SMART WIRELESS POWERTRANSMISSION SYSTEM WITH RENEWABLE ENERGY POWERED SMART VEICHLE

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Abstract:

Now a days the pollution rate increase rapidly with the increase rate of vehicles. Pollution is one of the biggest fear for green environment and for all creature's. The fossil fuel powered vehicle's produces more pollution gases which is harmful. For the health and to environment, it causes acid rain fall, rain pattern change, global warming, greenhouse effect, ozone effect these are the harmful effect of use of more veichles.lets go for less pollution and green environment In this project we use the renewable energy for stop pollution element, use of Eco friend re use materials which are non or less polluting the environment. Let's go for use of conventional and green technology use the electric and hybrid. Vehicle's for more efficient, lower emission, lighter veichles, oil independent. By using this technology, we can reduce the emission, and go for a healthy environment that is our goal.

Keywords: Renewable Energy, Solar Energy, Wind energy.

Introduction:

To convert a diesel engine to fully functioning electric vehicle. In this project we add two renewable energy sources sun, wind A car powered by the solar with a wind turbine and as a hybrid renewable energy /powered vehicle it is working. To convert a diesel engine to fully functioning electric vehicle . In

this project we add two renewable energy source sun, wind. A car powered by the solar with a wind turbine and as a hybrid renewable energy To make a cleaner and cheap source of energy and convert a ic engine to electric powered engine. To make a source of energy which is less dependent on fossil fuels reduce carbon print by using solar panels and rechargeable acid batteries. Reduce the pollution and fossil fuel use also decreases. It also helps for environment protection and goes one step toward green with can be used as the alternative of fossil fuel powered vehicle. It Can helps the environment to reduce the sound pollution, air pollution Alternatives are either complete electric car or solar cars with wind powered energy powered vehicle it is working. Hybrid type fully renewable powered vehicle, let's go for a non-polluting and green energy powered hybrid vehicle. From the above diagram know about the basics of designing smart wireless power transmission (smart charging) &the basic design of a renewable energy electric vehicle. The basic principle of the project is that to make a renewable powered late below discuss the design of solar cum wind powered vehicle, with wireless charging system.

Fig.1. Structure of system

Solar, wind is the unlimited source of energy let's use it. By the conversion of fossil fuel to other form harmful gases remove. Research use of renewable energy to improve efficiency and quality. Now in the days solar used most of the place's solar cars, buses etc. Solar reduces the use of fossil fuel and production of harmful gases to environment.

Work principle

The basic principle of the project is that to make a renewable powered vehicle late below discuss the design of solar cum wind powered vehicle

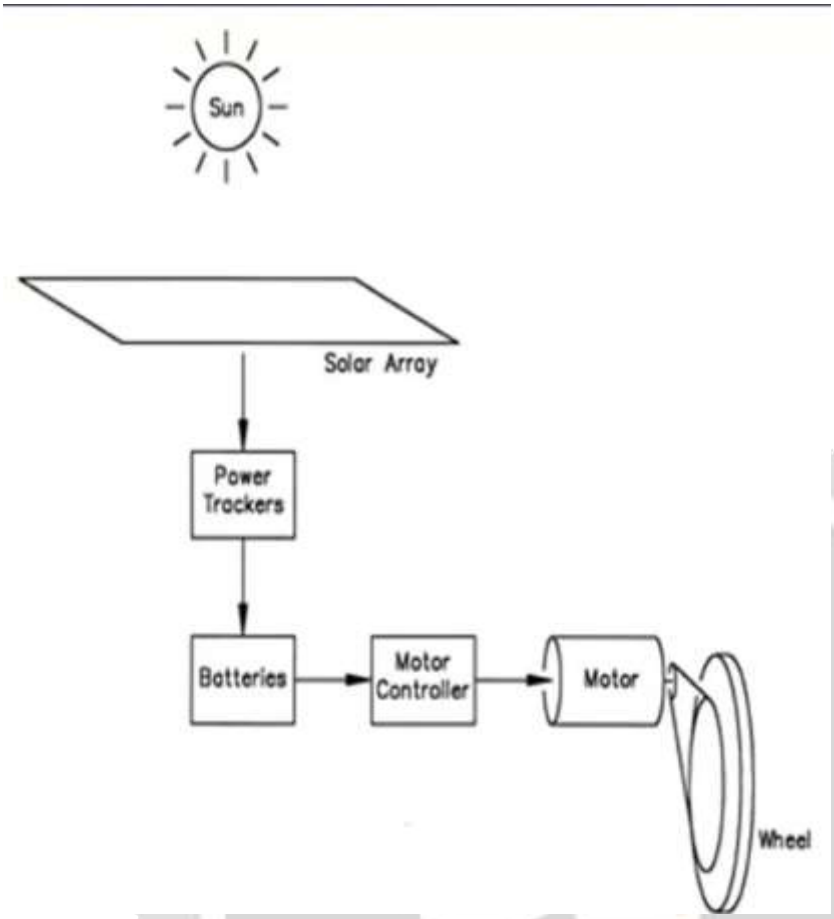

Fig.2. System description

Basic principle used for vehicle

- Component need for the solar cum wind powered vehicle
- Pv cell-for electricity supply
- Power tracker -tracking of solar energy
- Batteries-stores the energy \electricity storage
- Controller -for the motor control
- Motor – it is used for rotation of vehicle /transport

