iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** V **Month of publication:** May 2018

DOI: http://doi.org/10.22214/ijraset.2018.5422

www.ijraset.com

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

Fabrication & Modification of a Solar Car

Prateek Gangwar[1], Sumit Gangwar[2,] Dr. A.S. Verma[3]
[1]*Department of Mechanical Engineering, Kanpur Institute of Technology, Kanpur, 208001,* AKTU *Lucknow, India*
[2]*Department of Civil Engineering, Rama University, Kanpur, Uttar Pradesh, 209217, India*
[3]*Department of Mechanical Engineering, Kanpur Institute of Technology, Kanpur, 208001, India*

Abstract: In this project, the manufacturing of processes involved in a solar car is begins from initial raw material and it also contains design and analysis of solar car .It is very useful for transportation from one place to another. It is free from fuel. It is good for health due to exercising. In this project diagram of Solar car parts have shown in AutoCAD and it contains the analysis of frame, differential, motor, chasis and steering system. A solar car is a solar vehicle used for land transport. Solar car only run on solar power from the sun. They are very stable and can come in different sizes.
Keywords: Principle, Systems, Working, Components and Benefits.

I. INTRODUCTION

A solar car is a light weight, low power vehicle designed and built with a single purpose in mind racing from sun. It has limited seated and cargo capacity. It does however excellent opportunity to develop future opportunity that can be applied practical purpose. The car operates by collection and conversion of solar light into electric energy using solar cells mounted on vehicle which is delivered to motor and battery.

A car operates on 850 watt motor; with such amount of energy efficiency is crucial. Aerodynamic drag, resistances all influence the car design. The objective of project is to provide the general idea about the component and design of solar car. A solar car is a solar vehicle used for land transport. Solar cars combine technology typically used in the aerospace, bicycle, alternative energy and automotive industries.

The design of a solar vehicle is severely limited by the amount of energy input into the car. Most solar cars have been built for the purpose of solar car races. Since 2011 also solar powered cars for daily use on public roads are designed. Solar cars are often fitted with gauges as seen in conventional cars.

To keep the car running smoothly, the driver must keep an eye on these gauges to spot possible problems. Cars without gauges almost always feature wireless telemetry, which allows the driver's monitor the car's energy consumption, solar energy capture and other parameters and free the driver to concentrate on driving.

Solar cars depend on PV cells to convert sunlight into electricity. Unlike solar thermal energy which converts solar energy to heat for either household purposes, industrial purposes or to be converted to electricity, PV cells directly convert sunlight into electricity.

II. HISTORY OF SOLAR CAR

In 1955, William G. Cobb of the General Motors Corp. (GM) demonstrates his 15-inch-long "Sunmobile," the world's first solar-powered automobile, at the General Motors Powerama auto show held in Chicago, Illinois.Cobb's Sunmobile introduced, however briefly, the field of photovoltaic–the process by which the sun's rays are converted into electricity when exposed to certain surfaces–into the gasoline-drenched automotive industry.

When sunlight hit 12 photoelectric cells made of selenium (a nonmetal substance with conducting properties) built into the Sunmobile, an electric current was produced that in turn powered a tiny motor. The motor turned the vehicle's driveshaft, which was connected to its rear axle by a pulley.

Visitors to the month-long, $7 million Powerama marveled at some 250 free exhibits spread over 1 million square feet of space on the shores of Lake Michigan.

Today, more than a half-century after Cobb debuted the Sunmobile, a mass-produced solar car has yet to hit the market anywhere in the world. Solar-car competitions are held worldwide, however, in which design teams pit their sun-powered creations (also known as photovoltaic or PV cars) against each other in road races such as the 2008 North American Solar Challenge, a 2,400-mile drive from Dallas, Texas, to Calgary, Alberta, Canada.

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Fig.1 Ancient model

In early 2009, The Nikkei, a Japanese business daily, reported that Toyota Motor Corp. was secretly developing a vehicle that would be powered totally by solar energy. Hurt by a growing global financial crisis and a surge in the Japanese yen relative to other currencies, Toyota had announced in late 2008 that it was expecting its first operating loss in 70 years. Despite hard economic times, Toyota (which in 1997 launched the Prius, the world's first mass-produced hybrid vehicle) has no plans to relinquish its reputation as an automotive industry leader in green technology. The company uses solar panels to produce some of its own electricity at its Tsutsumi plant in central Japan, and in mid-2008 announced that it would install solar panels on the roof of the next generation of its groundbreaking electric-gasoline hybrid Prius cars. The panels would supply part of the 2 to 5 kilowatts needed to power the car's air conditioning system.

