

Solar Powered Electric Vehicle

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Abstract— *In the current scenario, global warming is a threat to the society. One of the major reasons is the release of carbon-di-oxide from an automobile exhaust due to the combustion of fossil fuels which pollutes the environment. One of the optimistic solutions for this problem is to use of hybrid vehicles. Generally, Hybrid vehicle involves a combination of transmission system driven through electrical, solar as well as internal combustion (IC) engine. This work involves hybridization with solar power and conventional power IC engine. Hence it is called a Hybrid Solar Vehicle (HSV). It can be driven both on internal combustion engines as well as on solar energy assisted with electrical motor. In real life applications using solar vehicle produces zero emissions. At present, hybrid electric vehicles are being developed and launched into the market. For long distance travelling its necessary of periodic charging of their batteries, so these vehicles are depending the electrical sources also leads to increase the cost of electricity. These kinds of problems will be solved by using hybrid solar vehicle also HSV supporting to the green environment.*

Keywords- *solar car , solar energy , batteries , electrical*

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I. INTRODUCTION

The whole world is moving with automobiles. Huge amount of fossil fuels are burned for automobiles..Nothing on earth is free of cost, but what if we could find a way to implement free rides? Indeed, it would be wonderful if our cars could peculiarities. cars could continue to run without us having to spend billions on fossil fuels every year and to deal with natural hazards that their combustion leave behind., the entire proceedings, and not as an independent document. Considering the availability and pollution of fossil fuels we need a substitute. The best substitute is electric vehicles which will not create any pollution to environment. The main impediment is the storage capacity of electric power, the ride is restricted up to battery capacity. This storage issue can be beaten by adding solar power.

- automobiles. By adding PV modules, the vehicles can be charged while driving by this the driving distance can be increased. If we could drive a solar-powered car, that auto dream would come true. Solar cars would harness energy from the sun via solar panel
- They are noiseless and pollution-free with no rotating parts and need minimum maintenance. The electricity thus generated would then fuel the battery that would run the car's motors.
- a single motor operation our vehicle is driven with two motors which are placed at the wheel hubs.

1.1.1 Proposed system

The basic configuration of a solar based electric car drive consists of a controller that controls the power flow from the battery to the electric power flow acts in parallel. of power, which are solar arrays that use photovoltaic cells convert sunlight into electricity.

Literature Work

- A. *With the increasingly severe environmental problems around the world, exploitation of clean and renewable energy has been a crucial topic* As indispensable transportation in modern society, vehicles are ubiquitous but also one of the main sources of pollutants. Because of their status, it is almost impossible to decrease the volume of vehicles. One solution to lowering emissions is the electric vehicle. Overall, the electric vehicle is more energy efficient, environmentally friendly, and cleaner than the vehicle that relies on fossil fuels.
- An electrically powered vehicle has essentially three major electrical components. These include energy commands, controls the torque and speed of the electric motor.
 - The solution is SPEV is supported with a charging cable that plugs in to the vehicle and into a 230v wall socket. The electric vehicle have a built-in features like security system, Seatbelt Detection system, Collision detection
 - Hence, by incorporation of the solar photovoltaic panels, the range of the Battery powered cars can be increased. Electric vehicles are currently emerging in the present market and the automobile industry is investing a lot of their R & D resources for the development of electric solar vehicles. These are the future of zero carbon emissive car transportation. The present work aims to develop a model of plug-in electric solar vehicle and discusses the design parameters of these vehicles to come in the market.

METHODOLOGY USED FOR PROJECT

DESIGN

Identify applicable funding agency here. If none, delete this text box.

Table 1 – Assets and drawback of different battery types				
Battery types				
Lead-Acid	Lithium ion	NiMH	Others	Regenerative Braking
Asset: <ul style="list-style-type: none"> • inexpensive Drawback: <ul style="list-style-type: none"> • heavy 	Asset: <ul style="list-style-type: none"> • high performance Drawback: <ul style="list-style-type: none"> • Extremely sensitive to high temperatures & Inherently flammable 	Asset: <ul style="list-style-type: none"> • Lightweight • Good performance Drawback: <ul style="list-style-type: none"> • Cost 	Assets And Drawback Depends Upon Type	Asset: <ul style="list-style-type: none"> • Recovered energy increases the bicycle performance Drawback: <ul style="list-style-type: none"> • More complex controller than Non-regenerative type

source (usually are chargeable battery bank), an inverter or, motor controller and an electric motor.

