



Rajgad Dnyanpeeth's

SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING

Gat No. 237, Pune Bangalore Highway, Dhangawadi, Tal – Bhor, Dist- Pune (Maharashtra)

Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.2.1 Institution has created an ecosystem for innovations including incubation center and other initiatives for creation and transfer of knowledge (5)

Index

Sr. No.	Name of Activity
1	Smart India Hackathon -2017 Report
2	Hybrid Car-2017 Report
3	Supra SAE India-2014 Report





RAJGAD DNYANPEETH'S
SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING
Gat.No-237, Pune Bangalore Highway, Dhangawadi, Tal-Bhor, Dist-Pune (Maharashtra)

Smart India hackathon- 2017

REPORT

To,

The Principal

College of Engineering

RDTC SCSCOE Dhangawadi,

Tal.-Bhor. Dist.-Pune.

Subject: Report of Andhra Pradesh visit for SMART INDIA Hackathon 36Hr. Coding Challenge

Respected sir,

With reference to mentioned subject, I am Prof. K. M. Shirkande visited Andhra Pradesh visit for SMART INDIA Hackathon 36Hr. Coding Challenge. There were 6 Students and 2 Mentors for allotted center named K. L. University, Vijayawada.

Name of Students:

1. Ms. Oswal Neha (Team Leader)
2. Ms. Shripat Neha
3. Ms. Dhumal Tejashree
4. Mr. Atar Tousif
5. Mr. Khan Mohammad Asif
6. Mr. Pathan Shahanavaj

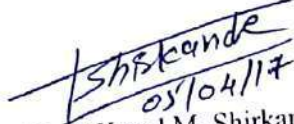
Name of Mentors:

1. Prof. Shailesh P. Patil
2. Prof. Kunal M. Shirkande

This is for your kind information and further process.

Thank You.

Your's faithfully,


(Prof. Kunal M. Shirkande)
05/04/17
Dept. of Computer Engineering



To,
The Principal,
RDTC SCSCOE Dhangawadi,
Tal. - Bhore, Dist. - Pune.

Date: 05/04/2017

Subject: Report of Hackathon-2017 at Andhra Pradesh

Respected Sir,

As per the selection from Smart India Hackathon-2017, our 6 (SIX) students from BE Computer along with 1(One) faculty member have visited K. L. University, Vijayawada, Andhra Pradesh from 30/03/2017 to 04/04/2017. This visit is related to 36Hour Coding Competition.

On 1st day i.e. on 30/03/2017 we have started our journey from Pune to Vijayawada, Andhra Pradesh via Train from Pune Station at 10.30am and we reached to Vijayawada Station at 04.00am on 31/03/2017 after that K. L. University had send their bus along with coordinator to receive all the teams from different states to Vijayawada station and then they took us to our destination.

On 2nd day i.e. on 31/03/2017 we have been allotted our accommodation and we have been asked to take rest. On 31/03/2017 at 06.00pm registration process get started and the judges were taking round at the same time for interaction with the participants. At 9.00pm on 31/03/2017 registration process was finished and they announced that on the next day i.e. on 01/04/2017 at 7.00am our Hackathon event will get started.

On 3rd day i.e. on 01/04/2017 they have started with the inauguration ceremony in their Peacock Hall. The actual Hackathon-2017 36 Hour Coding Competition event gets started at 8.30am to their respective halls from 01/04/2017 to 02/04/2017 up to 6.00pm.

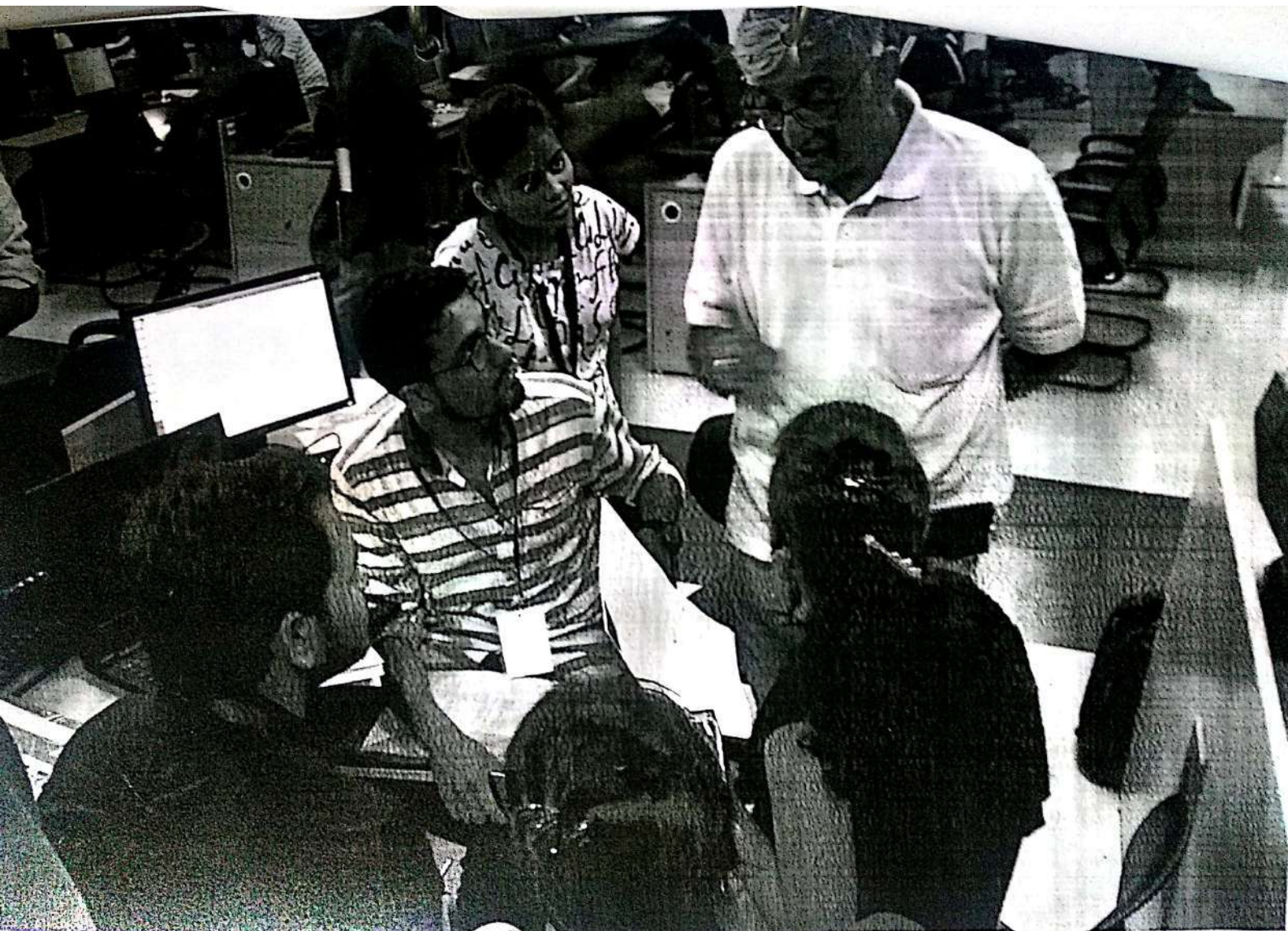
On 4th day i.e. on 02/04/2017 at 6.30pm the final evaluation round get started and it get finished at 9.30pm.

