BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy (District), Telangana-501510

1.3.3 : Percentage of students undertaking project work/ field work / internship (Data for the latest completed academic year) (10)

Academic Year 2018-19

S. No.	Department	Descriptions	Total Count
1.	B.Tech-CIVIL	Major Project Work	74
2.	B.Tech-EEE	Major Project Work	116
3.	B.Tech-MECHANICAL	Major Project Work	72
4.	B.Tech-ECE	Major Project Work	161
5.	B.Tech-CSE	Major Project Work	222
6.	B.Tech-IT	Major Project Work	43
7.	MBA	Major Project Work	10
8.	M.TECH	Major Project Work	19
9.	B.Tech-(CIVIL, EEE, MECHANICAL, ECE, CSE) MBA	Internship	134
10.	B.Tech-(EEE, MECHANICAL,ECE, CSE, 1ST YEAR STUDENTS) MBA,	Industrial visit	693
TOTAL COUNT			1544

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mangalpally(V), Ibrahimpatnam, R R District E1

PRINCIPAL
Principal
Bharat Institute of Engg. and Tech
Mangalpally(V), Ibrahimpatnam(M)
Ranga Reddy (Dist)-Telangana-501510

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mangalpally, Ibrahimpatnam - 501 510, Hyderabad.

ELECTRICAL AND ELECTRONICS ENGINEERING
MAJOR PROJECT BATCHES (2015-19)
IV YEAR I SEM SECTION-A

S.No	Roll No	Student Name	Titel of the Project	Batch No	Name of the Guide
1	**16E15A0246**	**G.NAGA SAI**	**ANALYSIS OF HARMONICS IN THREE PHASE VOLTAGE SOURCE INVERTER :180,120 & 150 DEGREES CONDUCTION MODES**	**1**	**Mr.B.Vasanth Reddy**
2	16E15A0241	K.VINAY GOUD			
3	15E11A0213	C.KRANTHI KUMAR			
4	15E11A0232	M.PURUSHOTHAM			
5	**15E11A0208**	**B. SAIVANI**	**RELIABILITY ASSESSMENT OF GRID CONNECTED HYBRID ENERGY SYSTEM**	**2**	**Dr.J.Bhagwan Reddy**
6	15E11A0228	K.DINESH RATHHOD			
7	15E11A0204	A.SAI SUPRADEEP			
8	14E11A0233	P.SHIVA KUMAR			
9	**15E11A0227**	**K.HEMANTH**	**MODELLING OF WIND ENERGY SYSTEM WITH MPPT CONTROL**	**3**	**Dr.Sukhdeo Sao**
10	15E11A0229	KAUSTUBH A SONNI			
11	15E11A0215	C.ANAND			
12	15E11A0230	K.GOPI VARMA			
13	**16E15A0240**	**G.SRIKANTH**	**CONTROL OF HYBRID AC/DC MICRO GRID INVOLVING PULSED LOADS**	**4**	**Mr.D.Chinna Kullay Reddy**
14	15E11A0211	B.RAJA SHEKAR			
15	16E15A0247	M.KALADHAR			
16	15E11A0243	P.RAJESH			
17	**15E11A0242**	**N.YAMINI**	**OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION**	**5**	**Mr.Ch.Santhan Kumar**
18	15E11A0206	K.AKHIL NAIK			
19	15E11A0250	S.HARISH			
20	16E15A0242	B .TIRUPATHI RAO			
21	**16E15A0235**	**SAI KIRAN REDDY**	**VOLTAGE SAG REDUCTION USING DYNAMIC VOLTAGE RESTORER**	**6**	**Mr.Sukanth.T**
22	15E11A0212	SRINIVAS REDDY			
23	15E11A0239	M.SHIVANAND			
24	15E11A0246	R.PAVANKUMAR RAJU			
25	**15E11A0220**	**G.NAVEENA**	**SOLAR BASED AUTOMATIC IRRIGATION SYSTEM**	**7**	**Mr.Karunakar Reddy**
26	15E11A0217	D.RAMAKRISHNA			
27	15E11A0236	M.VAMSHI PRAMOD			
28	15E11A0203	A.CHITTI			
29	**15E11A0214**	**C.SHANKAR**	**DAMPING POWER OSCILLATIONS USING SSSC**	**8**	**Mr.Basava Reddy**
30	15E11A0226	K.SAI KUMAR			
31	16E15A0239	S.SAI PRAKASH GOUD			
32	15E11A0218	G.SAI VINAY			

