of vehicle no more maintenance requirement, all component is easy to replace after any fault. No any toxic gases released by this system so we can say, it work on green transportation.

IX. Conclusion

At least we can conclude that our system is totally eco friendly and beneficial for the environment. Efficiency of the system is better than gasoline and diesel vehicle. Our system is perfect for minimum fair transportation and green transportation. By this system we can get sufficient output at lower input. In future transportation is done by this type of system because fossil fuel is now available in limited amount in the earth. Our whole system is developed on the basis of present condition of pollution and high fair of transportation.

X. Acknowledgement

We are thankful to our Institute "Rajarshi Rananjay Sinh Institute of Management & Technology, Amethi encouraging us to explore ourselves. The Incubation Centre of the Institute is a beehive of intellectual and innovative activities. Under the excellent & effective guidance of our faculty from & seniors, we have completed the analysis on the "Smart Integrated Electric Vehicle Self Charging System" which focuses on the complete green transportation and less transport fair. Our Institute has always focused on providing us a framework for better future for mankind. Also in shaping us to become effective, skilled professionals in coming future. I am very thankful to the Institute's Management & our Director Sir for his influential leadership

XI. Reference

- [1] PDF [Allegre 09] L Boulon D Hissel M.C pera A. Bauscayrol, o.pape, "Energy based modeling of a 6 wheel drive hybrid heavy truck", IEEE -VPPc' 09 Dear born(USA),september 2009.
- [2] C.C chan : 'The state of art of electric Hybrid and fuel cell vehicle' Proc. Of the IEEE, April 2007, vol.95, No.4,pp.704-718.
- [3] M. Eshani, Y. Gao, S.E. Gay, A. Emadi, "Modern electric, Hybrid electric and fuel cell vehicle", CRC press, New York 2005
- [4] Online map of Electric vehicle transportation.<https://www.fueleconomy.gov/feg/evtech.shtml>
- [5] web side <https://www.electrical4u.com/armature-winding-pole-pitch-coil-span-commutator-pitch>
- [6] D.B Richardson, "Electric Vehicle and Electric grid: A review of modelling approaches impact and renewable energy integration" *Renewable and Sustainable Energy Reviews*,vol.19 ,pp.500-505, Mar. 2012.
- [7] N. Roterling and M. ILic, "Optimal charge ontrol of plug- in hybrid electric vehicle deregulated electricity market ,"IEEE Trans. Power system, vol 26, no. 3, pp.1021-1029, Aug. 2011.