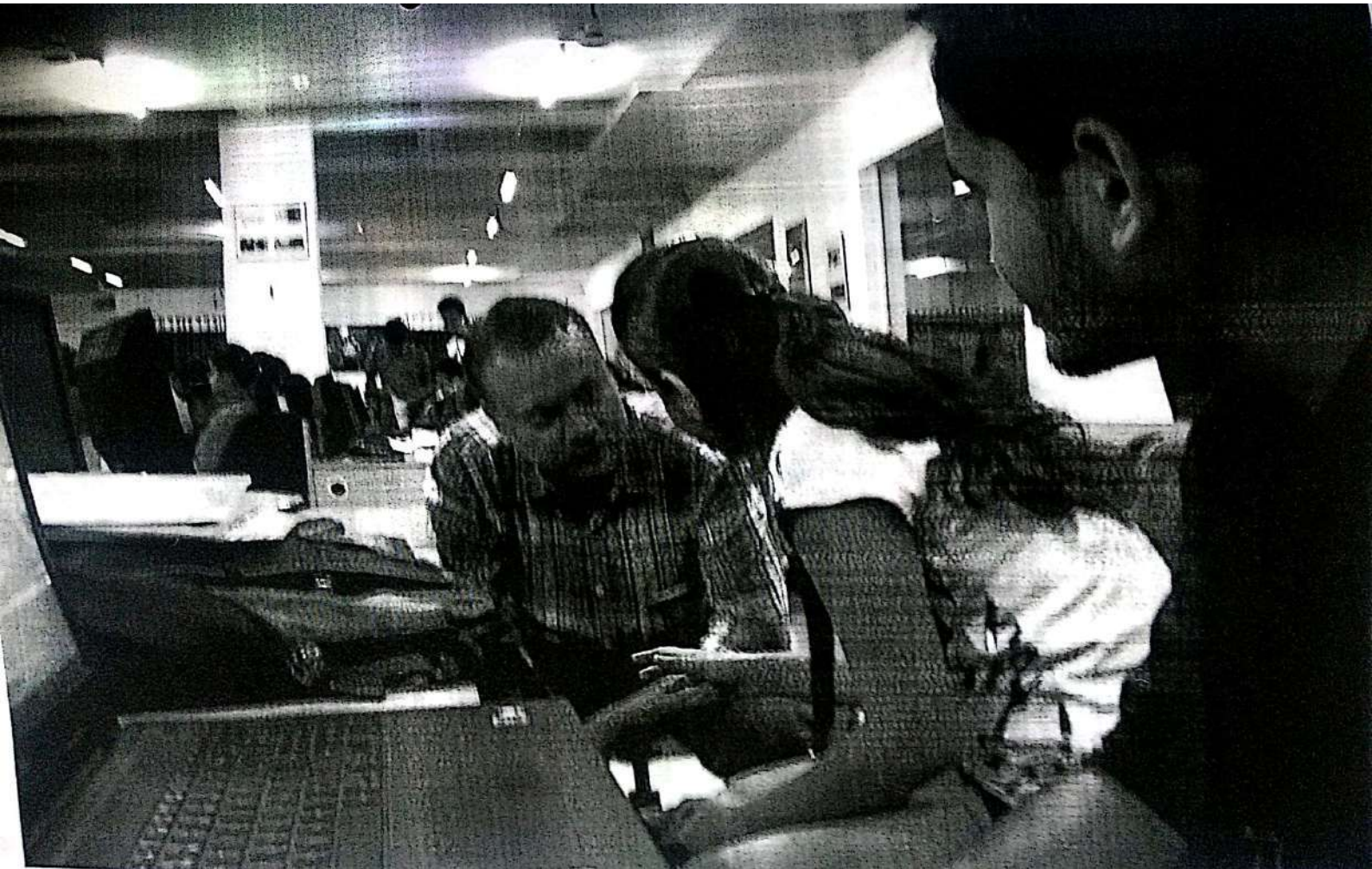
Our return journey get started on 5th day i.e. on 03/04/2017 at 6.00am from Accommodation location (K. L. University Hostel) to our Destination i.e. Pune Station. We were reached to Pune Station at 6.00am on 6th day i.e. on 04/04/2017.

This is for your kind information.

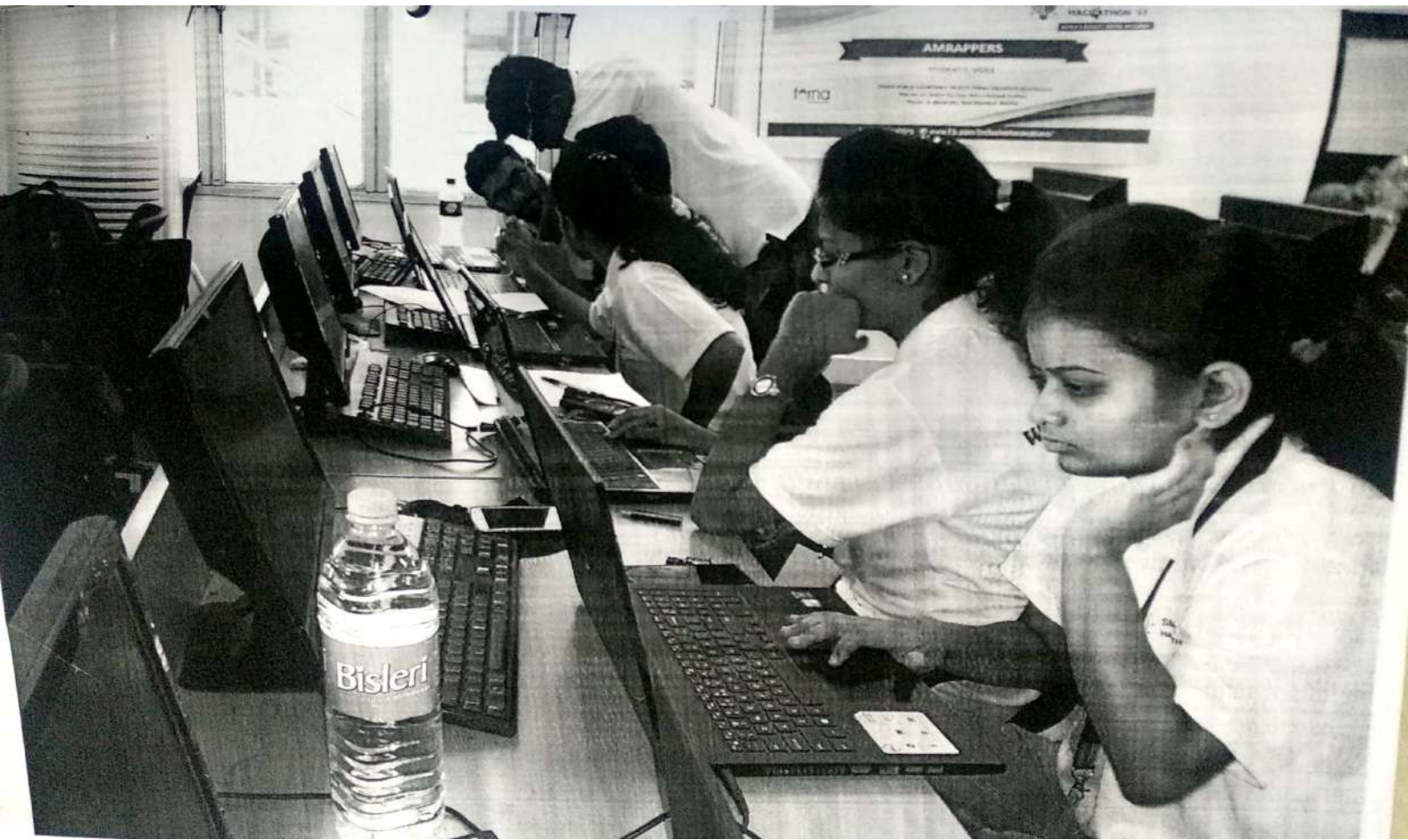
Thanking you,

Staff Coordinators
/Shirkande
05/04/17
(Prof. K. M. Shirkande)
Dept. Computer Engineering















Expenditure of Andhra Pradesh visit for SMART INDIA Hackathon

From advance amount 5000/- (Five Thousand Rupees Only)