33	**15E11A0225**	**K.RANI**	**DESIGN AND COST ESTIMATION OF 1KW SOLAR POWER PLANT**	**9**	**Mr.K.Srinivas Rao**
34	15E11A0223	J.YASHWANTH REDDY			
35	16E15A0237	K.YADARTHA			
36	15E11A0247	R.PRUDHVINATH			
37	**15E11A0254**	**T.JAYASREE**	**POWER QUALITY ENHANCEMENT FOR A GRID CONNECTED WIND TURBINE ENERGY SYSTEM**	**10**	**Mr.V.Sampath Kumar**
38	15E11A0252	S.MADHAV RAJ GUPTHA			
39	16E15A0243	CH.PRANAY			
40	16E15A0232	MD HASHIM ALI			
41	**15E11A0222**	**G.SAI DEEPAK REDDY**	**DRIVING A MOTOR WITH THE HELP OF SOLAR PV PANEL**	**11**	**Mr.Priyanshu Chandan Behera**
42	15E11A0202	A.CHANDANA			
43	15E11A0234	M.AMARENDER REDDY			
44	**15E11A0255**	**T.KEERTHANA**	**MODELING & IMPELENTIATION OF IoT BASED TRANSMISSION LINE MONITORING,PROTECTION & CONTROL**	**12**	**Dr.Madhiarasan**
45	16E15A0238	MOHD SHAKEEL			
46	15E11A0253	S.RAKESH			
47	15E11A0248	RAMVATH GOPAL			
48	**15E11A0210**	**B.JAYA LAKSHMI**	**SINGLE PHASE SEVEN LEVEL GRID CONNECTED INVERTER FOR PHOTOVOLTAIC SYSTEM**	**13**	**Mr.Sukanth.T**
49	15E11A0205	A MAMATHA			
50	15E11A0244	P.SAI SANDEEP			
51	15E11A0251	S SAMBA SIVA GOUD			
52	**15E11A0216**	**C.MUKESH**	**SOLAR INTEGRATED BATTERY AND SUPER CAPACITOR FED ELECTRIC VEHICLE**	**14**	**Ms.B.Santosh Kumari**
53	16E15A0233	C. PRANAYA			
54	15E11A0237	M.RAKESH			
55	16E15A0231	I.VISHNU			
56	**15E11A0235**	**M.NARESH KUMAR**	**FLEXIBLE SOLAR PANEL AGRICULTURE SPRAYER**	**15**	**Mr.Dr.Arul Prakash**
57	16E15A0236	V SURENDHAR REDDY			
58	15E11A0224	K.SAI KIRAN GOUD			
59	15E11A0209	B.SAI ABHINAV			

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mangalpally, Ibrahimpatnam - 501 510, Hyderabad.

ELECTRICAL AND ELECTRONICS ENGINEERING

MAJOR PROJECT BATCHES (2015-19)

