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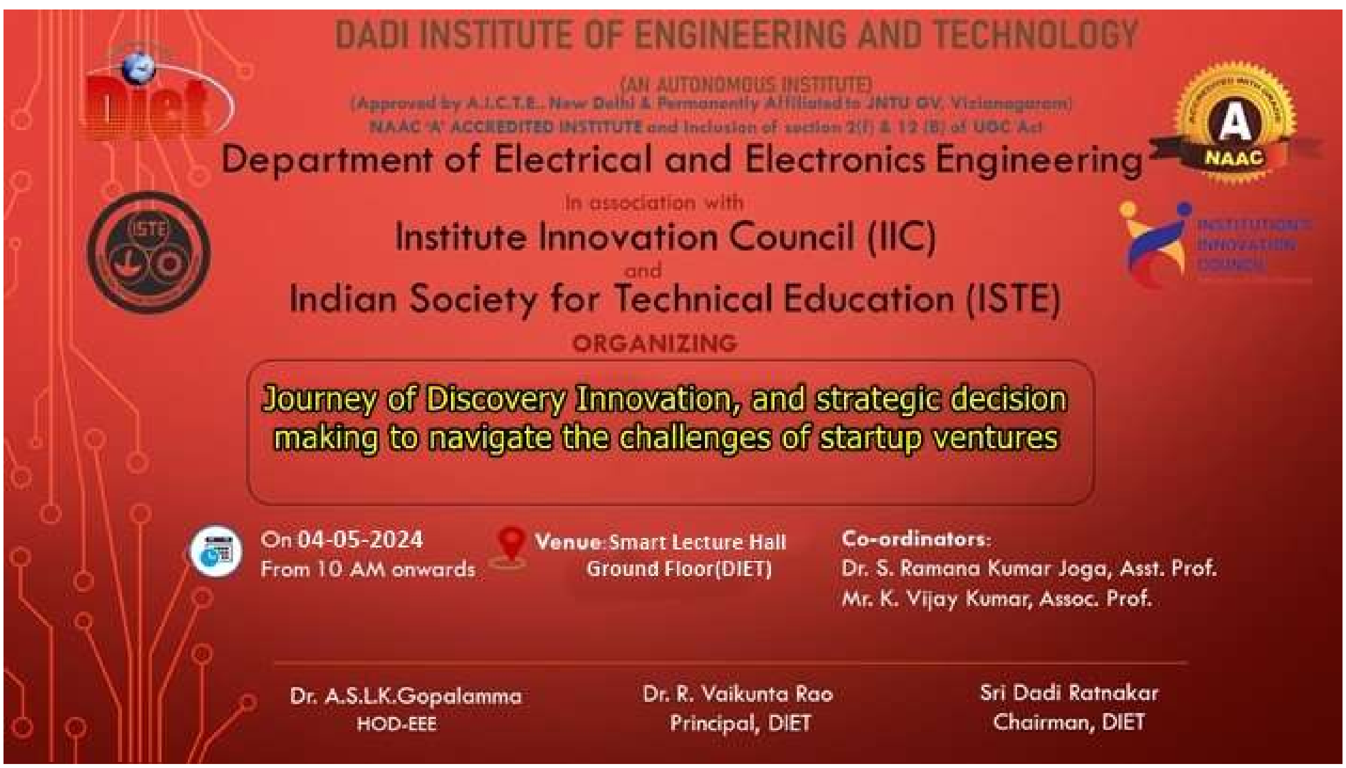
Accredited by NAAC with 'A' Grade and Inclusion u/s 2(f) & 12(B) of UGC Act
An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.
NH-16, Anakapalle – 531002, Visakhapatnam, A.P.
Website: www.diet.edu.in, 9963993229 E-mail:, principal@diet.edu.in

A report on "Journey of Discovery Innovation, and strategic decision making to navigate the challenges of startup ventures"

The Department of Electrical and Electronics Engineering of Dadi Institute of Engineering & Technology- Autonomous in association with DIET ISTE Student Chapter and Institute Innovation Council (IIC) conducted the Project Demo "Journey of Discovery Innovation, and strategic decision making to navigate the challenges of startup ventures" on 4th May 2024 at Smart Lecture Hall in the institute premises. Process Design and Development is a showcase of recent innovations in engineering, provided a platform for brilliant minds to unveil groundbreaking technologies and solutions. The event brought together engineers, innovators, and industry leaders, offering a glimpse into the future of technology. This report outlines some of the remarkable advancements presented during this captivating exhibition.