Dated on 05/04/2017

Sr. No.	Particular	Amounts(Rs)
1	Nanded City to Pune Station at 8.00am on 30/03/2017	
2	Bisleri Bottle (20*4) at 01.30pm on 30/03/2017	210/-
3	Bisleri Bottle (20*4) at 06.00pm on 30/03/2017	80/-
4	Tea (7*10) at 6.15pm on 30/03/2017	80/-
5	Bisleri Bottle (20*5) at 09.45pm on 30/03/2017	70/-
6	Sprite Bottle (1*40) at 10.30m on 30/03/2017	100/-
7	Breakfast (Samosa+Dahi Puri+Shev Puri(2)+Franky+Juice) at 09.00am on 31/03/2017	40/-
8	Lunch & Bisleri at 1.00pm on 31/03/2017 (for 1 Person only)	310/-
9	Breakfast & TEA at 6.30pm on 31/03/2017 (for 7 Person only) (7*35)	225/-
10	Return Journey StartedAuto Up to Bus Stop (7*15) at 6.00am on 03/04/2017	245/-
11	Auto Up to Railway (7*25) at 6.30am on 03/04/2017	100/-
12	Breakfast at 10.00am on 03/04/2017	175/-
13	Lunch at 01.30pm on 03/04/2017	35/-
14	Bisleri Bottle (20*7) up to 04.30am on 04/04/2017 (for 1 Person only)	200/-
15	Dinner at 09.30pm on 03/04/2017 (for 1 Person only)	140/-
	TOTAL	2210/-


(In words :Two Thousand Two Hundred and Ten Rupees only)

5000/- (Advance Amount) - 2210/- (Expenditure) = 2790/- (Balanced Amount)

This is for your kind information and further process.

Thank You.

Your's faithfully,


(Prof. Kunal M. Shirkande)
Dept. of Computer Engineering



Shri Chhatrapati Shivajiraje College of Engineering

S. No. 237, Off NH04, Pune - Bangalore Highway

A/P - Dhangawadi,

Tal - Bhore, Dist - Pune

E-Mail : scscoe@gmail.com

Cash Payment Voucher

No. : RDTG/SCSCOE/17-18/007

Dated : 19-Jun-2017

Particulars	Amount
Account : Project Work Expenses A/c	5,810.00
Through : Cash	
On Account of : Being Amount paid to Prof. Shirkande H. M. agst attend seminar with college students in Andhra Pradesh of Hackathon 2017	
Amount (in words) : INR Five Thousand Eight Hundred Ten Only	
	₹ 5,810.00

Receiver's Signature

Accounts Officer


Principal



RAJGAD DNYANPEETH'S
SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING
Gat.No-237, Pune Banglore Highway, Dhangawadi, Tal-Bhor, Dist-Pune (Maharashtra)

Hybrid Car - 2017

Shri Chhatrapati Shivajiraje College of Engineering

Approved by AICTE, Govt of Maharashtra and Affiliated to the University of Pune (ID NO PU/PN/Engg/376/2009)

Dr. Bhagyashree s. Patil

Hon. secretary

Anantrao Thopte

Founder President
Ex. Education Minister
Maharashtra State



RD/SCSCOE/559

Date: 09/08/2016

To

The Honorary Secretary

Rajgad Dnyanpeeth,

Bhor.

Subject – Request for financial support of students participation in Hybrid Car Competition.

Respected Madam,

Our Mechanical Engineering students are going to participate in national level Hybrid Car Competition, which will be held during 16th to 19th Feb. 2017 at Noida, New Delhi. Various engineering colleges all over the India are going to participate in this competition. This competition is beneficial to improve technical skills of the students. For this competition, student requires financial support from our Rajgad Dnyanpeeth trust. The approximate cost for making Hybrid car is Rs. 7,00,000/-. Out of this, students will collect the 50% of amount through sponsorship and other sources. Remaining 50% financial support is expected from the management. So you are requested to provide financial support to the students of our college for participation in this competition. Please do the needful.

Thanking you.

Lavate

Prof. R. S. Lavate
Staff coordinator

Pawar

Prof. S. K. Pawar
HOD

Patil

Prof. Dr. S. B. Patil

Principal

Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

50% amount
approved

Patil
Hon. Secretary
Rajgad Dnyanpeeth, Bhor

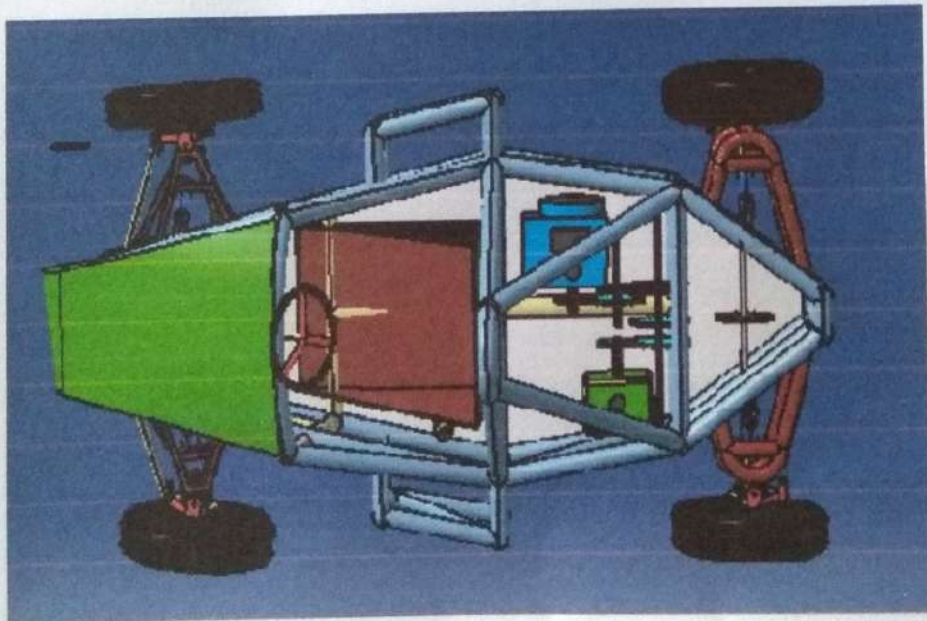
PROJECT REPORT ON HYBRID CAR

NAME OF GUIDE : Prof. S.K.Pawar

Prof.R.S.Lavate

ACADEMIC YEAR : 2016-17

DURATION OF PROJECT : 1 Year



TEAM_EMPYREAN

HYBRID VEHICAL CHALLENGE PRELIMINARY DESIGN REPORT

SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING, PUNE
AFFILIATED TO PUNE UNIVERSITY

ABSTRACT

The main motto of TEAM_EMPYREAN in HVC 2017 competition is to conceive, design & fabricate a car with all the knowledge gained so far. The objective of the design team is to build a prototype car on an assumption that a manufacturing company has contracted them to design, fabricate and demonstrate one for evaluation of the same as a product ready for production as per the rules specified by HVC. The vehicle will be tested for its cost analysis, overall design presentations, acceleration, braking, cornering capability, fuel economy and endurance.

INTRODUCTION

"HVC" when the words come in mind it thunders each and every member of our team to work with full dedication and their passionate work leads a way to build an economical formula style car.

TEAM_EMPYREAN consists a bunch of fully dedicated young engineers and with their astounding efforts that oaths to deliver a safe and sound vehicle. Our college is located near to India's greatest automobile hub PUNE, which helps us to get as much as resource and information required for the event and is equipped with all the instruments required to successfully build our car.

For this project the following software tools we will be using are Pro-ENGINEER 4.0, CATIA V5 R20 for designing and ANSYS 14.5 for analysis. As we are participating for the first time we have mainly focused on a simple & economical car. Project has not only encouraged students to think off the classroom theories but also created a healthy learning climate in our campus.



