

# A Review on Solar Energy Electric Vehicle

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*Abstract*— Solar energy could be a renewable energy which might exist for even billions of years a lot of. In 2015, COP21 called the 2015 Paris Climate Conference took place in Paris and the cooperation of over 190 countries agreed on climate, with the aim of keeping global warming below 2!. In this conference many condition were imparted on developing nation like India to reduce carbon monoxide emission, that ultimately impact the transportation by road and their development. So the employment of renewable energy like star should be incorporated in transportation so as to cut back the monoxide emission with none lag in development. This is a review paper coping with analysis paper printed associated with star electric automobile.

**Key words:** Solar, Car, PV Panel, Electric Power

## I. INTRODUCTION

Because of strong maneuverability the working environment of the solar car changes frequently algorithm of max power point tracking should be increased to get high transformation efficiency condition At present, the common maximum power point tracking methods are the constant voltages tracking method, the perturbation and observation control and the conductance increment method. The tracking accuracy of the conductance increment method is the best among them. It achieves the tracking of the maximum power point. It is obvious that the output power varying different area when we change the working voltage in the area of constant current source the sensitivity is low and in constant voltage load the sensitivity is obvious so the tracking method should be improved In order to improve the accuracy of the maximum power point tracking, when the temperature and the light intensity are definite, and the output power of the photovoltaic cell is close to the maximum power which is the most at the current condition same extent, the tracking step length will be properly lessened , in order that the maximum power point can be tracked more accurately Maintaining the Integrity of the Specifications because of sturdy mobility the operating atmosphere of the star automotive changes oftentimes formula of Georgia home boy electric receptacle pursuit ought to be accumulated to induce high transformation potency condition at the moment, the common most electric receptacle pursuit strategies are the constant voltages pursuit technique, the perturbation and observation management and also the electrical phenomenon increment technique. The pursuit accuracy of the electrical phenomenon increment technique is that the best among them. It achieves the pursuit of the most electric receptacle. it's obvious that the output power varied completely different space once we amendment the operating voltage within the space of constant current supply the sensitivity is low and in constant voltage load the sensitivity is apparent therefore the pursuit technique ought to be improved so as to enhance the accuracy of the most electric receptacle pursuit, once the

temperature and also the strength are definite, and also the output power of the cell is near the most power that is that the most at the present condition same extent, the pursuit step length are properly lessened , so as that the most electric receptacle will be half-track a lot of accurately Solar car racing" solar automotive races.

## II. LITERATURE WORK

Xiujuan, et al [1] explained the advantage of electrical vehicle is that the electrical vehicle has zero discharge, low noise and wide supply for energy supplement the transformation potency of the cell plate is extremely low (i.e.) 14%

Rattankumar, V, and N. P. Gopinath[2] Keeping the very fact that there's no future fuel we have a tendency to had think about mistreatment non typical energy in effective manner. we've overcome several disadvantage of traditional automotive like minimizing Coupling losses, BLDC minimizes field losses, swish handling of speed and fuel price is decreased .The major elements used whereas producing a star automotive are electrical phenomenon module, star cannular batteries, BLDC, Ackerman steering, Mechanical structure and MCB .Some of the accessories of star automotive are Ackerman steering, Mechanical structure, Miniature fuse. At present, the designed star automotive runs at a speed of 30Km/Hr for one charging that takes more or less eighteen hours and with success tested for 100Km per charge. more work is in method to develop the vehicle with Reluctance motor as currently it's surpass BLDC. it's additionally proposes to use star panels of upper potency. Varied drawbacks of the vehicles are studied and steps are in method to eliminate them, hoping that a palmy business model of star automotive are developed within the future.