SOFTWARE AND HARDWARE WORKING

Energy from the sun (it is the use of renewable energy)

1. Power\electricity production (by using pv cell get the energy from sun)
2. Arrangement of solar and wind turbine (hybrid type of arrangement for power production and supply)
3. Controllers-control all the process
4. Electrical inverter-it converts dc to ac as per power need
5. Electrical systems-most of the components power electrically

Working Of SOLAR cell with Sun.

A PV. panel which direct convert the light, heat energy of sun to electricity..Batteries- electricity is stored in batteries which is supply the power for working of the vehicle. Motor -it helps for rotation most of the nontechnology are invented for the efficiency movement.

Advantages use of renewable energy in the project

Using solar energy pollute the air is much less than the fossil fuel. Fossil fuel future available or not that fear also decrease Design a solar powered vehicle is both help in economic and efficiently. The primary advantage of sun-based energy is that it delivers no contaminations and is one of the cleanest wellsprings of energy. It is an inexhaustible wellspring of energy, requires low support and are not difficult to introduce. The main impediment that sun-based energy have is that it can't be utilized around evening time and measure of daylight that is gotten on earth is relies upon area, season of day, season, and atmospheric conditions. Solar energy is a completely free source of energy, and it is found in abundance. Though the sun is 90 million miles from the earth, it takes less than 10 minutes for light to travel from that much of distance. The Green HC-05 sub-module is soldered on top of the Blue BT Board. The HC-05 module includes the Radio and Memory chips, 26 MHz crystal, antenna and RF matching network. The right section of the BT Board has connection pins for power and signals as well as a 5V to 3.3V Regulator, LED, and level shifting.

1) Bluetooth is a remote innovation standard for trading information over brief distances (utilizing short-frequency UHF radio waves in the ISM band from 2.4 to 2.485 ghz) from fixed and cell phones, and building individual region organizations (dish). Range is around 10 Meters (30 feet). Bluetooth is a remote innovation standard for trading information over brief distances (utilizing short-frequency UHF radio waves in the ISM band from 2.4 to 2.485 ghz) from fixed and cell phones, and building individual region organizations (container

High Left	High Right	Low Left	Low Right	Description
Truth Table				
On	Off	Off	On	Motor runs clockwise
Off	On	On	Off	Motor runs anti-clockwise
On	On	Off	Off	Motor stops or decelerates
Off	Off	On	On	Motor stops or decelerates

Components used:

Solar-it converts light energy radiated from sun to electricity. There are different type of solar used in different purposes some of the solar frame used in our project space frame, semi-monocoque, Wind turbine-it converts wind energy to electrical energy. Wireless charging-it is the most popular application knows date for smart, efficient wireless charging. Bluetooth model-it is used to make smart and efficient control to the vehicle as per the command provided by the mobile. Wind Turbine-it is the component which converts mechanical energy to Electrical energy by some arrangement Blades -it can be helps the turbine for rotation by the flow of wind. Rotor and blades-it is the component connect with each other for power generation. There are 3 led are connected in the project 1. first led,2nd led,3rd 1st-it is the first led

shows the solar to electricity production. 2nd -it is the led that shows the power generation from wind turbine to supply battery. 3rd -it is shows auto parking and automatically wireless charging is started. In this project use the different type of renewable energy for power production

From -solar, wind turbine, manual charge, and wireless smart charge Factor affecting the battery for charge store are -state of charge Depth of discharge-the percentage of battery capacity that has been discharged Capacity-the total amp-hour available when the battery is discharged at specific current from100%SOC Specific energy-the total watt-hour available when battery fully charged. The total watt-hour per unit mass Specific power-maximum power that the battery can provide per unit mass, function of internal resistance of battery. This is the hybrid type of motor vehicle powered by the ways these are wind turbine, solar panel, wireless charging and manual charging supported to supply the power and it provides the total energy. The wireless transmission first introduced by Nikolas tesla.it can be mostly used for charging rechargeable batteries. Wireless transmission of electrical energy from one end to other end through electromagnetic waves. It is makes transmission more flexible, efficient, and convenient.

Features:

More efficiently use of wireless power transmission is with a cost-effective lower emission is produce by the electric vehicle. Simpler transmission power is easily transmitted from primary to secondary coil. All integration of more renewable like wind.