DESIGN GOALS

Certain design parameters were incorporated while designing as per the TEAM EMPYREAN rules, obstacles seen throughout the course. The parameters considered for designing of this year's HVC car are:

- **Simplicity And Reliability**
- **Balance**

VEHICLE SPECIFICATION

- Overall length: 2159 mm
- Wheel Base: 1524 mm
- Overall Height: 939.8 mm
- Track width: 1168.4 mm
- Ground Clearance: 150 mm
- Overall Weight: 250kg (with driver)
- Engine: BRIGGS & STATTON 208R
- Transmission: BRIGGS & STATTON 208R
- Tire size : 90/90-12
- Suspension
- Front: Double Wishbone arm damper to lower wishbone
- Rear: Double Wishbone arm damper to upper wishbone
- Steering: Rack and Pinion
- Brakes: Hydraulic Disk Brakes with Twin Master Cylinders



CHASSIS

Chassis is the skeleton of a vehicle. We tried to design the chassis as compact as possible by removing unwanted space. The design of frame is started by the coordinates of the points from suspension geometry. Ample space is provided in the cockpit to comfort and easy & quick egress (in case of emergency) of the driver, space for gear lever. The centre of gravity has been lowered to increase stability.

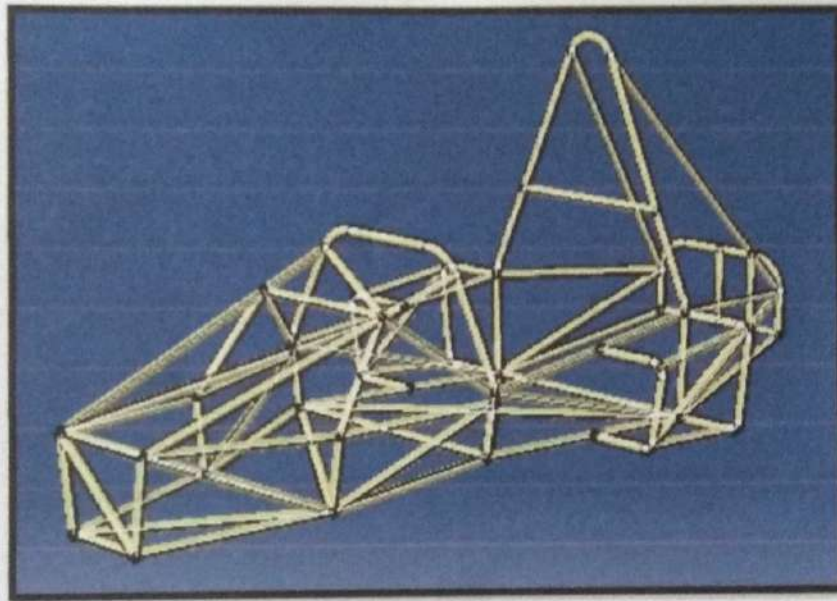


Fig.2 Chassis CAD Model

AISI 4130 Alloy steel is used which provides good machinability, weldability and ease of fabrication. For bending of pipes without any crimps pipe bending machine will be used. The centre of gravity of driver is kept in between the wheelbase to ensure a good balance of the car which directly affects the handling. The main purpose for lowering the CG is to maximize the down force for greater traction which is needed. Driver's comfort was our utmost consideration while designing the car.

The roll cage was fully designed in CATIA V5 R20. It has been analysed in ANSYS 14.5. The material selected for roll cage is AISI 4130 which has yield strength of 395 MPa and an ultimate tensile strength of 689 MPa which is suitable to bear the forces a formula car has to bear. The side impact members around the driver

cockpit are meant to maintain torsional rigidity at the same time greater side impact protection for maximum safety.

Front and Rear Track width is kept 1168.4mm. The wheelbase of the car is 1524 mm which provides good stability, traction and better manoeuvring ability.

STEERING

For smooth and better handling of vehicle an efficient steering system is needed. For that we chose Rack and Pinion type steering system because of its simple design, compactness and low weight. The mounting of this steering system is easier as compare to other system. We have tried to get 100% Ackerman geometry and the steering gear ratio is 5:1. Along with this detachable steering wheel is also used to ensure

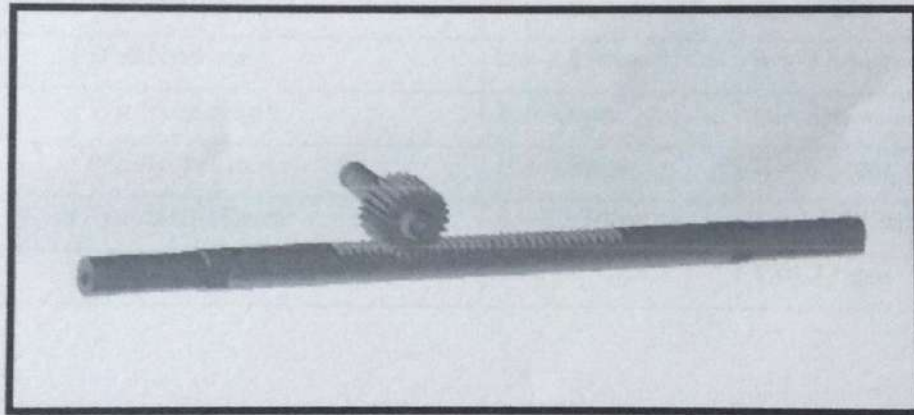


Fig.3 Steering Geometry

STEERING GEOMETRY

Sr.	Parameters	Value
1.	Angle of inside lock, θ	41°
2.	Angle of outside lock, ϕ	29.73°
3.	Arm inclination, α	16.69°
4.	TCR of inner front wheel, R_{if}	2196.1mm
5.	TCR of inner rear wheel, R_{ir}	1626.3mm

6.	TCR of outer front wheel, R_{of}	3199.0mm
7.	TCR of outer rear wheel, R_{or}	2795.4mm
8.	Arm radius, r	273.4mm
9.	Displacement of rack for 1.2 rotation	2.72mm
10.	Arm base, Y	177.8mm

RACK AND PINION CONSTRUCTION

SR.NO	SPECIFICATION	PINION	RACK
1	No. of teeth	18	22
2	Module	$m = 2 \text{ mm}$	$m = 2 \text{ mm}$
3	P.C.D	$D_p = 36 \text{ mm}$	$D_r = 22 \text{ mm}$
4	Addendum	$h_a = 2 \text{ mm}$	$h_a = 2 \text{ mm}$
5	Deddendum	$h_f = 2.5 \text{ mm}$	$h_f = 2.5 \text{ mm}$
6	Working depth	$h_k = 4 \text{ mm}$	$h_k = 4 \text{ mm}$
7	Whole depth	$H = 4.5 \text{ mm}$	$H = 4.5 \text{ mm}$
8	Tooth thickness	$S = 1.5708 \text{ mm}$	$S = 1.5708 \text{ mm}$
9	Rack length		138.23mm



SUSPENSION

Suspension is the most important part of a vehicle and designing of suspension geometry is the foremost step of vehicle chassis designing. While designing suspension geometry various compromises had to make to get an accurate one. There is no optimum suspension for all conditions; therefore, for every improvement there is a sacrifice. The key is to decide what is most important for a particular application.

The suspension geometry we chose for our car is double wishbone independent suspension. The suspension consists of two A- Arm links which are connected to the wheel. One link is arranged below the wheel centre and the other is arranged above it, which enables the suspension to brace all of the forces and torque that occur at the wheel. One of the difficulties involved with roll centre selection is that it changes with wheel displacement.

There are three basic points for the roll centres are either the same height as the CG, below the ground or between the ground and the CG. So for good handling properties we chose the roll centre location between the CG and ground but close to ground. This consideration was done to prevent jacking force and to generate camber during the cornering.