IV YEAR I SEM SECTION - B

S.NO	Roll No	Student Name	TITLE OF THE PROJECT	Batch No	Name of the Guide
1	16E15A0201	**M. PRASHANTH**	**IoT BASED SOLAR POWER MONITORING SYSTEM**	**1**	**Mr. G. Kamalakar Reddy**
2	16E15A0219	K.AMBIKA			
3	15E11A0263	D. MANI			
4	15E11A0259	B. SAIKUMAR			
5	16E15A0208	**B. SUDHEER**	**SOLAR POWER FENCING AND WATER SYSTEM FOR AGRICULTURE**	**2**	**Ms.U.V.S.R Harisha**
6	15E11A0266	D. DEEKSHITH KUMAR			
7	16E15A0211	C. NITHISH			
8	15E11A0281	M. RAJARSHI			
9	15E11A0256	**A. SANJEEVA REDDY**	**FLICKER MITIGATION OF IPC BY VARIABLE SPEED WIND TURBINE WITH DFIG**	**3**	**Ms.B.Vijaya Lakshmi**
10	16E15A0212	M. MANASA			
11	16E15A0215	R. SUMAN			
12	15E11A0289	P. VINAY KUMAR			
13	15E11A0288	**P. UMA**	**A TWO TERMINAL ACTIVE INDUCTOR WITH MINIMUM APPARENT POWER FOR THE AUXIIARY CIRCUIT**	**4**	**Mrs.G.Abilasha Reddy**
14	16E15A0225	M. BHASKAR			
15	16E15A0229	M. LIKHITH GOUD			
16	15E11A0290	P. SANDEEP			
17	16E15A0224	**B. NAGANDRA BABU**	**PERFORMANCE ANALYSIS OF A HYBRID RENEWABLE ENENRGY POWER SYSTEM SIMULATION STUDY**	**5**	**Mr.Murga Permual**
18	15E11A0260	B. GANESH			
19	15E11A0284	M. SHIVA REDDY			
20	15E11A0294	**R. VINEETH**	**MPPT OF SOLAR PV SYSTEM**	**6**	**Mr.Ch.Santhan Kumar**
21	16E15A0221	ABDUL ALEEM			
22	15E11A02A0	Y. VAISHNAVI			
23	15E11A0296	S. HARIKRISHNA			
24	16E15A0228	**M. VAIBHAV**	**DESIGN AND ANALYSIS OF 1KW SOLAR TREE**	**7**	**Mr.K.Vinay Kumar Reddy**
25	16E15A0218	V. DIGNA			
26	15E11A0273	K. SRAVAN KUMAR			
27	16E15A0223	**B. PAVAN**	**DESIGN AND DEVELOPMENT OF IoT BASED SOLAR POWERED VERSATILE MOVING ROBOT FOR MILITARY APPLICATION**	**8**	**Dr.Madhiarasan**
28	16E15A0222	C. MITHRA SRI MUVVA			
29	15E11A0272	K. SAINATH			
30	15E11A0299	V. ANVESH			

31	16E15A0230	**P. SRIHARSHA**	**SMART CARD BASED E-CAR BATTERY CHARGER**	**9**	**Dr.A.Arul Prakash**
32	15E11A0275	K.MAHESH KUMAR			
33	15E11A0267	D.NIKHITHA REDDY			
34	16E15A0206	MD. SHAKEEL AHMED			
35	16E15A0227	**K. SAIKUMAR**	**RBFN BASED SINGLE MPPT TECHNIQUE FOR HYBRID DC MICROGRID WITH ENERGY STORAGE SYSTEM**	**10**	**Mr.Ramji Tiwari**
36	15E11A0268	D. SHANKAR REDDY			
37	16E15A0216	P.VAMSHI			
38	15E11A0286	N.PRUTHVIDER REDDY			
39	15E11A0287	**N. DIVYA**	**NON-ISOLATED DC-DC BOOST CONVERTER**	**11**	**Dr.N.Balaji**
40	15E11A0274	K. ABHISHEK			
41	15E11A0297	S. SHIVARAM			
42	16E15A0213	T. SHAMRAO HARIPRASAD			
43	16E15A0204	**V. JAIPAL**	**THREE PHASE BI-DIRECTIONAL CONVERTER WITH REDUCED SWITCHES**	**12**	**Mr.Y.V.Prashant**
44	16E15A0203	S. RAKESH			
45	15E11A0269	G. CHANTI			
46	15E11A0293	R. SRINIVAS			
47	16E15A0209	**B. NARESH**	**SPEED CONTROL OF A 1-PHASE IM BY USING PID CONTROLLER IN LAB VIEW**	**13**	**Mr.B.Vasanth Reddy**
48	15E11A0262	D. SURESH			
49	15E11A0285	N. AKSHAY KUMAR			
50	16E15A0202	**T. MUTHU CHARY**	**DECOUPLED ACTIVE AND REACTIVE POWER CONTROL OF GRID CONNECTED DFIG**	**14**	**Mr.N.Nagasekhara Reddy**
51	16E15A0217	P. KEERTHI			
52	16E15A0226	P. SAI KIRAM			
53	15E11A0292	R. SURENDHAR REDDY			
54	16E15A0205	**M. NITIN SOURABH**	**VOLTAGE PROFILE IMPROVEMENT FOR THREE PHASE PV POWER SYSTEM UNDER UNBALANCED GRID**	**15**	**Ms.Marlin**
55	15E11A0258	B. SANTHOSH			
56	15E11A0291	P. KARTHIK			
57	15E11A0261	C. UDAY TEJA			

"Analysis of Harmonics in Three Phase Voltage Source Inverter: 180^0, 120^0, 150^0 Conduction Modes"

A Project Report Submitted to

Jawaharlal Nehru Technological University, Hyderabad.