Poster of the Project Demo

The Project Demo started with an Inauguration event by chief guest JNTU-GV Professor Prof. K. Srikumar, Mr. K. Vijay Kumar, (DIET ISTE Convener), Dr. A.S.L.K. Gopalamma, (HOD-EEE) and other faculty members and students.

chief guest JNTU-GV Professor Prof. K. Srikumar addressed the gathering along with HOD EEE and other faculty members.

SMART Electric Bicycle

A smart electric bicycle, also known as an e-bike, is a bicycle with an integrated electric motor that assists the rider's pedal-power. The "smart" aspect typically refers to the integration of technology such as sensors, controllers, and connectivity features that enhance the functionality, safety, and user experience of the bike. Here are some features commonly found in smart electric bicycles:

Electric Motor: The electric motor provides assistance to the rider's pedaling efforts, making it easier to climb hills, ride against the wind, or maintain higher speeds.

Battery: E-bikes are powered by rechargeable batteries, usually lithium-ion. The battery capacity determines the range of the bike, i.e., how far it can travel on a single charge.

Pedal-Assist System: Also known as pedal-assist or pedelec, this system detects when the rider is pedaling and provides electric assistance accordingly. The level of assistance can often be adjusted by the rider.

Throttle Control: Some e-bikes feature a throttle that allows the rider to control the electric motor without pedaling. This feature is common in electric scooters and motorcycles but is also found in certain types of e-bikes.

Smart Display: A built-in display on the handlebars provides information such as speed, battery level, distance traveled, and assistance mode. Some displays also include GPS navigation, fitness tracking, and smartphone integration.

Connectivity: Smart e-bikes may have Bluetooth or Wi-Fi connectivity, allowing them to communicate with smartphones or other devices. This connectivity can enable features such as remote locking, theft tracking, and firmware updates.

Electric Assistance:

The electric motor on e-bikes provides assistance to the rider's pedaling effort, making cycling easier, especially uphill or over long distances.
The level of assistance can usually be adjusted, allowing riders to choose between different power settings based on their preferences and the terrain.

2. Types of Electric Bicycles:

Electric bicycles come in various designs to suit different riding preferences and purposes.
City commuter e-bikes are designed for urban transportation, featuring comfortable frames, integrated lights, racks, and fenders for carrying cargo.
Mountain e-bikes are built for off-road trails and rugged terrain, equipped with robust frames, suspension systems, and knobby tires for enhanced traction.
Folding e-bikes are compact and portable, ideal for commuters who need to combine cycling with public transportation or have limited storage space.
3. Battery and Range:

E-bikes are powered by rechargeable lithium-ion batteries, which are typically mounted on the frame or integrated into the bike's design.
The range of an electric bicycle depends on factors such as battery capacity, motor efficiency, terrain, rider weight, and level of pedal assistance.
Modern e-bike batteries can provide ranges ranging from 20 to over 100 miles on a single charge, with higher-capacity batteries offering longer distances.
4. Safety Features:

Electric bicycles often come with safety features such as integrated lights, reflective elements, and hydraulic disc brakes for efficient stopping power.
Some models may also include features like anti-theft systems, GPS tracking, and smartphone connectivity for

added security and convenience.