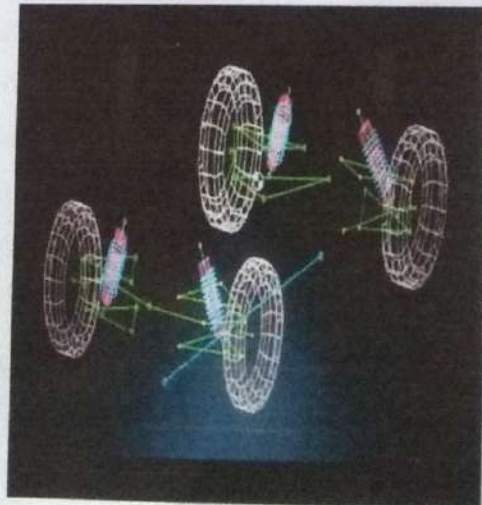
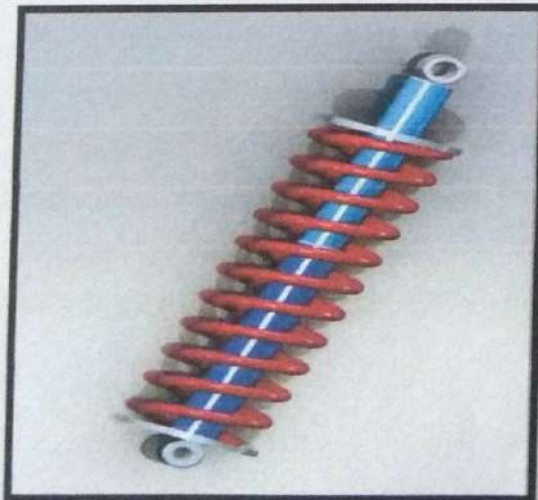


Fig.4 Suspension System



PARAMETER	FRONT	REAR
Upper Arm Length (from centre axis of car)	502.92mm	558.8mm
Lower Arm Length (from centre axis of car)	502.92mm	558.8mm
Stiffness	25.42 N/mm	37.55 N/mm
Free Length	132.5mm	134mm
Solid Length	80mm	78mm
Pitch	8.83mm	11.16mm
Track Width	1168.4mm	1168.4mm
Kingpin Inclination	8°	0°

BRAKES

The goal for braking system includes

- Increasing reliability
- Increasing Performance

The brake plays a very important role in any vehicle and is considered as the top most priority in safety checks. To keep the manufacturing weightless and provide reliability it was decided to use disc brakes on all four wheels instead of drum brake setup.

The vehicle will incorporate twin hydraulic master cylinder for the braking systems that act on all wheels and is operated by a single foot such, that in case of a leak or failure at any point in the system, effective braking power shall be maintained on at least two wheels. The brake lines will be constructed from flexible steel lines. For any driver of the car will always feel safe and secure knowing the brake system is reliable and service free.



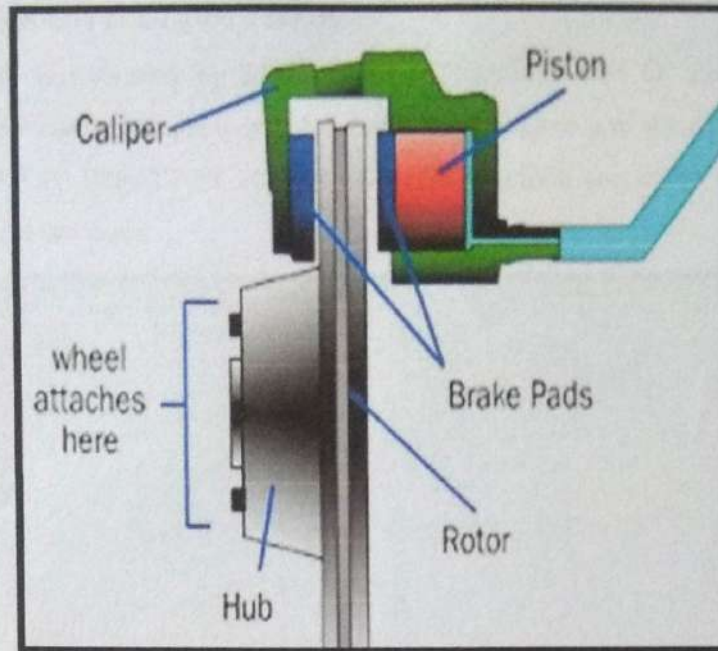


Fig.5 Disc Brake

PARAMETER	SPECIFICATIONS
Brake Biasing	Hydraulic Brakes
Rotor Size (Front And Rear)Dia.	200 mm
Front, Rear Calliper Piston Dia.	25 mm
Kerb Weight	250 kg
Centre Of Gravity From Ground	381 mm
Co-eff Of Friction Of Brake Pad	0.35
Maximum Deceleration	11.47 m/s ²
Stopping Distance	5.380 m
Stopping Time	0.9686 s
Braking Force: Front	1234.423 N
Rear	1218.070 N
Braking Torque: Front	327 N-m
Rear	154.2283 N-m
Clamping Force: Front	5184.84 N
Rear	5184.84N
Pedal Ratio	1:6

POWER TRAIN & DRIVE TRAIN

The vehicle is powered by BRIGGS AND STRATTON 208 CC Engine. It has powerful Air-cooled, Single - cylinder engine. The engine and the drive train are of BRIGGS AND STRATTON 208 CC. No modifications are to be made to the engine and drive train.

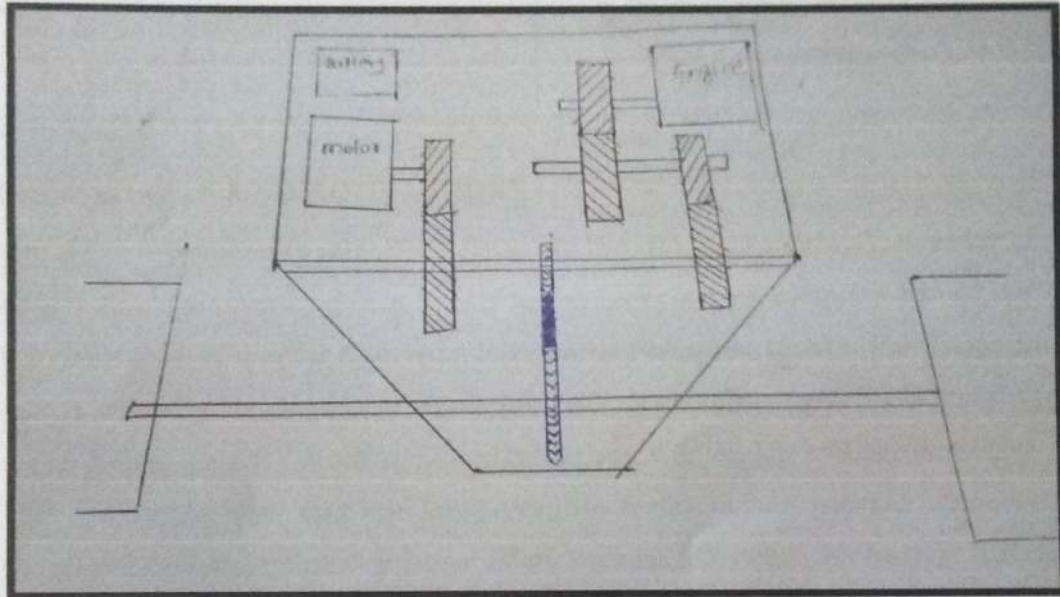


Fig. 6 Transmission System

ENGINE SPECIFICATION

PARAMETER	VALVES
Engine	Briggs & Stratton 208cc
RPM	3600
Power	6.5hp
Torque	12.86 N-m rise at 51.49 N-m
Gear reduction	2:1
Sprocket Ratio	2:1 (for 900 RPM)
Acceleration	0.37037m/s ²



MOTOR SPECIFICATION

PARAMETERS	VALUES
Motor RPM	3000
Torque	4.77 N-m
Gear Ratio	3:1 (for 3000 rpm)
Sprocket Ratio	2:1 (for 1000 rpm)

ERGONOMICS AND BODY WORKS

The ergonomics used in our vehicle is as per the HVC2017 rulebook. In order to ensure that the opening giving access to the cockpit is of adequate size of our vehicle, a cockpit opening & internal cross section template is used. The design of seat is made by keeping in consideration driver's visibility. Detachable steering wheel hub is used for quick egress of the driver. Our vehicle can accommodate 95th percentile male and the 5th percentile female which provide adequate vision and driver comfort. For driver safety harness, kill switch, brake over travel switch will be used. The vehicle is fully driver centric i.e., the vehicle design is optimized as per safety and comfort of driver. Design not only covers the technical aspects but also the style and look as well. The car fabrication work is aerodynamically stable and eye-catching. Sheet metal is used to cover the base and the firewall since they are well protected and need no curves and were to be covered properly. The vehicle dashboard will be assembled with speedometer and all the basic amenities required to the driver. Driver ergonomics of vehicle is greatly supported in our car and hence it comforts the driver.