In partial fulfilment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

GADDAM NAGASAI	**16E15A0246**
K VINAY GOUD	**16E15A0241**
CH KRANTHI KUMAR	**15E11A0213**
G PURUSHOTHAM	**15E11A0232**

Under the guidance of

Mr. B. VASANTH REDDY, M.Tech.
Assistant professor,
Department of EEE.

BHARAT INSTITUTIONS

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

2015-2019

BHARAT INSTITUTIONS

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)

Ibrahimpatnam - 501 510, Hyderabad

Certificate

This is to certify that the project work entitled "**Analysis of Harmonics in Three Phase Voltage Source Inverter: 180^0, 120^0, 150^0 Conduction Modes**" *is the bonafide work done*

By

GADDAM NAGASAI	**16E15A0246**
K VINAY GOUD	**16E15A0241**
CH KRANTHI KUMAR	**15E11A0213**
G PURUSHOTHAM	**15E11A0232**

in the Department of Electrical and Electronics Engineering, ***BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY,*** *Ibrahimpatnam is submitted to* ***Jawaharlal Nehru Technological University, Hyderabad*** *in partial fulfilment of the requirements for the award of* ***B.Tech*** *degree in* ***Electrical and Electronics Engineering*** *during* ***2015-2019.***

Guide: B. Vasanth Reddy

Mr. B. VASANTH REDDY
Assistant professor,
Dept of EEE,

Head of the Department:

Dr. JOHN ARUN KUMAR
Professor,
Dept of EEE,

Viva-Voce held on 30-04-2019

Internal Examiner

External Examiner

ABSTRACT

The most-common, simple, and well-known three-phase six-switch voltage source inverter (VSI) has been widely used in low-voltage ac-drives. For this reason, many researchers have been presented recently investigating different types of fault that commonly occurred in that inverter. Sudden loss of one inverter leg, due to transistor base-open drive, or switch open circuit damage, is considered one of these faults and many remedial strategies have been proposed.

This project innovates a new strategy, which intentionally opens one of the three inverter legs per time, in a pre-planned sequence. This strategy combines the commonly used 180 and 120 conduction modes to generate a new operating mode, defined as a 150 conduction mode. This produces for star connected loads seven phase voltage-levels, instead of the five-levels originally generated by this six-switch inverter. The drive circuit and simple-structure of the commonly-used VSI were retained the same. The phase output voltage wave shape becomes a 12-step one, i.e. much more closer to the sinusoidal waveform compared to the highly distorted 6-step one. It should be noticed that the total harmonic distortion (THD) of the output waves has been reduced about 50%, and the distortion factor (DF) has been reduced about 75%. The three conduction modes will be illustrated in the project.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is titled "Analysis of Harmonics in Three Phase Voltage Source Inverter: 180^0, 120^0, 150^0 Conduction Modes" is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

GADDAM NAGASAI	16E15A0246
K VINAY GOUD	16E15A0241
CH KRANTHI KUMAR	15E11A0213
M PURUSHOTTHAM	15E11A0232

STRATEGIC RELIABILITY ASSESSMENT OF A GRID CONNECTED HYBRID ENERGY SYSTEM

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements

For the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

By

B.SAI VANI	**15E11A0208**
A.SAI SUPRADEEP YADAV	**15E11A0204**
K.DINESH RATHOD	**15E11A0228**
P.SHIVA KUMAR	**14E11A0233**

Under the guidance of

DR.J.BHAGAWAN REDDY

PHD

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)

Ibrahimpatnam - 501 510, Hyderabad

2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

Certificate

This is to certify that the project work entitled **"STRATEGIC RELIABILITY ASSESMENT OF GRID CONNECTED HYBRID ENERGY SYSTEM"** *is the bonafide work done*

By

B.SAI VANI	**15E11A0208**
A.SAI SUPRADEEP YADAV	**15E11A0204**
K.DINESH RATHOD	**15E11A0228**
P.SHIVA KUMAR	**14E11A0233**

In the Department of Electrical and Electronics Engineering, ***BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY***, Ibrahimpatnam is submitted to **Jawaharlal Nehru Technological University, Hyderabad** in partial fulfillment of the requirements for the award of **B.Tech** degree in **Electrical and Electronics Engineering** during **2015-2019.**

Guide:

DR.J.BHAGAWAN REDDY
PHD
Dept of EEE,
Bharat Institute of Engineering and Technology,
Ibrahimpatnam – 501 510, Hyderabad.