Alnunu, Nasser, et al.[3] Since the notice regarding property, atmosphere and limitation of typical sources of energy are being obtaining supported analysis and development within the space of renewable energy is growing quick. Realizing the potential of renewable energy oil and gas firms and are supporting the developing technologies and experience for this field. Shell is one among these automotive races have started within the mid-80s, and are terribly palmy ever since. Races like the globe star Challenge, the Shell Eco-marathon, the North yank star Challenge, the South African star Challenge and also the World star Rally are currently well established and attract participation of college man groups from everywhere the globe SHELL ECO-MARATHON RACE. Annually in 3 continents: Americas, Europe and Asia the shell eco-marathon race are command. There are 2 classes of participation: model and concrete construct cars. There are variety of subcategories below every class on the energy basis. model participant should complete eight laps and a complete distance of twenty five 485 kilometers and a most

time of 51min. every team is restricted to four official tries, and also the best result's preserved. The track within reason safety and technical tests to be allowed to race. There are some generic principles for coming up with and modeling star cars. Typically, the planning is of 2 main phases, namely, mechanical and electrical. Technical also as soft skills of the engineering student will be improved by star automotive races. The expertise of QU students 1st participation in Shell Eco-marathon race, and has sealed the manner for future regular participations. The teams managed to style from scratch, locally-manufacture and take a look at a star automotive within the area of simply few months. This automotive met all the technical and safety inspections tests and took part within the race alongside many entries from everywhere the world; the goals are achieved. Following participation are in Shell Eco-marathon Asia in Asian country 2012, and also the team aims to be within the prime 10 of their class. Work is already below thanks to style generation a pair of the automotive

Qian, Jia, and Song Jie.[4] attributable to zero pollution there's the event of "future automotive" known as star car . In star automotive there's no engine, gear box and alternative part. it's composed of battery board, storage appliances and motor. mechanics drag are the most important driving resistance commutation the opposite resistance for the traditional automotive once its speed is quite 60-70 km/h. For the little power star automotive, body style with less mechanics coefficient of drag are the main target ancient technique of automotive mechanics study is structure testing which needs higher quality facilities, longer analysis cycle and better funds. With the event of technology, procedure fluid dynamics (CFD) technique within the automotive mechanics analysis is more and more vital. CFD technique encompasses a short cycle, low cost, no real vehicle models and alternative characteristics. Build pure mathematics of the flow space, border kind, and mesh generation mistreatment pre-processing code GAMBIT and output the format for the FLUENT thinker 2 styles of separate format of first-order upwind and second-order upwind, 1st first-order upwind is employed, when an exact variety of iterations, second-order upwind theme is employed to enhance the accuracy and convergence of the calculation and to cut back the computation time however it's tough to converge final alteration thus it's created by first-order upwind theme. The ensuing mechanics constant coefficient of drag coefficient and also the aerodynamic force coefficient are comparatively little.

Yesil, Engin, et al.[5] the utilization of massive Bang huge Crunch improvement technique in World star Challenge is planned in 2013. Renewable energy resources it's vital to optimally utilize them in associate degree economical manner urban center Technical University (ITU) star automotive Team was based in 2004 not solely to much style star supercharged cars, however additionally to demonstrate however economical an electrical automotive may well be and to push the importance of fresh energy. so as for a star team to return in 1st place, star automotive motor with a sturdy structural style and realistic estimation the improvement task. Low speed profile just in case of cloudy weather, high {in case just in case of sunny conditions High speed profile in case of cloudy weather, low

just in case of sunny conditions, Constant speed throughout the race. The aim of the study is to work out associate degree best strategy to attenuate the race length whereas activity the race laws and also the constraints obligatory by the environmental conditions.

Vincent, Vineeth V., and S. Kamalakkannan [6] A three-input hybrid system for star automotive is meant. The are 2 storage part, one one-way input power port and 2 duplex power ports .Three completely different power operation modes are defied for the device, reckoning on utilization state of the battery. Battery charging within the system is administered from the amorphous solar battery mounted on the body. The potency of the system can improve since the solar power is directly given to the DC load. The electrical condenser that is connected to the lead acid battery can charge at off peak hours and discharge throughout the acceleration time of the automotive. during this planned system energy wasted within the brakes are recovered and wont to charge the lead acid battery. Thus competent Hybrid electrical Vehicle was developed by mistreatment super electrical condenser and regenerative braking theme. The simulation results of the planned systems show that the performance of the vehicle was improved by providing higher operating conditions for the battery and increase its operative life, supply of energy extended up to the, regenerative braking theme alongside star supply, can increase the system dependableness. Since the super capacitors have the power to supply an oversized current briefly time acceleration, performance of the vehicle can improve.