Team Empyrean

REFERENCES

We have referred to various websites, e-books, design reports, papers and webinars to make our report. They were really helpful and guided us in the completion of this report. Some of them are following:

- 1) HVC 2017 rulebook
- 2) Chassis engineering- Herbs Adams
- 3) PSG data book
- 4) V.B.Bhandari Reference book "Design of Machine Elements".





Side View of Car



Front View Of Car



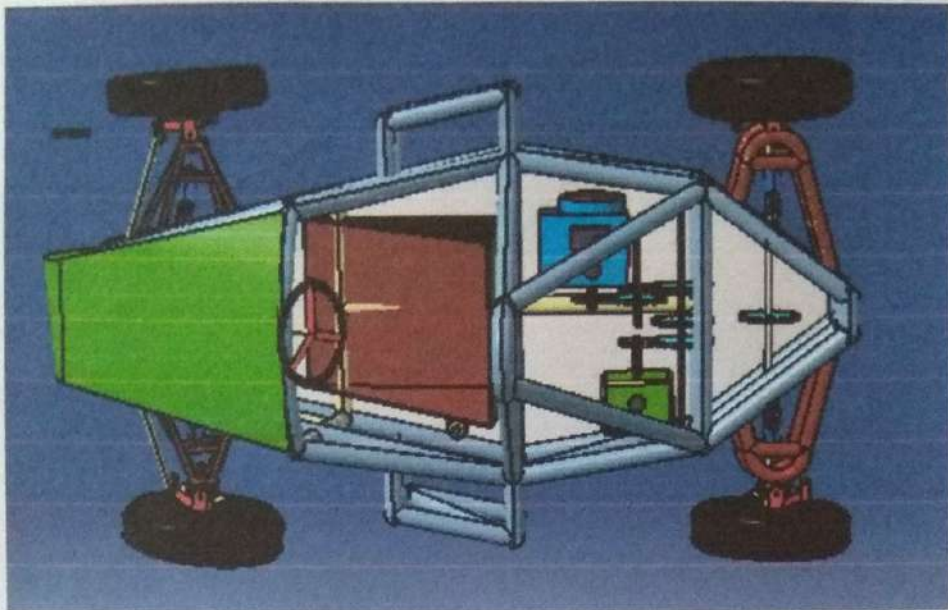


Fig: Top View

Head of Department
Dept. of Mechanical Engineering
Shri Chh. Shivajiraje College of Engg.
Dhangawadi, Pune-412206

Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206



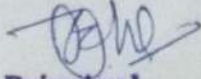
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhor, Dist - Pune
Pin - 412206
Ph. No. - 02113-282456

Project Work Expenses A/c
Ledger Account

1-Apr-2015 to 31-Mar-2016

Date	Particulars	Vch Type	Vch No./Excise Inv.No.	Debit	Page 1 Credit
14-3-2016	Cr Central Bank of India, 3086368734 <i>M/s Imperial Society for participate in Hybride Car Design Competition</i>	Payment	1486	16,602.00	
				16,602.00	
	Dr Closing Balance				16,602.00
				16,602.00	16,602.00




Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

Payment Voucher

No. : 1486

Dated : 14-Mar-2016

Particulars	Amount
Account : Project Work Expenses A/c	16,602.00
Through : Central Bank of India, 3086368734	
On Account of : M/s Imperial Society for participate in Hybride Car Design Competition	
Amount (in words) : Indian Rupees Sixteen Thousand Six Hundred Two Only	
	₹ 16,602.00

Receiver's Signature

Accounts Officer

Principal




Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

Shri Chatrapati Shivajiraje College of Engineering 2016-17

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

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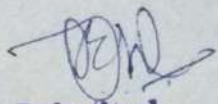
Ph. No. - 02113-282456

Project Work Expenses A/c Ledger Account

1-Apr-2016 to 31-Mar-2017

Date	Particulars	Vch Type	Vch No./Excise Inv.No.	Debit	Page 1 Credit
13-10-2016	Cr Central Bank of India A/c No. 3086368734 <i>Being payment made to Team Imperean for purchase Accessories & Materal for making Hybrid Desined Car for Formula One Car Race Competition</i>	Payment	1019	50,000.00	
20-12-2016	Cr Central Bank of India A/c No. 3086368734 <i>Being payment made to Team Empyrean for making a Hybrid Car Design for the Competition</i>	Payment	1349	1,00,000.00	
1-1-2017	Cr Central Bank of India A/c No. 3086369590 <i>Being payment made to Team Empyrean for Hybrid Car Competition</i>	Payment	1509	1,00,000.00	
10-2-2017	Cr Central Bank of India A/c No. 3086369590 <i>Being amount paid to team Empyrean for Hybrid Car Competition</i>	Payment	1582	1,00,000.00	
				3,50,000.00	
Dr	Closing Balance				3,50,000.00
				3,50,000.00	3,50,000.00




Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

Shri Chatrapati Shivajiraje College of Engineering 2016-17

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhore, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

E-Mail :scscoe@gmail.com

Payment Voucher

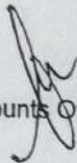
No. : 1349

Dated : 20-Dec-2016

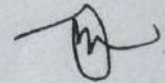
Particulars	Amount
Account : Project Work Expenses A/c	1,00,000.00
Through : Central Bank of India A/c No. 3086368734	
On Account of : Being payment made to Team Empyrean for making a Hybrid Car Design for the Competition	
Amount (in words) : Indian Rupees One Lakh Only	
	₹ 1,00,000.00



Receiver's Signature



Accounts Officer



Principal

Shri Chatrapati Shivajiraje College of Engineering 2016-17

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhore, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

E-Mail :scscoe@gmail.com

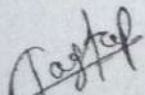
Payment Voucher



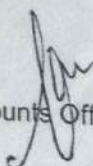
No. : 1019

Dated : 13-Oct-2016

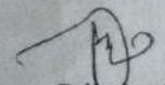
Particulars	Amount
Account : Project Work Expenses A/c	50,000.00
Through : Central Bank of India A/c No. 3086368734	
On Account of : Being payment made to Team Imperean for purchase Accessories & Material for making Hybrid Desined Car for Formula One Car Race Competition	
Amount (in words) : Indian Rupees Fifty Thousand Only	
	₹ 50,000.00



Receiver's Signature



Accounts Officer



Principal

Payment Voucher

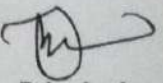
No. : 1509

Dated : 25-Jan-2017

Particulars	Amount
Account : Project Work Expenses A/c	1,00,000.00
Through : Central Bank of India A/c No. 3086369590	
On Account of : Being payment made to Team Empyrean for Hybrid Car Competition	
Amount (in words) : Indian Rupees One Lakh Only	
	₹ 1,00,000.00


Receiver's Signature


Accounts Officer

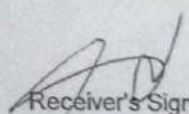

Principal

Payment Voucher

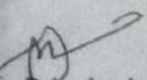
No. : 1582

Dated : 10-Feb-2017

Particulars	Amount
Account : Project Work Expenses A/c	1,00,000.00
Through : Central Bank of India A/c No. 3086369590	
On Account of : Being amount paid to team Empyrean for Hybrid Car Competition	
Amount (in words) : Indian Rupees One Lakh Only	
	₹ 1,00,000.00


Receiver's Signature


Accounts Officer


Principal





RAJGAD DNYANPEETH'S
SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING
Gat.No-237, Pune Bangalore Highway, Dhangawadi, Tal-Bhor, Dist-Pune (Maharashtra)

Supra SAE India -2014

Shri Chhatrapati Shivajiraje College of Engineering

Approved by AICTE, Govt of Maharashtra and Affiliated to the University of Pune (ID NO PU/PN/Engg/376/2009)

Dr. Bhagyashree s. Patil
Hon. secretary

Anantrao Thopte
Founder President
Ex. Education Minister
Maharashtra State



RD/SCSCOE/1099

Date: 28/06/2013

To
The Honorary Secretary
Rajgad Dnyanpeeth,
Bhor.