Head of the Department:

DR.JOHN ARUN KUMAR
PHD Dept of EEE

Bharat Institute of Engineering and Technology,
Ibrahimpatnam – 501 510, Hyderabad.

Viva-Voce held on....30.-4-2019.....

Internal Examiner

External Examiner

ABSTRACT

In this work a case study of a wind power plant located at Kakulakonda, TTD 6MW and 1MW solar power plant (SPV) at Jurala, Mahabubnagar(3 years generation data) of wind and (SPV) were collected processed and presented. The collected data is used for the reliability evaluation of wind and solar PV hybrid energy system for gaining a better insight for component sizes and locations before they built optimally. The measures of reliability evaluation LOLE and LOEE are obtained from the given data, by using these measures the risk at which the generation capacity fails to meet the load demand and its evaluation requirement involve specific parameters such as plant capacity and outage rate of each generation unit. It is necessary to perform a study on the practical reserve margin level w.r.t to current LOLE requirement without endangering the overall power system reliability. LOLE is used to determine the total expected energy losses and load demand does not provide from generation system. From the frequency and duration method, LOLE and LOEE at 0.8MW and 0.5MW peak loads evaluated for SPV system. Similarly for 6MW, 5MW, 4MW wind energy system for the peak loads calculated and presented. Based on the LOLE and LOEE values the reliability of system is assessed. By using the above values, we can arrive at generating unit additions to meet the optimum load demand.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is titled **"STRATEGIC RELIABILITY ASSESSMENT OF A GRID CONNECTED HYBRID ENERGY SYSTEM"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1. B.SAI VANI
2. A.SAI SUPRADEEP YADAV
3. K DINESH RATHOD
4. P. SHIVA KUMAR

MODELLING OF WIND ENERGY SYSTEM WITH MPPT CONTROL

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

K.HEMANTH	(15E11A0227)
KAUSTUBH SONNI	(15E11A0229)
CH.ANAND	(15E11A0215)
K.GOPI	(15E11A0230)

Under the guidance and supervision of

Dr. Sukhdeo Sao

Professor

Dept. of EEE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

2018-2019

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

CERTIFICATE

This to certify that project work entitled **"Modelling of wind energy system with MPPT control"** is a benefited project work carried out by

K.HEMANTH	**(15E11A0227)**
KAUSTUBH SONNI	**(15E11A0229)**
CH.ANAND	**(15E11A0215)**
K.GOPI	**(15E11A0230)**

in the Department of Electrical and Electronics Engineering, **BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY,** Ibrahimpatnam is submitted to **Jawaharlal Nehru Technological University, Hyderabad** in partial fulfillment of the requirements for the award of **B.Tech** degree in **Electrical and Electronics Engineering** during **2015-2019.**

Guide:
DR.SUKHDEO SAO
Professor
Dept of EEE,
Bharat Institute of Engineering and Technology,
Ibrahimpatnam – 501 510, Hyderabad.

Head of the Department:
DR. JOHN ARUN KUMAR
Professor
Dept of EEE
Bharat Institute of Engineering and Technology,
Ibrahimpatnam – 501 510, Hyderabad

Viva-Voce held on 30-04-19

Internal Examiner

External Examiner

ABSTRACT

This project presents the modeling of wind energy systems using MATLAB Simulink. The model considers the MPPT (Maximum Power Point Tracking) technique to track the maximum power that could be extracted from the wind energy, due the non-linear characteristic of the wind turbine.

The model consists of wind generation model, converter model (DC-DC converter), and MPPT controller. The main contribution of our work is in the model of wind generator which is developed in rather details, DC-DC converter allows the MPPT controller output (duty cycle) adjusts the voltage input of the converter to track the maximum power point of the wind generator. The simulation results show that the developed model complies with the theoretical one. Further the MPPT control shows a higher power output compared to the system without MPPT.

DECLARATION

We hereby declare that this Project Report is titled **"Modelling of wind energy system with MPPT control"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by us.

