



KJ's Educational Institute  
**K J College of Engineering & Management Research**

(Accredited by NAAC)

Sr. No. 25 & 27, Kondhwa - Saswad Road, Near Bopdev Ghat, Pune 411048.

Department of Computer Engineering

## I. About Centre of Excellence lab

K J College of Engineering and Management Research, Established Centre of Excellence in Electric Vehicle and Start up dated on 04.06.2023 to explore more opportunities for EV applications. The COE was inaugurated by the Honourable vice chancellor of Savitri Bhai Pule Pune University, Dr.Suresh Gosawi dated on 19.03.2024. It is highly focused on the development of EV vehicles with latest cutting edge technology. The Centre excellence aims to give more training for the academicians, industrialist and other businessman. There are several facilities are available such as Spot welding machine to design battery banks, Cell balancing tool kit, Body building machinery system, Solar powered in-house charging station. Cloud storage system of BMS. AI training toolkit database management system, Current spike observation module, Customized vehicles, High end digital CRO.

## II. Objectives Centre of Excellence

- I. To Provide Hands-on Learning and Practical Knowledge.
- II. To Promote Research and Innovation in EV Technologies.
- III. To Enable Prototyping and Testing of Electric Vehicle Systems.
- IV. To Support the Transition to Sustainable and Green Transportation

## III. Committee Members

Sr. No.	Name of Faculty	Designations
1	Dr. Suhas S. Khot	Chairman
2	Dr. Shankar Amalraj	Lab Incharge
3	Mr.Prakash Malvadkar	Research Associate

4	Dr.Vivek Korde	Technical Advisor
5	Mr.Arun Paul	Industrial Expert/Ford Motors

#### **IV. Infrastructure**

1. Spot welding machine to design battery banks
2. Cell balancing tool kit, Body building machinery system
3. Solar powered in-house charging station.
4. Cloud storage system of BMS.
5. AI training toolkit database management system,
6. Current spike observation module,
7. Customized vehicles,
8. High end digital CRO.

#### **V. Research Grant Received**

To promote Research and development this Centre of Excellence received the research Grant of 5.23 Lac from DEFEX ELECTRIC AUTO INDUSTRY.

#### **VI. Award Received.**

Winner of the “prestigious ardorcomm education leadership award” under the nomination of\*most emerging start-up institute 2023\* for our “electric vehicle start-up”.

#### **VII. Major Innovations in the Lab**

1. Cargo electric bicycle
2. Electric bicycle
3. Solar powered lead acid battery bike
4. Electric golf cart cum mini passenger’s bus.
5. Wireless vehicle charging station.
6. Recycling process of battery
7. Multi-level cell balancing of various batteries.
8. Ai based driverless autonomous car.
9. Ai based EV robots for agriculture applications.

## VIII. Ongoing Projects

1. Motor Control and Inverter Simulation.
2. Autonomous Vehicle Navigation for Electric Vehicles.
3. Optimization of Electric Vehicle Charging Infrastructure.
4. Behavioural study and simulation of Electric Vehicle Energy Storage Systems.
5. Temperature distribution and Thermal Management of battery packs.
6. Analysis of Electric Vehicle Power Train Efficiency.
7. Modelling of Battery Degradation in Electric vehicle
8. Electric Vehicle Grid Integration and Demand Response.

## IX. List of Publications

No.	Title	Journal	Status
1	<a href="#">Perovskite nanostructures materials versatile platform for advance biosensor applications</a>	Sensors and Actuators, Q1	Accepted
2	ZIF-67 derivatives of NiCo <sub>2</sub> S <sub>4</sub> Decorated in Salen-Complex Amine Functionalization GO Layers for High-Performance Applications in Supercapacitor Devices	Luminescence, Q2	Accepted
3	Manual and Adaptive tuned PID controllers for industrial application	IEEE Explore	Accepted
4	Optimization of Anode Electrode Resistance using Synthesised Graphene Oxide for DSSC Applications	IJMSE, Q2	Accepted
5	Comprehensive Study of Economic Investment through LEC Analysis in Solar Power Plants Using CuO and Al <sub>2</sub> O <sub>3</sub> Nanofluid Cooling Mechanisms	Case Studies in Thermal Engineering, Q1	Preprint
6	Voltage Balance of Lead Acid Batteries through Active capacitive Cell balancing Method	Springer(Sadhana), Q2	Under Review
7	Review: Recycling of Vehicle Lithium Batteries with AI	Renewable & Sustainable Reviews,Q1	Process
8	Prediction of Front Wheel Angle and Distance Management of Robotic Vehicle	Autonomous Innovation, Q1	Process
9	Facile Development of Graphene Amine-Functionalized Ultracapacitor for EV Chargers	Luminescence, Q2	Process
10	Development of Economic Investment Model of solar Power plant	Case Studies in Thermal Engineering, Q1	Process

## X. Photos. 1



Most emerging start-up institute 2023 Award by ardorcomm education leadership For “Electric Vehicle start-up”.