III. MAJOR COMPONENTS OF SOLAR CAR

Solar car is a vehicle which runs by utilization of solar energy. A solar vehicle is an electric vehicle powered completely or significantly by direct solar energy. Usually, photovoltaic (PV) cells contained in solar panels convert the sun's energy directly into electric energy. The term "solar vehicle" usually implies that solar energy is used to power all or part of a vehicle's propulsion. Solar power may be also used to provide power for communications or controls or other auxiliary functions.

An essential component of solar car is listed below:

A. Electric motor
B. Controller
C. Battery
D. Convertor
E. Differential
F. Solar panel

IV. CONCLUSIONS

The Solar paneled cars are cars that are eco-friendly, and as you can see from their description. They use solar energy to generate power for the car to move .Basically solar car is an electric vehicle powered by direct solar energy.
The term SOLAR VEHICLE usually implies that solar energy is used to power all the part.Solar power is used to provide power for controlling the auxiliary function.
While there are still possibility ,solar powered cars a long off. There are a number of practical problems with solar powered cars. It is difficult to gether enough power to move for long distance.

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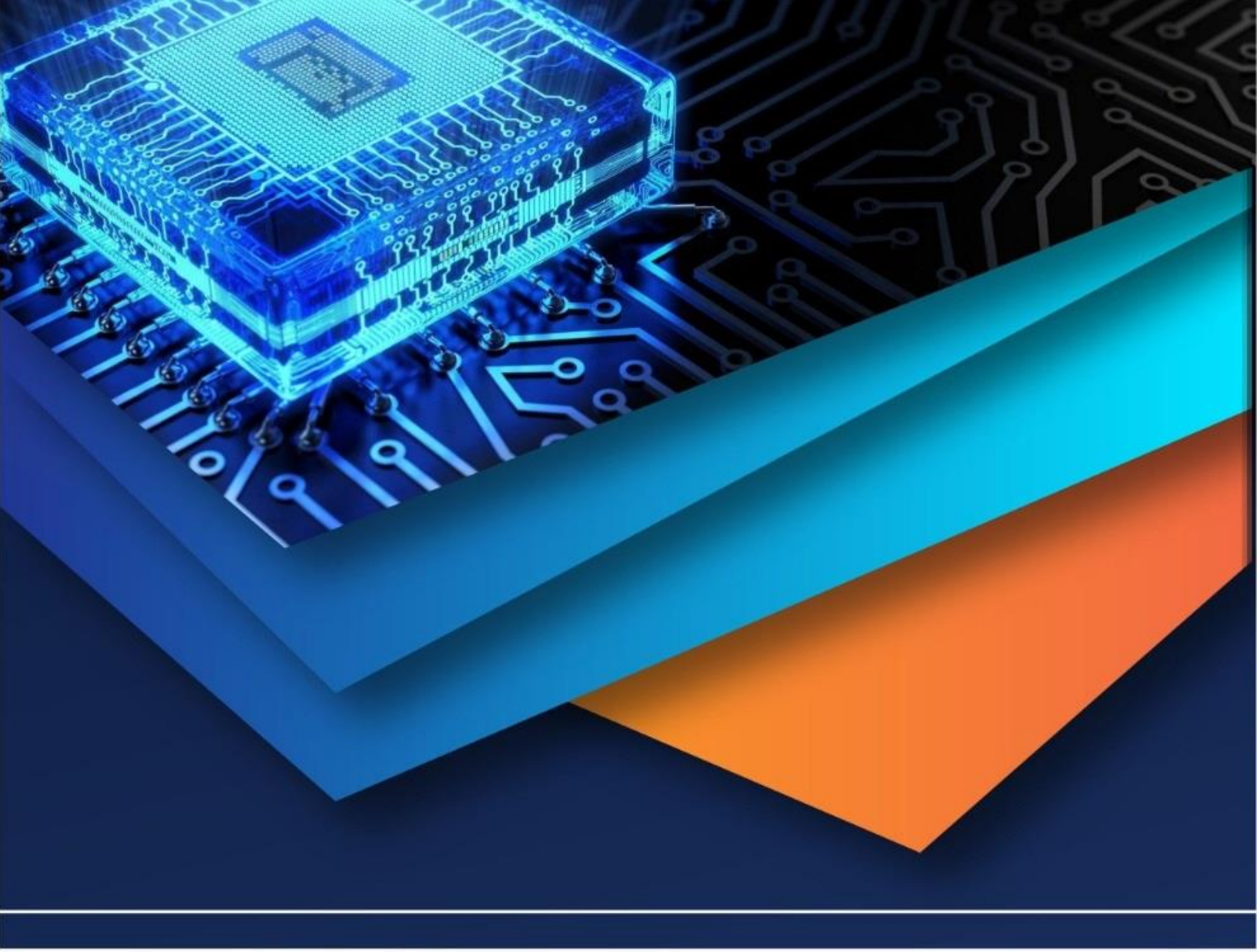
FINAL LOOK OF OUR PROJECT SOLAR CAR



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