Kawamura, Noritaka, and Mitsuharu Muta [7] 1st initiative towards low-carbon society by Japan government for eco model society from 2008. Toyota is that the one among the thirteen municipalities chosen for the program .solar automotive charging system is found twenty kilometer radius from Toyota hall we've supported the reduction of carbon dioxide emissions at charging station PHEVs is that the dynamic station and to charge we want to use pure natural energy provided by the sun thus it's charged by the electricity generated by the photovoltaic cell The photovoltaic cell is capable of manufacturing more or less one,400kWh p.a., reducing carbon dioxide emissions by 440 kilogram. the ability conditioner converts DC power from star generation or the ability storage unit to AC power, and is the systems center. once the electricity generated isn't used for charging then it's hold on within the power storage unit for future charging of PHEVs and EVs the star charging system operates below four main modes reckoning on whether or not it's getting used to charge PHEVs/EVs. There are four modes System is charging PHEVs/EVs, and power storage unit will offer electricity, System is charging PHEVs/EVs, and power storage unit cannot offer electricity, System isn't charging PHEVs/EVs, and electricity will be charged to power storage unit and System isn't charging PHEVs/EVs, and electricity cannot be charged to power storage unit.

Menasce, Daniel, Marthie Grobler, and Pieter Janse van Rensburg [8] the planning of a star automotive have a rules and this rules are regulated are contained in Technical laws for energy Vehicles. the most space of the solar battery is six M2 for associate degree array engineered from

element electrical phenomenon cells. This limits groups to more or less 1kW of energy generation. moreover the automotive might not be quite 4m long and one.8m wide. there's a mass limit to the dimensions of the battery pack supported the chemistry or style of cells. A team member of the pair of 003 World star Challenge winning team Nuna, analyzed the distinction between the primary and second place groups within the 2011 World star Challenge. consistent with his calculations, a one0kg lighter automotive consumed 1.5% less energy, while a hundred and twenty fifth a lot of potency within the electrical systems resulted in a hundred and twenty fifth a lot of energy out there to drive the vehicle. the most parameter employed in the choice or style of part for star automotive are the electrical Drive, The Battery Pack and electrical phenomenon System .The design of star automotive by student can facilitate in developing the scholar engineering talent, team work, leadership and possession.

Ahmed, Shehab, Ahmed Hosne Zenan, and Mosaddequr Rahman[9] the form of the automotive is steam pipe to cut back the air drag and it's designed as 2 seats to enhance the compactness of the automotive .the star panel is mounted on the roof of the automotive to gather the energy from the sun and convert it into usable power that is hold on within the battery through the charge controller. so as to search out the performance this value of all part .present value of any item is that the quantity of cash that require to be invested with. The star automotive with a pair of seats contain 700 w motor with forty eight v battery with a capability of forty H.P. and 200w solar battery are needed to provide the mandatory power

Ashrafee, Farin, Sayidul Morsalin, and Asif Rezwani[10] at the moment time, energy crisis has become a bulk throughout the globe. Besides resources are decreasing with population increase .At present in 2012 world averaged energy demand is 17TW and eighty fifth of this comes from fuel however in 2050 the demand are 30TW.As there lies shortage of electrical power in Southeast Asian country, it's become an important issue to initiate the employment of renewable energy in developing countries like Bangladesh for reducing the demand of electricity. the planning of an automotive main part embrace solar battery, electric motor, wheels, shaft, battery, wood for frame, steel pipe for steering, sheet metal for seat, washers, screws, clamps, pins Insulated wire etc. to speculate during a project, associate degree capitalist 1st should suppose what proportion time it'd got to recover his investments. The speed of the automotive will be accumulated by dynamic the automotive form to control surface. As a result of the worth of coefficient of drag is extremely little and this reduces the drag force. Once the solar battery is charging the batteries, power huntsman can facilitate to guard the batteries being broken by overcharging

### III. CONCLUSION

Many analysis works has been administered in developing star electric automobile and increasing its performance. The on top of review paper presents all the main analysis administered within the space of star electrical vehicle. By considering the on top of reviews the analysis would feel

straightforward in administered their analysis within the new areas of star electric automobile.

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