Subject – Request for financial support to students participation in SUPRA SAE India Competition.

Respected Madam,

Mechanical Engineering students from our college wants to participate in SUPRA SAE India car design competition to be held at Chennai in the month of July 2014. This is national level event. Number of students from various engineering college are going to participate. Participation in such competition is useful to enhance the practical skills and technical knowledge of students.

The approximate expenses required for car design, manufacturing and assembly are Rs. 7,20,000/-. Out of this 50% of the amount students are going to collect from various sponsors and their own contribution and remaining 50% amount is expected from management support. So you are requested to give financial support for the students participation in this competition. Please do the needful.

Thanking you.

S. S. Bhopale
Prof. S. S. Bhopale
Staff coordinator

S. K. Pawar
Prof. S. K. Pawar
HOD

R. L. Khandagale
Prof. Dr. R. L. Khandagale
Principal
Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

50% amount
approved
S. S. Bhopale
Hon. Secretary
Rajgad Dnyanpeeth, Bhor



Rajgad Dnyanpeeth's
SHRI CHHATRAPATI SHIVAJIRAJE COLLEGE OF ENGINEERING
Gat No. 237, Pune Bangalore Highway, Dhangawadi, Tal-Bhor, Dist- Pune (Maharashtra)

REPORT ON SUPRA SAEINDIA CAR

DEPARTMENT : Mechanical Engineering

CLASS: TE & BE

TITLE OF PROJECT : Project on Design & Manufacturing of Supra Car.

NAME OF GUIDE : Prof. A.B Sanap & Prof. S.S Bhopale

ACADEMIC YEAR : 2013-14 and 2014-15

DURATION OF PROJECT: 2 Years

NUMBER OF STUDENT PARTICIPATED: 11

OBJECTIVE : Provide the platform to enhance the student Presentation and Communication skill Personality development and Way for the Creativity

DISCRIPTION:

SUPRA SAEINDIA is a student collegiate design series devoted to the design and construction of Formula one prototype cars. Over 100 Engineering colleges participate in this series with competitive events held in the Chennai India the event is known for the enthusiastic participation of engineering student and the wide range of engineering innovations utilized on the cars.

The Governing rules are limited in technical regulations expect in areas of safety. Although there exist many others avenues of exploration in engine package design, a large majority of teams use a naturally aspired four cylinder engine derived from available motorcycles. A team's engine choice is limited to any four stroke with a displacement less than 610 cc. The number of cylinders is unlimited. Rules also require a 20 mm restrictor when petrol fuel is used and a 19 mm restrictor when instead E-85 fuel is used. With four cylinder formula SAE engines, the shape, layout, size and packaging of intake manifolds vary. Each team uses different runner lengths, plenum volumes, restrictor designs etc. for their intake manifold along with different exhaust configurations, which do not allow for direct comparisons. While the concepts of intake manifolds vary, the restrictor performance is an important consideration for any intake design.



PHOTOS:



ACHIEVEMENT: All India Rank secure 57 (Location: IIT Chennai).

University of Pune's SUPRA SAEINDIA 2014 Team UFO racers (ULTIMATE FORMULA ONE RACERS) participated in this event. The team UFO RACERS choose CBR 250R four stroke engine Single cylinder. In this engine uses a Fuel Injector instead of a carburetor which required for inclusion of cam position sensing for accurate injection and spark timing.

As per the rulebook of SUPRA SAEINDIA due to smallest diameter of restrictor the airflow reduced to small amount with a high velocity and low pressure. It effects on engine and power.




Prof. Dr. R.L. Khandagale
Principal
 Rajgad Dnyanpeeth's
 Shri Chhatrapati Shivajiraje College of Engg.,
 Dhangawadi, Pune-412206

Shri Chatrapati Shivajiraje College of Engineering 2013-14

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

Project Work Expenses A/c

Ledger Account

1-Apr-2013 to 31-Mar-2014

Page 1
Credit

Date	Particulars	Vch Type	Vch No./Excise Inv.No.	Debit	Credit
15-7-2013	Cr Cash <i>Being amount paid for registration fees for Supra SAE India</i>	Payment	326	16,950.00	
14-8-2013	Cr Central Bank of India, 3086368734 <i>Suspense A/c entry transferred for adjustment</i>	Payment	445	30,000.00	
16-9-2013	Cr Cash <i>Being amount paid for purchase material for Supra SAE India Car</i>	Payment	588	1,290.00	
5-10-2013	Cr Cash <i>Being amount paid to bhopale s s traveling at chennai for Supra SAE India Car</i>	Payment	678	24,610.00	
30-10-2013	Cr Cash <i>Being amount paid for printing sponership brochers foe SEA SUPRA</i>	Payment	808	2,800.00	
18-12-2013	Cr Cash <i>Being amount paid for purchase tools for Supra SAE India Car preparation work</i>	Payment	990	5,235.00	
31-12-2013	Cr Cash <i>Being amount paid for purchase material for Supra SAE India Car preparation work</i>	Payment	1033	9,280.00	
1-2-2014	Cr Central Bank of India, 3086368734 <i>Being payment made agst purchase Honda CBR Bike for SAI India Competition</i>	Payment	1158	1,32,000.00	
18-3-2014	Cr Cash <i>Being amount paid for attend workshop at Chennai for Supra SAE India Car preparation work</i>	Payment	1376	4,405.00	
				2,26,570.00	
Dr	Closing Balance				2,26,570.00
				2,26,570.00	2,26,570.00



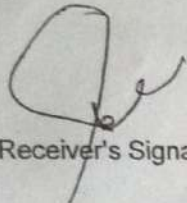
Principal
 Rajgad Dnyanpeeth's
 Shri Chhatrapati Shivajiraje College of Engg.
 Dhangawadi, Pune-412206

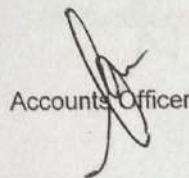
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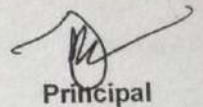
No. : 445

Dated : 14-Aug-2013

Particulars	Amount
Account : Project Work Expenses A/c	30,000.00
Through : Central Bank of India, 3086368734	
On Account of : Suspense A/c entry transferred for adjustment	
Amount (in words) : Indian Rupees Thirty Thousand Only	
	₹ 30,000.00


Receiver's Signature


Accounts Officer


Principal

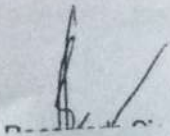
Payment Voucher



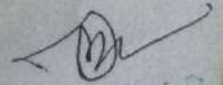
No. : 326

Dated : 15-Jul-2013

Particulars	Amount
Account : Project Work Expenses A/c	16,950.00
Through : Cash	
On Account of : Being amount paid for registration fees for Supra SAE India	
Amount (in words) : Indian Rupees Sixteen Thousand Nine Hundred Fifty Only	
	₹ 16,950.00







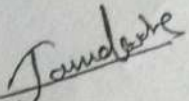
Shri Chatrapati Shivajiraje College of Engineering 2013-14
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhore, Dist - Pune
Pin - 412206
Ph. No. - 02113-282456
E-Mail : scscoe@gmail.com