2.





**Innaguration of Centre of Excellence in EV & Startup Lab by Dr.Suresh Gosawi, Vice Chancellor SPPU,Pune**

3.



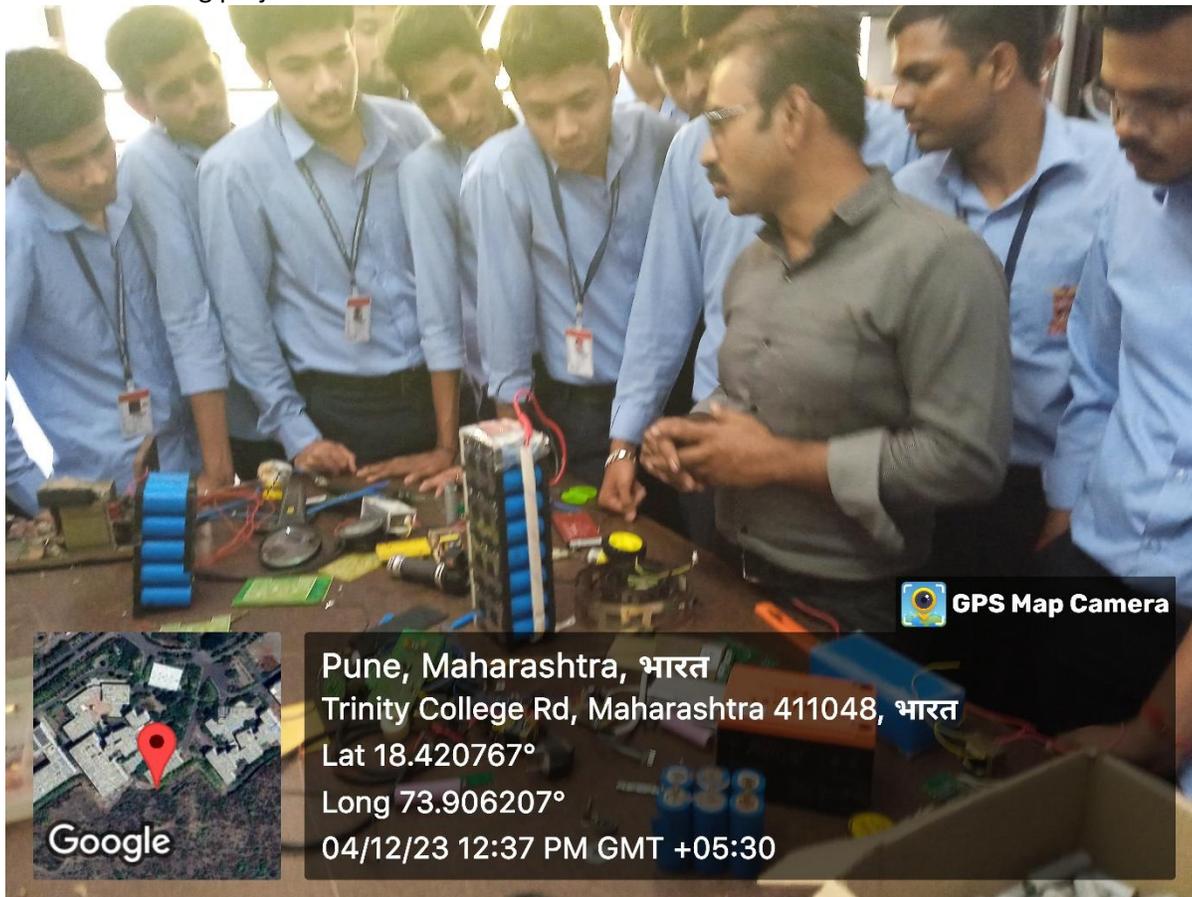
### **Innovative Vehicles By COE (Cargo electric bicycle, Electric bicycle, Solar powered lead acid battery bike, Electric golf cart**

Cargo electric bicycle

1. Electric bicycle
2. Solar powered lead acid battery bike
3. Electric golf cart cum mini passenger's bus.
4. External college visit to EV Lab.



4.student making projects







5



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