6. Environmental Benefits:

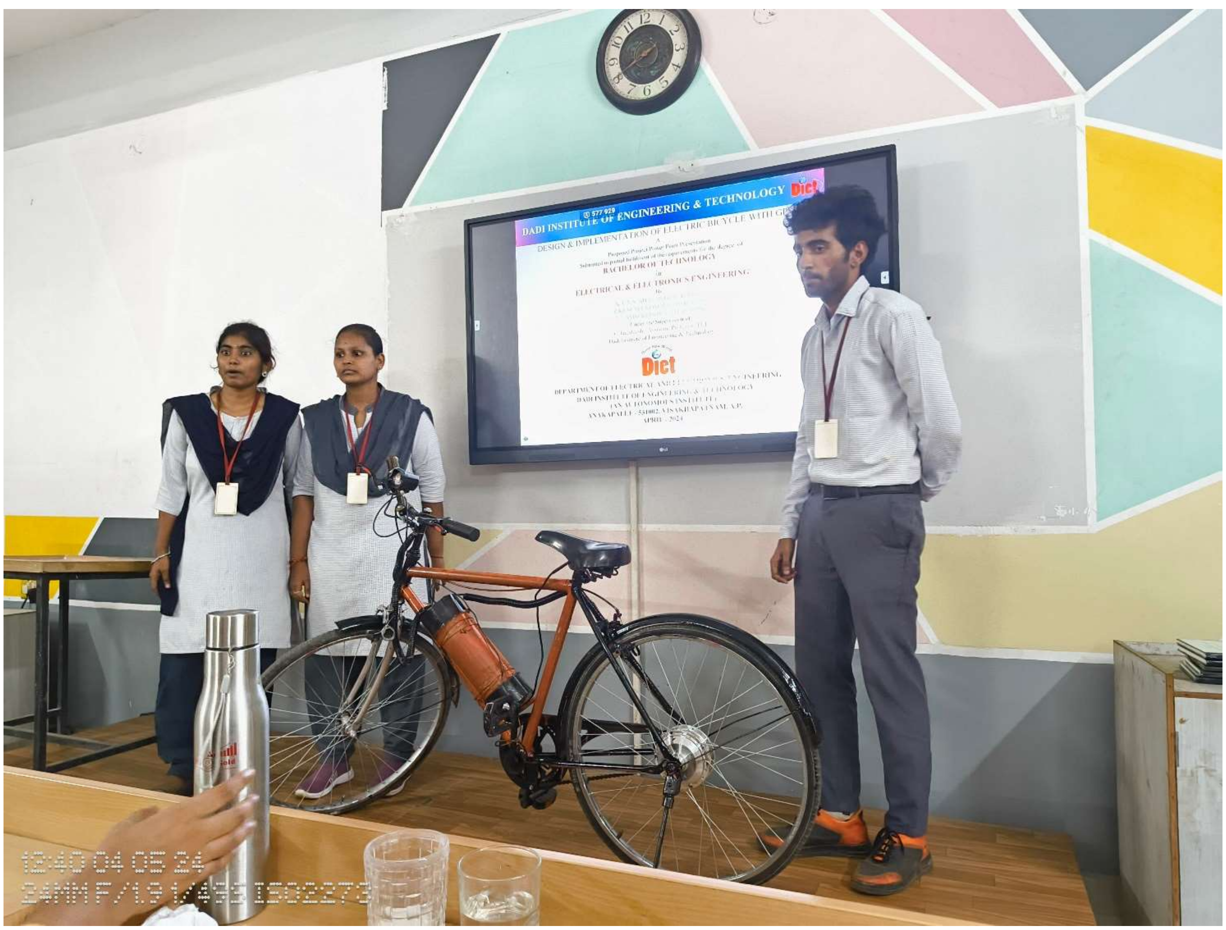
Electric bicycles offer a greener alternative to traditional vehicles, as they produce zero emissions and reduce reliance on fossil fuels.

By encouraging cycling as a mode of transportation, e-bikes contribute to reducing traffic congestion and air pollution in urban areas.

7. Health and Fitness:

While electric bicycles provide assistance, they still require pedaling, offering riders a form of low-impact exercise.

E-bikes can make cycling more accessible to people of varying fitness levels and physical abilities, allowing more individuals to enjoy the health benefits of cycling.