Conclusion

Implement of electric cars is possible in India with some new design. Solar and the new type of technology are used for improving the efficiency. Solar can be used in the various fields as per need like in car, small veichles,etc. The fossil fuel powered vehicle's produces more pollution gases which is harmful. For the health and to environment, it causes acid rain fall, rain pattern change, global warming, greenhouse effect, ozone effect these are the harmful effect of use of more veichles.lets go for less pollution and green environment In this project we use the renewable energy for stop pollution element, use of Eco friend re use materials which are non or less polluting the nvironment. Let's go for use of conventional and green technology use the electric and hybrid. Vehicle's for more efficient, lower emission, lighter veichles, oil independent. By using this technology, we can reduce the emission, and go for a healthy environment that is our goal. From the 4–5-year fossil fuel demand increase and cost also.As per the use of solar we reduce the pollution Improve efficiency by using lighter chassis material. Use of more efficient solar.Use of lithium battery can give a good performance.Wind turbine can directly supply power to the motor. Wireless charging can make it more efficient with low loss of energy, simplicity and reliable. As per government research different type of fossil fuel powered vehicles are producing harmful gases. NISSAN, TVS, revolt, yuzu, swag Tron, outbake, Okinawa, ola etc. By using wireless method, it makes smooth &strong life easier.in the different company there are different technology are used with many technologies. Most of the company gives different fetches with new model improved different electric vehicle also provides different schemes like 1year, 2 years on appliances also battery, charger appliances of vehicle. Government also gives subsid on electric vehicle production and also for the purchase. Electric vehicle powered by the electricity so need to production rate increase For increase of electricity, we can use solar, turbines, biogases for production of electricity or power. Solar cell can give a long-term use 20-25years at once purchase use it continuously. Also, battery in the vehicle can gives a suitable rating and long-term use.

REFERENCE

[1]. Sahoo, S. S., Tripathi, P. M., & Chatterjee, K. (2020). Effectiveness evaluation of passive resistive element placement on a fault ride-through enhancement in a DFIG-based wind energy conversion system. *Wind Energy*, *23*(3), 825-848.

[2]. National Semiconductor Corporation, "ADC 0808", journal published, America, October 1999.

[3]. R.P.Jain, "Modern Digital Electronics", TMH Publication 2003 [4]. Atmel Corporation, " AT 89S51", literature journal published, CA.

[4]. Atmel Corporation, " AT 89S51", literature journal published, CA. [5].Op-Amp and Linear integrated Circuits by Ramakant A. Gayakwad.

[6].Electronic device and Circuit Theory by Robert L. Boylestad and Louis Nashelsky.

[7]. Yuksekkaya, B., Kayalar, A.A., Tosun, M.B., Ozcan, M.K., Alkar, A.Z., "A GSM, Internet and Speech Controlled Wireless Interactive Home Automation System", IEEE Transactions Consumer Electronics, vol. 52, no. 3, pp. 837-843, 2006.

[8]. Sahoo, S. S., Tripathi, P. M., & Chatterjee, K. (2020). Low-cost non-superconducting DC-fault current limiter for the enhancement of low-voltage ride through capability of doubly fed induction generator. IETE Technical Review, 37(4), 418-437.

[9]. GSM Based Home Automation with Security (Using Microcontroller) Dr. ShaikMeeravali 1, P. Sai Prasad 2 International Journal of Engineering Research &Technology (IJERT) Vol. 2 Issue 9, September -2013ISSN: 2278-0181.

[10].Principal of Mobile Computing By Hansmann,Merk,Springer,2nd Edition.

[11]Barisal, A. K., & Mishra, S. (2018). Improved PSO based automatic generation control of multi-source nonlinear power systems interconnected by AC/DC links. Cogent Engineering, 5(1), 1422228.

[12]Mishra, S., Barisal, A. K., & Babu, B. C. (2019). Invasive weed optimization-based automatic generation control for multi-area power systems. International Journal of Modelling and Simulation, 39(3), 190-202.

[13]Sahoo, S. S., Chatterjee, K., & Tripathi, P. M. (2019). A coordinated control strategy using supercapacitor energy storage and series dynamic resistor for enhancement of fault ride-through of doubly fed induction generator. International Journal of Green Energy, 16(8), 615-626.

[14]Barisal, A. K., Panigrahi, T. K., & Mishra, S. (2017). A hybrid PSO-LEVY flight algorithm based fuzzy PID controller for automatic generation control of multi area power systems: Fuzzy based hybrid PSO for automatic generation control. International Journal of Energy Optimization and Engineering (IJEOE), 6(2), 42-63.

[15] Sahoo, S. S., Roy, A., & Chatterjee, K. (2016, December). Fault ride-through enhancement of wind energy conversion system adopting a mechanical controller. In *2016 National Power Systems Conference (NPSC)* (pp. 1-5). IEEE.

[16] Tripathi, P. M., Sahoo, S. S., & Chatterjee, K. (2019). Enhancement of low-voltage ride through of wind energy conversion system using superconducting saturated core fault current limiter. International Transactions on Electrical Energy Systems, 29(4), e2798.
[17] Sahoo, S. S., Tripathi, P. M., & Chatterjee, K. (2020). Effectiveness evaluation of passive resistive element placement on a fault ride-through enhancement in a DFIG-based wind energy conversion system. *Wind Energy*, *23*(3), 825-848.