- In the case of a solar car, the energy source is typically a bank of batteries, which may be recharged by photovoltaic solar panels .
- The motor controller is typically a power electronics device which when supplied with the Driver's input

DEFINE SPECIFICATION

STUDY ALTERNATIVE MECHANISUM FOR PRODUCT AND SELECTING CONVENIENT

PREPARE GENERAL LAYOUT CONFIGURATION

PREPARE ASSEMBLY AND DETAILED DRAWINGS

FABRICATION

COMPONENT TO BE USED:

1. 750watt dc motor

2. 48watt 2 battery
3. Motor controller
4. MS square pipe 2x2
5. MS square Pipe 1x1
6. Scotty wheels
7. Brakes hub

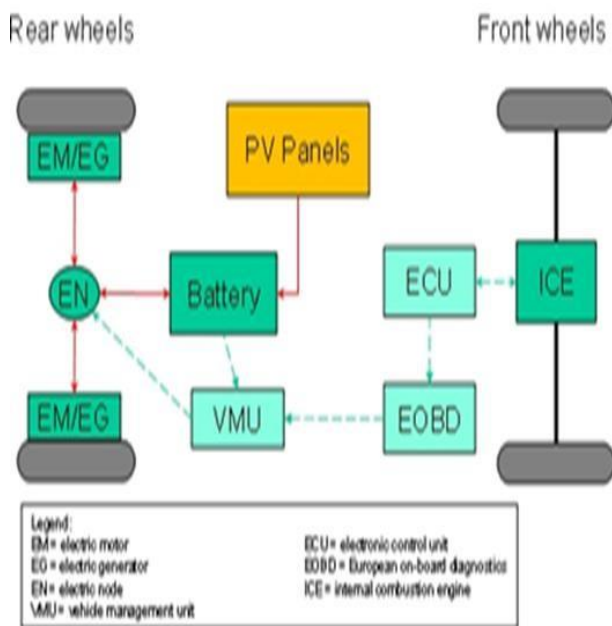


Fig.: Scheme of a system to upgrade a conventional car to Mild Hybrid Solar Vehicle.

Upgrade of conventional vehicles

A possible remark is that, considering the current economic crisis, it is unlikely that, in next few years, PV assisted EV's and HEV's will substitute for a substantial number of conventional vehicles, since relevant investments on production plants would be needed. This fact would of course impair the global impact of this innovation on fuel consumption and CO₂ emissions, at least in a short term scenario. Therefore, one may wonder if there is any possibility to upgrade conventional vehicles to PV assisted hybrid. A proposal of a kit to be distributed in after-market has been recently formulated and patente.

PROCEDURE FOR CALCULATION OF MATERIAL COST

- The general procedure for calculation of material cost estimation is :
- After designing a project, a bill of material is prepared which is divided into two categories.
- Fabricated components.
- Standard purchased components.

- The rates of all standard items are taken and added up.
- Cost of raw material purchased taken and added up.
- THIS IS DONE AS FOLLOWS: -
- Dimension for each part is noted and the volume of the material is calculated by multiplying it with specific gravity of that material to give the weight of the component. The density of mild steel is taken as 7.85 gm/sec. The weight of material for each part is multiplied by the rate per kg. Of the material to give the material cost for each component.
- The summarization of all the cost of the standard products thus the cost of material to be fabricated gives the material cost estimation of that project.
- There are three categories of costs : -
- material cost
- Machining cost
- Labour cost
- Material cost : - It is again sub-divided as
- Raw material cost
- finished product cost
- Labour Cost:-
- It is the cost of remuneration (wages, salaries, commission, bonus etc.) of the employees of a concern or enterprise.
- Labour cost is classified as
- Direct Labour Cost
- Indirect Labour Cost
- COST. SELLING COST = MANUFACTURING COST + 10% PROFIT**
- A) Direct Labour Cost
- The Direct Labour Cost is the cost of labour that can be identified directly with the manufacture of the product and allocated to cost centres or cost units. The Direct Labour is one who counters the Direct Material into saleable product, the wages etc. of such employees constitute direct labour cost. Direct Labour Cost may be apportioned to the unit cost of job or either on the basis of time spend by a worker on the job or as a price for some physical measurement of product.
- Indirect Labour Cost
- It is that labour cost which cannot be allocated but which can be apportioned to or absorbed by cost centres or cost units.

- This is the cost of labour that doesn't alter the construction, confirmation, composition or condition of direct material but is necessary for the progressive movement and handling of product to the point of dispatch e.g., maintenance, men, helpers, machine setters, supervisors and foremen etc. The total labour cost is calculated on the basis of wages paid to the labour for 8 hours

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- PROCEDURE OF CALCULATING MACHINING COST:
- Time taken by a particular machine for machining each and every component is calculated including allowances for tiny set up inspection time, cantering time etc. because a component cannot have more than one operation. The machining cost is calculated using standard working rates of machine per hours. The time taken by a particular machine for machining every component is multiplied by the machining rate to give the machining cost.
- CONCLUSION
- Many studies have been conducted in order to improve the performance of solar electric vehicles. All major research into solar electric vehicles is covered in the above review paper. Taking into consideration the review above, the research in the new areas of solar electric cars would feel easy to carry out
- Acknowledgment
- It gives me an immense pleasure to present a report on the successful completion of my project report on –Solar Powered Electrical Vehicle. We express our deep sense of gratitude to our guide –Y.R. Naik for his valuable guidance rendered in all phases of project. We are thankful of his/her wholehearted assistance, advice and expert guidance towards making my project success.
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