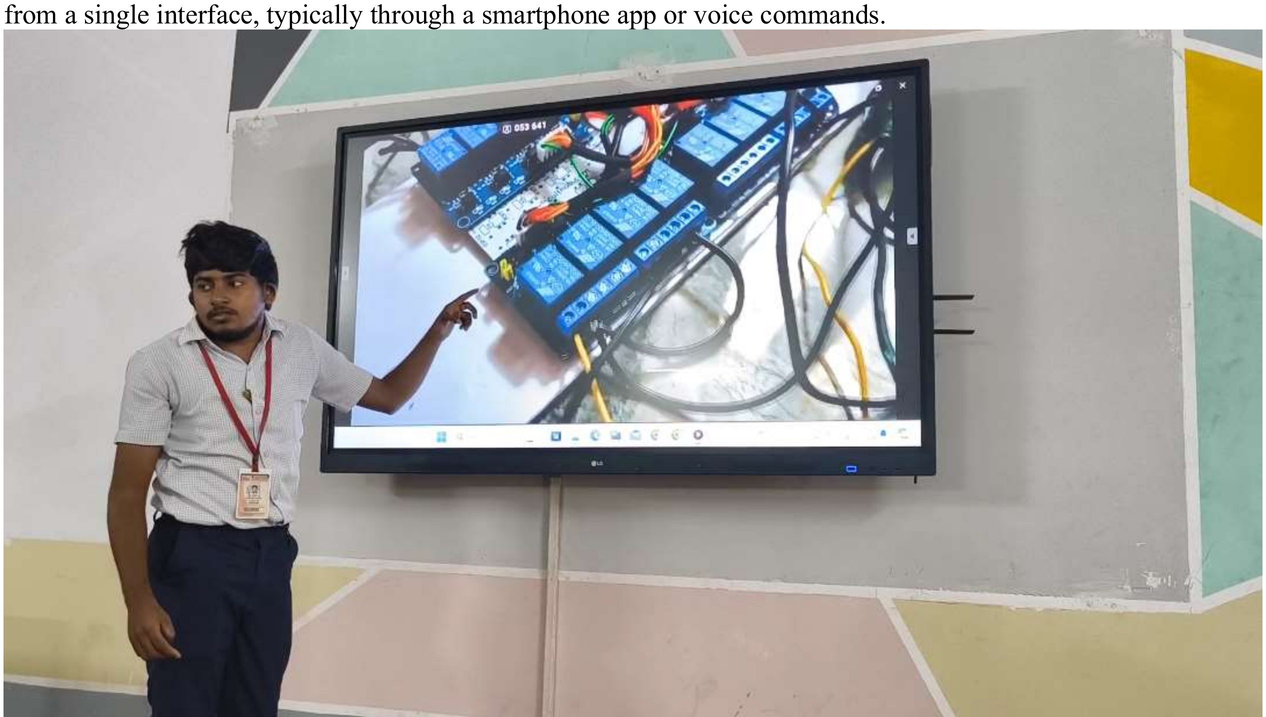


SMART HOME AUTOMATION:

Smart home automation refers to the integration of technology and devices within a home to enable centralized control and automation of various functions, systems, and appliances. These systems are designed to enhance convenience, comfort, security, and energy efficiency for homeowners.

1. Connectivity and Integration:

Smart home automation systems utilize connectivity technologies such as Wi-Fi, Bluetooth, Zigbee, or Z-Wave to link devices and appliances together.
These devices can include smart thermostats, lighting systems, security cameras, door locks, smart speakers, appliances, and more.
Integration platforms and hubs serve as central control units, allowing users to manage and automate different devices from a single interface, typically through a smartphone app or voice commands.



