

Dissertation Report

On

SOLAR CAR WITH SMART FEATURES

Submitted in partial fulfillment of the requirements of the degree

Of

Bachelor of Mechanical Engineering

By

Abhishek Aravind Biradar (06)

Yograj Sadanand Kasar (36)

Nilesh Narayan Rane (61)

Harshal Madhukar Shinde (72)

Under the guidance of

Prof. Pravin Jadhav



Department of Mechanical Engineering

Gharda Institute of Technology

Po. Lavel, Taluka: Khed, Dist. Ratnagiri – 415708.

University of Mumbai

(2017-2018)

CERTIFICATE

This is to certify that the project entitled “**Solar car with smart features**” is bonafide work of


Abhishek Aravind Biradar (06)

Yograj Sadanand Kasar (36)

Nilesh Narayan Rane (61)

Harshal Madhukar Shinde (72)

Submitted to the University of Mumbai in fulfillment of the requirement for the award of the degree of “**Bachelor of Mechanical Engineering**”.



(Prof. Pravin Jadhav)
Supervisor/Guide



(Prof. Onkar Jarali)
Head of department



(Prof. P. S. Joshi)
Principal

Thesis Approval for Dissertation for Project Report for B. E.

This thesis / dissertation/project report entitled —*Solar car with smart features* by

Abhishek Arvind Biradar

Vijraj Sudamand Katar

Nilesh Narayan Rane

Harshal Madhukar Shinde

is approved for the degree of — *Bachelor of Mechanical Engineering*.

Examiners:

1. 

2. 

Date

Place

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included; we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.


Name & Roll No. of Student

Signature

Abhishek Aravind Biradar (06)



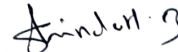
Yograj Sadanand Kasar (36)



Nilesh Narayan Rane (61)



Harshal Madhukar Shinde (72)



Date:

Chapter 4

Hardware Model

4.1 Solar Car Construction

For converting conventional vehicle into Electric Vehicle, Some hardware modification was necessary. This modification includes making provision for battery placement which include four series connected 12 V batteries, Motor controller placement

& Battery. Main & complicated task was to modify vehicle structure for that purpose we referred online vehicle designs & decided to extend the vehicle as shown in below figure.



Fig 4.1 mechanical design of solar car

- | | |
|-------------------|----------------|
| 1) Accelerator | 4) Solar Panel |
| 2) BLDC hub motor | 5) Seat |
| 3) Wheel | 6) Brake |

4.2 Battery Box

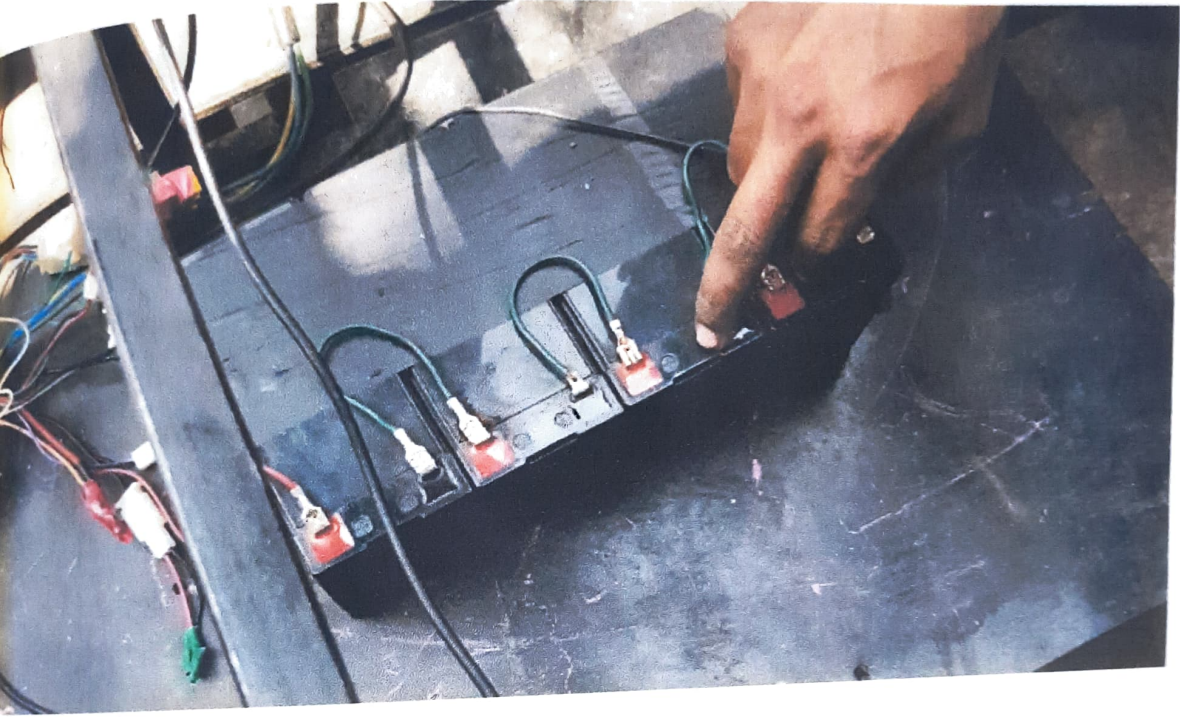


Figure 4.2 Battery Dimensions

4.3 Motor controller



Figure 4.3 Motor Controller

4.4 Final Weight Calculation

Solar Car	43 Kg
Hub Motor	5.8 Kg
Battery	$2.4 * 4 = 9.6 \text{ Kg}$
Controller	0.2 Kg
Total Solar Car Weight	58.6 Kg

4.5 Assembling Components

- 1) Hub Motor laced to shaft.
- 2) Throttle control at handle.
- 3) Batteries
- 4) Motor Controller
- 5) Solar panel