3.1.1 Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the last five years

Academic Year	:	**2022-2023**
Name of the Project Application	:	Design and Fabrication of affordable economical e-bike
Name of the Principal Investigator	:	**Mr. R.Santhaseelan** Assistant Professor, Department of Mechanical Engineering, Nadar Saraswathi College of Engineering and Technology, Vadapudupatti, Theni.
Name of the Funding Agency	:	**Tamil Nadu State Council for Science and Technology**
Amount Sanctioned	:	**Rs. 7500/-**
Duration of the project	:	Six Months

Design & Fabrication of Noped

Uthaya. V[1] , Venkateshwaran. V[2], Dinesh Babu. C.S[3], Raja Ganesh. M[4]

Final Year Students, Nadar Saraswathi college of engineering and technology

Abstract

Eco Friendly E- bike can be manufactured and supplied by the top most bike manufacturers and be like a competitor to the world of bike. E- bike reduces the pollution, avoids rash driving and accidents.

Description

Today, millions of people depend on automobiles as their main source of transportation. Usage of E-Bike is the most efficient and convenient way to travel when compared to other modes of transportation. Unfortunately, most of the automobiles use fossil and it is very expensive to maintain in the present situation. So, an E-bike which is very much innovative bike. It fully works on electricity so there is no cause for pollution. In single charge our e-bike covers about 70 - 80kms. We are going to use hub motor for better performance and hydraulic disk brakes in front and rear wheels. The weight of the E-bike going to be around 55kg so everyone can drive easily and the two rear adjustable shock absorber make the ride most sophistication. In future every thing around us going to change we also want to be a part of it. If you provide fund I'm sure our bike will be the best E-bike of this decade.

* it a noped , hence lesser cost.

* High portability.

* Inbuilt GPS.

* Powerful dual shock suspension.

*Eco – friendly

*Less skill to drive

*Minimum power required for Recharging

*Smooth and safe to ride.

* Mileage can be achieved up to 80Km/ Charge

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Principal
Nadar Saraswathi College of
Engineering and Technology
Vadapudupatti, Theni-625 531.

Required Materials (using TNSCST fund)

Sl. No.	Elements	Quantity	Cost in Rs.
1	Controller and motor checkup	-	400/-
2	Front fork rework	-	600/-
3	seat	1Nos	500/-
4	12V battery 14ah	2Nos	6,600/-
5	Electrical Work	-	200/-
	Total	**3Nos**	**8,300/-**

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TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
(Established by Government of Tamilnadu)
Directorate of Technical Education Campus, Chennai – 600 025.
Ph : 044-22301428, www.tanscst.nic.in

Dr.R.SRINIVASAN, M.Sc., Ph.D.,F.I.C.S., M.A.C.S.(USA).,
Member Secretary

Lr.No.TNSCST/SPS/BS/2022-2023 03.03.2023

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY
Dt. - 8 MAR 2023
4305

To
The Principal
Nadar Saraswathi College of Engineering and Technology,
Theni –625 531

Sir/Madam,

Sub: TNSCST – Student Project Scheme – 2022-2023 – approval intimation–grant release- reg.

With respect to the above scheme, the list of projects approved by the State Council is enclosed along with terms and conditions. You are requested to adhere to terms and conditions such as submission of UC and Seminar Paper on Time.

1.	Mr.Rajaprasanna.R, Assitant Professor, Department of EEE, Nadar Saraswathi College of Engineering and Technology, Theni –625 531	Machine learning techniques for liquid level estimation using float sensor arrays	T.Sutharsan, M.Shanmugapandian, S.Sundaramahalingam,	EEE-1228	The Principal	Rs 7500/-
2.	Mr.R.Santhaseelan, Assistant Professor, Department of Mechanical Engineering, Nadar Saraswathi College of Engineering and Technology, Theni-625 531	Design and fabrication of affordable economical e-bike	V. Uthaya, M. Raja Ganesh, V. Venkateshwaran, C.S. DineshBabu	EME-0509	The Principal	Rs 7500/-
					Total	Rs 15000/-

Herewith enclosed the cheque for the approved grant and disburse the grant to the concerned students through the guides at the earliest

Kindly send the utilisation certificate (format enclosed) and seminar paper (Ref.T&C) on completion of the project.

Thanking you,

Yours faithfully,
3/3/23
Member Secretary.

