RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

Kuthambakkam, Chennai – 600124

CENTRE FOR ELECTRIC VEHICLE AND ENERGY

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CENTER FOR ELECTRIC VEHICLE AND ENERGY

About the Center

The Center for Electric Vehicle and Energy started in the year of 2018. It provides an Ecosystem for Research, Innovation, and Skill Development for Green Mobility and Green Energy. Through this center we create a strong association of expertise with verity of experiences to exchange the knowledge and ideas.

Objectives of the Centre

- To provides hands on learning experience in the field of green mobility and energy to the students.
- To create interest among Engineering students and Professionals towards Renewable Energy.
- To conduct and organize various technical seminars/workshops in the field of materials science and engineering.

Faculty Members

S.No.	Name of the Faculty	Specialization
1.	Dr. P. K. Nagarajan	Energy
2.	Mr. S. Vivek	E - Mobility
3.	Dr. Muthu G	Energy
4.	Dr.K.Sundar Raman	E - Mobility
5.	Dr. C. Ganesh	E - Mobility
6.	Mr.B.Manimaran	E - Mobility

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Enrolled Students list

S. No.	Roll No.	Name of the Student
1.	201904018	NARASIMHAN K S
2.	201904002	ADITHYA RAAJ G
3.	201904010	JANARTHANAN S
4.	201904011	JOSEPH MARIAN EUGENE F
5.	201901156	S.VENKATASRIRAM
6.	201901155	VENKADA RAMANAN P

Details of Industry/Academic Mentors

S.No.	Industry/Academic Mentors	Name of the Industry/Institution	Expertise
1.	Mr.Ravinderan, Senior Engineer	R&D, TAFE, Chennai TAFE	Energy
2.	Mr.Dinesh, Design Engineer	R&D, TAFE, Chennai	Energy
3.	Dr.Shankar, Senior Engineer	Ashok Leyland, Chennai ASHOK LEYLAND	E- Mobility
4.	Mr.SenthilKumar, Senior Engineer	Greaves Cotton, Chennai	E- Mobility

Details of MoUs

S.No.	Name of the Industry	Date of MoU	Intend
1.	RCPL, Chennai	14.12.2018	Skill Development and Training Program
2.	ALWEL, Chennai	16.12.2016	Skill Development and Training Program

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Details of Completed/Ongoing Projects

1. Design and Fabrication- Bicycle (Completed)

We designed and fabricated a Bi cycle last year which can give a range of 40 km at 45 km/hr. This bicycle is powered by a 350 W, 36 V 12.5 Ah BLDC hub motor. We used lithium Ferro phosphate battery to power this vehicle. We did a detailed power train calculation and battery requirement calculations and also other vital mechanical calculations for the selection of motor and battery. This bicycle can climb 5° gradient easily.

Bi Cycle - Design and Fabrication

2. Performance Analysis of Regenerative Braking in Electric Bike (Completed)

Regenerative braking is a type of braking used to convert Kinetic energy into electrical energy. It helps to save energy and provides higher efficiency for an E-bike. In regenerative mode, the motor act as a generator, it converts the kinetic to electrical energy to restore the battery. The large momentum is converted into electricity and fed back into

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the batteries during regenerative mode and charges the battery. The merit of regenerative braking over traditional braking is energy conservation is studied.

Electric Bike

3. Design and Development of Solar Powered E-Vehicle with Auto Intelligent Rotating Panel (Completed)

This project targets finding a better way of using solar panel in an electric vehicle. The weight reduction was achieved by selecting appropriate materials for fabrication and effective design. The concept of solar tracking system which has been proven for improving the energy output of the solar panel on roof top improves the power output of solar panel even in a moving vehicle. To obtain good performance the BLDC motor and lead acid battery combination is used in this. The electric rickshaw provides transportation with

zero emission and will become an alternative for highly polluting traditional IC engine vehicles and also provides noiseless operation.

Solar Powered E-Vehicle with Auto Intelligent Rotating Panel

4. Development of Unmanned E Powered Pesticide Sprayer as Sustainable Farm Equipment (Ongoing)

We are doing this project as consultancy work along with TAFE, Chennai. Objective of the work is to design and develop an e powered unmanned fertilizer/ pesticide sprayer which can move at a speed of 5 km/hr, with range of 3 hrs for variety of crops which a minimize the work load of farmers and quantify their exposure to chemicals which leads to various chronic disease. The present-day sprayers are mostly driven by the principle of power take off from the tractors. In our approach we are planning to use BLDC hub motors

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powered by LiB batteries. This farm equipment's can be operated by RC. Thus, we can reduce the exposure of humans and fatigue at the large scale.

Events conducted

- Our center conducted a Workshop for students on the topic of "Hands on Workshop on Assembly and dismantling of IC Engines".
- One Day Workshop on "Build your own E-Bicycle on 14th May 2022.
- Training program on Basic of Electric Vehicle for the center members.
- Guest Lecture by Dr. Shankar, Design Engineer, Green Mobility, Ashok Leyland.

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