INVERTER BASED SMART SOLAR POWER PLANT MONITORING SYSTEM

The integration of Internet of Things (IoT) technology in solar power systems has led to the development of smart solar inverters that can efficiently generate and manage solar power. In this paper, we present an IoT-based smart solar inverter for solar power generation. The proposed system consists of a solar panel, a smart inverter, and a battery bank. The smart inverter is equipped with sensors and communication modules that allow it to monitor the solar panel's output and communicate with the battery bank. The system's performance is controlled by an IoT platform that uses algorithms to optimize energy generation and storage. The proposed system is designed to improve energy efficiency, reduce energy costs, and increase the reliability of solar power systems. The experimental results demonstrate that the proposed system can efficiently generate and manage solar power, making it a promising solution for renewable energy generation. In the circuit diagram we can observe that 12V battery is connecter to the diode LED and also connected to the pin8 of the IC 4047 which is VCC or power supply pin and also to pin 4 and 5 which are a stable and complement a stable of the IC. Diode in the circuit will help not give any reverse current, LED will work as a indicator to the battery is working or not. IC CD4047 will work in the astable multivibrator mode. To work it in a stable multivibrator mode we need an external capacitor which should be connected between the pin1 and pin3. Pin2 is connected by the resistor and a variable resistor to change the change the output frequency of the IC. Remaining pins are grounded. The pins 10 and 11 are connected to the gate of the mosfets IRF540. The pin 10 and 11 are Q and ~Q from these pins the output frequencies is generated with 50% duty cycle. The output frequency is connected to the mosfets through resistor which will help to prevent to the loading of the mosfets. The main AC current is generated by the two mosfets which will act as two electronic switches. The battery current is made to flow upper half or positive half of the primary coil of transformer through Q1 this is done when the pin 10 becomes high and lower half or negative half is done by opposite current flow through the primary coil of transformer, this is done when pin 11 is high. By switching the two mosfets current is generated. This AC is given to the step-up transformer of the secondary coil from this coil only we will get the increased AC voltage, this AC voltage is so high; from step up transformer we will get the max voltage. Zenor diode will help avoid the reverse current.

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Attendance: (No. of Students: 95)

Batch No	HT.No	StudentName	Mentor	Title of the Project	Sign