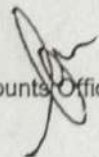
Payment Voucher


No. : 588

Dated : 16-Sep-2013

Particulars	Amount
Account : Project Work Expenses A/c	1,290.00
Through : Cash	
On Account of : Being amount paid for purchase material for Supra SAE India Car	
Amount (in words) : Indian Rupees One Thousand Two Hundred Ninety Only	
	₹ 1,290.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2013-14
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhore, Dist - Pune
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Ph. No. - 02113-282456
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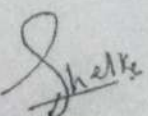
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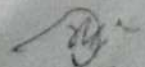
No. : 678

Dated : 5-Oct-2013

Particulars	Amount
Account : Project Work Expenses A/c	24,610.00
Through : Cash	
On Account of : Being amount paid to bhople s s traveling at chennai for Supra SAE India Car	
Amount (in words) : Indian Rupees Twenty Four Thousand Six Hundred Ten Only	
	₹ 24,610.00


Receiver's Signature


Accounts Officer


Principal

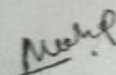
Shri Chatrapati Shivajiraje College of Engineering 2013-14
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhore, Dist - Pune
Pin - 412206
Ph. No. - 02113-282456
E-Mail :scscoe@gmail.com

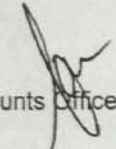
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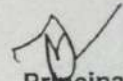
No. : 808

Dated : 30-Oct-2013

Particulars	Amount
Account : Project Work Expenses A/c	2,800.00
Through : Cash	
On Account of : Being amount paid for printing sponership brochers foe SEA SUPRA	
Amount (in words) : Indian Rupees Two Thousand Eight Hundred Only	
	₹ 2,800.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2013-14
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhore, Dist - Pune
Pin - 412206
Ph. No. - 02113-282456
E-Mail :scscoe@gmail.com

Payment Voucher

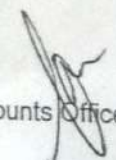


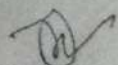
No. : 990

Dated : 18-Dec-2013

Particulars	Amount
Account : Project Work Expenses A/c	5,235.00
Through : Cash	
On Account of : Being amount paid for purchase tools for Supra SAE India Car preparation work	
Amount (in words) : Indian Rupees Five Thousand Two Hundred Thirty Five Only	
	₹ 5,235.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2013-14

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

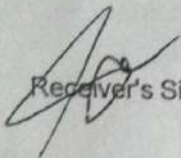
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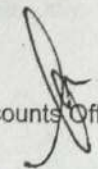
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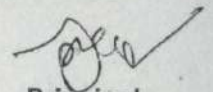
No. : 1033

Dated : 31-Dec-2013

Particulars	Amount
Account : Project Work Expenses A/c	9,280.00
Through : Cash	
On Account of : Being amount paid for purchase material for Supra SAE India Car preparation work	
Amount (In words) : Indian Rupees Nine Thousand Two Hundred Eighty Only	
	₹ 9,280.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2013-14

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

E-Mail :scscoe@gmail.com


Payment Voucher

No. : 1158

Dated : 1-Feb-2014

Particulars	Amount
Account : Project Work Expenses A/c	1,32,000.00
Through : Central Bank of India, 3086368734	
On Account of : Being payment made agst purchase Honda CBR Bike for SAI India Competition	
Amount (In words) : Indian Rupees One Lakh Thirty Two Thousand Only	
	₹ 1,32,000.00


Receiver's Signature


Accounts Officer

Principal



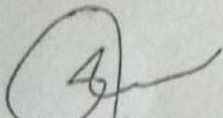
Shri Chatrapati Shivajiraje College of Engineering 2013-14
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Ph. No. - 02113-282456
E-Mail :scscoe@gmail.com

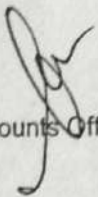
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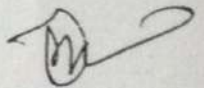
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Dated : 18-Mar-2014


Particulars	Amount
Account : Project Work Expenses A/c	4,405.00
Through : Cash	
On Account of : Being amount paid for attend workshop at Chennai for Supra SAE India Car preparation work	
Amount (in words) : Indian Rupees Four Thousand Four Hundred Five Only	
	₹ 4,405.00


Receiver's Signature


Accounts Officer


Principal




Principal
Rajgad Dnyanpeeth's
Shri Chhatrapati Shivajiraje College of Engg.,
Dhangawadi, Pune-412206

Shri Chatrapati Shivajiraje College of Engineering 2014-15

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhore, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

Project Work Expenses A/c

Ledger Account

1-Apr-2014 to 31-Mar-2015

Page 1

Date	Particulars	Vch Type	Vch No./Excise Inv.No.	Debit	Credit
23-4-2014	Cr Central Bank of India, 3086368734 Supra Car Material purchase	Payment	87	10,800.00	
	Cr Central Bank of India, 3086368734 Supra Car Material purchase	Payment	89	13,641.00	
6-6-2014	Cr Central Bank of India, 3086368734 Being payment made for purchase material for making car for Supra SAE India car racing competition	Payment	219	30,000.00	
7-7-2014	Cr Central Bank of India, 3086368734 Being payment made for purchase material for making car for Supra SAE India car racing competition	Payment	337	91,553.00	
				1,45,994.00	
	Dr Closing Balance				1,45,994.00
				1,45,994.00	1,45,994.00



pu
Principal

Rajgad Dnyanpeeth's

Shri Chhatrapati Shivajiraje College of Engg.,

Dhangawadi, Pune-412206

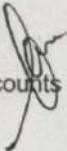
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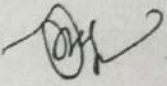
No. : 87

Dated : 23-Apr-2014

Particulars	Amount
Account : Project Work Expenses A/c	10,800.00
Through : Central Bank of India, 3086368734	
On Account of : Supra Car Material purchase	
Amount (in words) : Indian Rupees Ten Thousand Eight Hundred Only	
	₹ 10,800.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2014-15
Gat No. 237, Pune-Banglore High Way
Dhangawadi, Tal - Bhore, Dist - Pune
Pin - 412206
Ph. No. - 02113-282456
E-Mail :scscoe@gmail.com

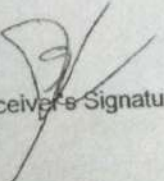


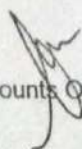
Payment Voucher

No. : 89

Dated : 23-Apr-2014

Particulars	Amount
Account : Project Work Expenses A/c	13,641.00
Through : Central Bank of India, 3086368734	
On Account of : Supra Car Material purchase	
Amount (in words) : Indian Rupees Thirteen Thousand Six Hundred Forty One Only	
	₹ 13,641.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2014-15

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

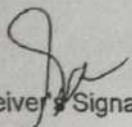
E-Mail :scscoe@gmail.com

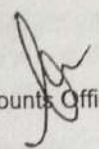
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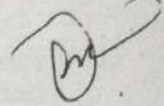
No. : 219

Dated : 6-Jun-2014

Particulars	Amount
Account : Project Work Expenses A/c	30,000.00
Through : Central Bank of India, 3086368734	
On Account of : Being payment made for purchase material for making car for Supra SAE India car racing competition	
Amount (in words) : Indian Rupees Thirty Thousand Only	
	₹ 30,000.00


Receiver's Signature


Accounts Officer


Principal

Shri Chatrapati Shivajiraje College of Engineering 2014-15

Gat No. 237, Pune-Banglore High Way

Dhangawadi, Tal - Bhor, Dist - Pune

Pin - 412206

Ph. No. - 02113-282456

E-Mail :scscoe@gmail.com

Payment Voucher




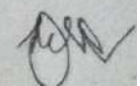
No. : 337

Dated : 7-Jul-2014

Particulars	Amount
Account : Project Work Expenses A/c	91,553.00
Through : Central Bank of India, 3086368734	
On Account of : Being payment made for purchase material for making car for Supra SAE India car racing competition	
Amount (in words) : Indian Rupees Ninety One Thousand Five Hundred Fifty Three Only	
	₹ 91,553.00


Receiver's Signature


Accounts Officer


Principal