Encl: a) Terms & Conditions (T&C)
b) Format of Utilisation Certificate (UC)
c) Cheque for Rs.15000/- Cheque No:574915 dt.03.03.2023

Copy to: Individual Guides

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DESIGN AND FABRICATION OF AFFORDABLE ECONOMICAL E – BIKE

Uthaya. V[1] ,Venkateshwaran. V[2] , Dinesh Babu. C.S[3], Raja Ganesh. M[4]

Final Year Students, Nadar Saraswathi College of Engineering and Technology

Abstract

The vehicles on road are increasing with rapid rate which is good by transportation perspective and hence the growing need of oil-based fuel making transportation costly as the price of oil-based fuel rising too. The quantity of oil-based fuel remains unchecked and the exhaust from oil- based fuel brings environmental problems like "greenhouse effect", health issues for the operating environment. The electric vehicles is a good option for moving away with problems related to the oil based fuel lot of researches is going on in world and money is being spent on the development of the electric vehicles. The problem related with electric vehicles are electric vehicles have low speed, having low load carrying capacity, and batteries having short life. The main aim of this research paper is to give an idea about fabrication of simple, cost- effective electric motorcycle which can be done by replacing internal combustion engine and other components with brush less direct current gear motor, controller, and lithium-ion battery. This electric motor uses 48V 750w brushless direct current gear motor to propel the vehicle, lithium-ion battery as power source the brushless direct current motor. The 48v 750w brushless direct current gear motor has high load carrying capacity with acceptable speed and lithium-ion battery have more life than other batteries available in market such as lead acid battery. The lithium-ion battery has less weight, quick charge property, required less storage space compared to other batteries available in market.

Description

Today, millions of people depend on automobiles as their main source of transportation. Usage of E-Bike is the most efficient and convenient way to travel when compared to other modes of transportation. Unfortunately, most of the automobiles use fossil and it is very expensive to maintain in the present situation. So, E-bike is very much innovative bike. It fully works on electricity so there is no cause for pollution. In single charge our e-bike covers about 70 - 80kms. We are going to use hub motor for better performance and hydraulic disk brakes in front and rear wheels. The weight of the E-

bike going to be around 55kg so everyone can drive easily and the two rear adjustable shock absorber make the ride most sophistication. In future every thing around us going to change we also want to be a part of it. If you provide fund I'm sure our bike will be the best E-bike of this decade.

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*Minimum power required for Recharging
*Smooth and safe to ride.
* Mileage can be achieved up to 80Km/ Charge

PROBLEM STATEMENT

The world is facing with big challenges including depletion of fossil fuels and global warming caused by exhaust emissions from conventional vehicles fueled with gasoline or diesel. So, to overcome these challenges we are going to manufacture electric bike with a simple Design and low cost.

PROPOSED METHODOLOGY

1. For reducing cost of the project reduce the parts of the vehicle withlow cost by compact design.
2. Selecting optimum quality, optimum speed, and optimum loadCarrying capacitymotor.
3. Select best rating, durable, low maintenance battery.
4. Generate alternate suspension system.
5. To design a 'V' frame for chaiss.

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PROJECT BACKGROUND

It is not an e-bike, it is too fast. It is not a moped, it has no pedals. It is a noped. The ZEUS defines a whole new category of electric two-wheelers. A light bike made of IRON and Mild Steel with radical design, and practical connectivity. Everything is hidden in the V-Frame. Removable battery, controls, as well as rear and front headlights are harmoniously and well protected. An approach that takes tech, design, functionality, and handling to the next level.

CONCLUSION

With increasing prizes of fuel and pollution alternative choice can be available which is traditional but in new modify version of e-bike. In this project able to design and modify an e-bike which may be the solution to our problems which we are experience now a days like traffic congestion, parking difficulties and pollution from fossil fuel vehicles. We modified and assembled the devices required and make the less prize Electric Bike compared to market. People promoted by the attraction caused by the price, its speed and light weight. Research is going on to modify and develop an e-bike which is manually operated as well as automatic on electric battery. This project presents the less costly, light in weight, pedal can be used when power not in use and effectively use of e-Bike. This project is designed to improve the normal bike and make it extra efficient. As EVs are becoming more widely accepted, consumers will be able to save money, be energy independent, have a lower impact on the environment, pollution, and greenhouse Gases etc. Lithium mining specifically is resource intensive, but lithium is only a minor portion of the battery cell by mass, so the aluminum and copper environmental impacts are much more significant. The lithium-ion recycling industry is only in its infancy right now, but the cell materials have shown high ability for recovery and recyclability, so it is expected that lithium-ion recycling rates will rival lead acid.

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STUDENT PROJECT SCHEME 2022-2023
UTILISATION CERTIFICATE

(TWO COPIES)

1. Name of the guide and address : R. Santhaseelan
Assistant Professor
Department of Mechanical Engg.
Nadar Saraswathi College of Engg. & Tech

2. Name of the student(s) :
N. Uthaya
M. Rajaganesh
V. Venkateshwaran
C.J. Dinesh Babu

3. Title of the project : Design and fabrication of affordable economical e-bike

4. Project code : ENE-0509

It is certified that a sum of Rs. 7500/- (Rupees Seven thousand Five Hundred) sanctioned by the Council for carrying out above mentioned student project has been utilized for the purpose for which it was sanctioned and sum of Rs. ..... remaining unutilized is refunded.

29/5/23
Signature of the Guide

Signature of the HOD

Signature of the
REGISTRAR / PRINCIPAL / DEAN
with seal

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