1	21U45A0272	PAPPALA TEJASRI	Dr. A S L K Gopalamma	Design & Analysis of low water head hydro power utilising waste water system	P.Tejasri
	21U45A0279	VURITI GYANA SABARISH			[illegible]
	21U45A0251	DEVARAKONDA NAVEEN			Naveen
	21U45A0245	BODDU VEERA SAI MANI TEJA			[illegible]
2	21U45A0238	YAMANA KIRANMAYE	Ms. B. Sowmya	Simulation and Analysis of Power system faults	Y.Kiranmaye
	21U45A0264	KUNDRAPU KOUSALYA			K.Kousalya
	21U45A0268	MOHAMMAD GULAM MUSTHAFA			Md.Musthafa
	21U45A0252	DEVARAPU LAXMAN KUMAR			D.Laxman
3	21U45A0282	BYLAPUDI NARAYANARAO	Mrs. M.Hemalatha	Smart power management with controlled electric charger	[illegible]
	21U45A0239	ADARI SAIKUMAR			[illegible]
	21U45A0247	CHEKKA SHRI SAI MOUNIKA			Ch.Mounika
	21U45A0265	MALLA BHARGAV SWAMY			M.Bswamy
4	21U45A0241	BAKI KURMAREDDY	Dr. S. Ramana Kumar Joga	load scheduling of building using machine learning	[illegible]
	21U45A0262	KONATALA MOHAN SAI			K.MohanSai
	21U45A0276	SARAGADAM SASHIDHAR			S.Sashidhar
	21U45A0260	KARRI DEEKSHITH			
5	21U45A0269	MULAPARTHI ADITYA SAI	Mr. K. Srinivas rao	Fault Protection using wavelet multiresolution Analysis and datamining	
	21U45A0246	Buddha Lohith Kumar			
	21U45A0254	GALLA SRINIVASARAO			
	21U45A0277	SOHAN DAS			G.Srinivasarao
	21U45A0243	BODDETI ANUSHA			Sohan Das
6	21U45A0261	KISHAN KUMAR	Mr. J. Deleep Kumar	Efficient Farming & Smart Irrigation [illegible]	B.Anusha
	21U45A0248	Dadisetty Gowtham Sai Karthik			[illegible]
	21U45A0280	THANNA VAMSI			D.Gowtham
	21U45A0270	MUMMINA PUSHPA			T.vamsi
7	21U45A0255	GOKULAPATI GANESH	Mr. B. V Siva Prasad	Quad port converter for Electric vehicle	
	21U45A0266	MANGARAJU SWATHI			G.Ganesh
	21U45A0274	RAMBUDDI UMA SANKAR			M.Swathi
8	21U45A0258	KANDREGULA YOGITHA SUBHADRA	Mrs. K.Alfoni Jose	Hybrid solar power inverter with automation system	[illegible]
	21U45A0242	BETHA BALAJI			Yogitha
	21U45A0257	KADIMI HARINADH			Balaji
	21U45A0244	BODDETI PAVAN VAMSI			Harinadh
9	21U45A0263	KORIBILLI VEERA VENKATA SAI BHAVANI	Mr. G. Jagadeesh	Solar electric bicycle	Pavan
	21U45A0275	RAPETI KUSUMA KOMALI			[illegible] Bhavani
	21U45A0278	VEMPARALA VENKATA NAGA VAMSI KRISHNA			
	20U45A0227	KARNAM SYAM KUMAR			[illegible]
10	21U45A0267	MARISETTY NEERAJ	Mr. K. Vijay Kumar	Reactive Power Compensation on V2G bydirection off-board Charger	M.[illegible]
	21U45A0259	KANNAM CHUHITHA			K.[illegible]
	21U45A0281	MANYAM SAI JAYA KRISHNA			[illegible]
	20U45A0259	VINDULA CHARAN SAI TEJA			
11	21U45A0273	PERLA SANDHYA	Mrs. Ch. Lakshmi Prasanna	Power Quality Disturbances Detection and classification using [illegible]	P.Sandhya
	21U45A0253	DURGA PRASAD PRASADULA			prasad
	21U45A0240	Amarapini Kushal			A.Kushal
	20U45A0265	KOYYA NAVEEN			K.Naveen
12	21U45A0249	DASARI VINAY	Mrs. P. Sravana Lakshmi	Control and Mangement of railway system technical	D.[illegible]
	21U45A0250	DEPURI NAGARAJU			D.Nagaraju
	21U45A0256	JALLU TULASI RAM			J.Tulasi

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Batch No	HT.No	StudentName	Mentor	Title of the Project	Sign
1	21U45A0233	PEDIREDLA KARTHIK	Dr. A S L K Gopalamma	IIoT based energy management towards sustainability	P.Karthik
	20U41A0203	PEYYALA MOHAN			P.Mohan
	21U45A0209	GANDRETI GOWTHAM PATNAIK			G.Gowtham
	20U41A0212	KATARI VENKATESH			K.Venkatesh
2	21U45A0221	MADAKA RAMA KRISHNA	Mr. J Shiva	Hybrid power filters for harmonic compensation in critical non-linear loads	M.Ramakrishna
	21U45A0225	MARISERLA VENKATA SAI			M.Venkata Sai
	20U41A0215	KAKARLAMOODI VISHNU VARDHAN			K.Vishnu Vardhan
	21U45A0231	PATTA JYOTHI AMAR SWAROOP			P.Amar
3	21U45A0234	PILLA VENKATA RAMANA	Mr. B V V Anjaneyulu	Design and simulation of renewable energy based ultra low emission vehicle	P.V.Ramana
	21U45A0223	MALLA HARIKA			M.Harika
	21U45A0207	DUKKA SRINIVASA REDDY			D.Srinivas
	21U45A0214	KALLEMPUDI SAI			K.Sai
4	21U45A0208	DULLA PAVAN KUMAR	Mr. B V Siva Prasad	Solar PV powered SRM drive for EV's with novel flexiable energy control	D.Pavan Kumar
	20U41A0209	GEDDAM BHARATHI			G.Bharathi
	21U45A0224	MALLA VENKATA KUMAR			M.Venkat
	21U45A0210	GANGUPAM DURGA SAI PRASAD			G.Durga Sai Prasad
5	21U45A0202	ATHAVA PRAVEEN KUMAR	Mr. K Srinivas Rao	Smart home automation using IOT	A.Praveen
	20U41A0202	ORUPULA PUJA HEMANTH			O.Hemanth
	21U45A0217	KANUMAREDDY LEELA VARAHA LAVANYA			K.Lavanya
	21U45A0206	DASARI YASWANTH			D.Yaswanth
6	21U45A0222	MADETI MANIKANTA	Mr. G. Jagadeesh	Modelling of lithium ion battery & estimation of soc using matlab/simulink	M.Manikanta
	21U45A0236	S VAMSI KRISHNA			S.Vamsi
	20U41A0207	BODDAPU MANIKANTA			B.Manikanta
	20U41A0210	CHEEPURUPALLI MAHESH			Ch.Mahesh
7	21U45A0235	REYYI VENU	Dr. S. Ramana Kumar Joga	Fault detection and classification of PV array using machine learning	R.Venu
	21U45A0218	KORUKONDA YAMINI PRIYANKA			K.Y.Priyanka
	21U45A0213	GOPASANA YASWANTH SURYA PADMAKAR			G.Y.S.Padmakar
	21U45A0220	CHODIPALLI MUTYALA NAIDU			Ch.M.Naidu
8	21U45A0212	GINNI NAVEEN KUMAR	Mr. A. Krishna Nag	SIMULATION AND ANALASIS OF EV2G WITH REACTIVE POWER CONTROL	[illegible]
	21U45A0226	MEESALA NAGARAJU			[illegible]
	21U45A0229	NAGA DURGA PRASAD KODIBOYINA			K.Prasad
	20U41A0208	GANTA VISWESWARA RAO			[illegible]
9	21U45A0230	PALAKA GAYATHRI	Mr. V Sudhakar	Battery and super capacitor fed BLDC motor for EV application	P.Gayathri
	21U45A0216	KANDREGULA BHARGAVI			K.Bhargavi
	20U41A0211	SAMMIDI SURYA ROHIT			S.Surya
	20U41A0213	BUDDHA SHYAM SUNDHAR			B.Shyam
10	21U45A0219	KUNDALA BHANU SAI KRISHNA	Mrs. K Alfoni Jose	Solar powered outdoor air purifier with air quality monitoring system	K.Bhanu Sai Krishna
	21U45A0211	GANNU UMA MAHESWARI			G.Uma
	21U45A0205	DAKAMARRI RAMU			D.Ramu
	21U45A0227	MERUGU PRAMODH			M.Pramodh
11	21U45A0228	MUMMANA VINAY KUMAR	Mr. J Deleep Kumar	Minimize battery degradation in electric vehicles	M.Vinay Kumar
	21U45A0201	ARREPU NOOKESH KUMAR			A.Nookesh
	21U45A0203	BARNIKANA GOVINDA			B.Govinda
	20U41A0214	ANGA SRINIVAS			A.Srinivas
12	21U45A0232	PEBBULI LAXMAN SAI	Mr. K Vijay Kumar	Advanced hybrid energy storage system by using PMSM Regenerative system	P.Laxman Sai
	20U41A0206	SIYYADRI JAGAN KUMAR			[illegible]
	21U45A0237	VIRODHULA MANIKUMAR			[illegible]
	20U41A0205	KASIREDDY SAI YASWANTH			[illegible]

Coordinator
(Dr. S.R.K Joga).

HoD, EEE

Head of the Department
Electrical & Electronics Engg.
Dadi Institute of Engg. Tech.
Anakapalle - 531 002

Conclusion:

Project Demo served as a testament to the relentless pursuit of innovation within the engineering community. The showcased advancements not only reflected the current state of the industry but also hinted at the exciting possibilities that lie ahead. As these technologies continue to evolve, their impact on society, the environment, and the way we live and work is poised to be transformative. The event left attendees inspired and eager to witness the real-world implementation of these groundbreaking engineering innovations.

Coordinator
(D.V.SRK Jogi).

HoD, EEE

Head of the Department
Electrical & Electronics Engg.
Dadi Institute of Engg. Tech.
Anakapalle - 531 002