Signature of the Student:

1. K.HEMANTH	**(15E11A0227)** K. Hemanth
2. KAUSTUBH SONNI	**(15E11A0229)**
3. CH.ANAND	**(15E11A0215)** Ch
4. K.GOPI	**(15E11A0230)** K. Gopi

Control of Hybrid AC/DC Microgrid Involving Energy Storage and Pulsed Loads

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

G.SRIKANTH	**(16E15A0240)**
B.RAJASHEKHAR	**(15E11A0211)**
M.KALADHAR	**(16E15A0247)**
P.RAJESH	**(15E11A0243)**

Under the guidance and supervision of

Mr. D. CHINNA KULLAY REDDY, M.TECH

Assistant Professor

Dept. of EEE

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

2018-2019

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)
Ibrahimpatnam - 501 510, Hyderabad

CERTIFICATE

This to certify that project work entitled **"Control of hybrid AC/DC microgrid involving energy storage and pulsed loads"** is a benefited project work carried out by

G.SRIKANTH	***(16E15A0240)***
B.RAJASHEKHAR	**(15E11A0211)**
M.KALADHAR	**(16E15A0247)**
P.RAJESH	**(15E11A0243)**

in the Department of Electrical and Electronics Engineering, **BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**, Ibrahimpatnam is submitted to **Jawaharlal Nehru Technological University, Hyderabad** in partial fulfillment of the requirements for the award of **B.Tech degree in Electrical and Electronics Engineering** during **2015-2019.**

Guide:

Mr. D. CHINNA KULLAY REDDY, M.TECH

Assistant Professor

Dept of EEE,
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ABSTRACT

Hybrid power systems are gaining popularity due to increasing micro grid featuring renewable power systems connected to low-voltage ac distribution systems. Furthermore, dc grids are resurging due to the development of new semiconductor technologies and sustainable dc power sources such as solar energy. There has also been an increase in dc loads, such as plug-in electric vehicles (PEVs) and light-emitting diodes, connected to the grid to save energy and decrease greenhouse gas emissions. This growth has been motivated by environmental concerns caused by the conventional fossil-fuelled power plants. This project proposes the coordinated control of a hybrid AC/DC power system with renewable energy source, energy storages and critical loads. The hybrid micro grid consists of both AC and DC sides. A synchronous generator and a PV farm supply power to the system's AC and DC sides, respectively. In a grid-connected mode, the ac side can be viewed as an infinite bus; therefore, the deviation of the voltage amplitude and frequency can be ignored. A DC/DC boost converter with a maximum power point tracking (MPPT) function is implemented to maximize the energy generation from the PV farm. Current controlled bidirectional DC/DC converters are applied to connect each lithium-ion battery bank to the DC bus. Lithium-ion battery banks act as energy storage devices that serve to increase the system stability by absorbing or injecting power to the grid as ancillary services. The objective of the system will be verified and validated in the MATLAB simulation.

DECLARATION

We hereby declare that this Project Report is titled **"Control of hybrid AC/DC microgrids involving energy storage and pulsed loads"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student:

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OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION TO REDUCE REAL POWER LOSS AND IMPROVE VOLTAGE PROFILE

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

By

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B. AKHIL NAIK	**(15E11A0206)**
S. HARISH	**(15E11A0250)**
B. TIRUPATHI	**(16E15A0242)**

Under the guidance of

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2018-2019

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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Certificate

This is to certify that the project work entitled **"OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION TO REDUCE POWER LOSS AND IMPROVE VOLTAGE PROFILE"** *is the bonafide work done*

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ABSTRACT

The challenge of power sector is to match the increasing demand for power supply with minimal transmission and distribution losses. So the main objective of optimal allocation of distributed generation (DG) is to achieve proper operation of distribution networks with minimization of systems losses and improvement of voltage profile.

A multi-objective problem will be formulated for optimal location of DG (or) DG's considering improvement in voltage profile and reducing the power loss on satisfying certain constraints.

A simple and efficient technique will be employed to solve the multi-objective problem and standard IEEE 33 and 69 bus test systems are used to study the efficiency of the technique employed.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2 & POS3.

CONCLUSION

The comparison of results corresponding to real and reactive power loss and minimum voltage level obtained DGs have been provided for both 33 and 69 bus test systems. This project presents a thorough description of the state-of the-art models and optimization methods applied to the ODGP problem, analyzing and classifying current and future research trends in this field. The most common ODGP model has the following characteristics: 1) installation of multiple DGs; 2) the design variables are the location and size; and 3) the objective is the minimization of the power loss and improvement of voltage profile of the system. The solution methodologies for the ODGP problem are classified into three major categories: analytical, numerical and heuristic methods. The most frequently used techniques for the solution of the ODGP problem are the genetic algorithm and various practical heuristic algorithms.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, & POS2

Voltage Sag Reduction Using Dynamic Voltage Restorer (DVR)

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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External Examiner

ABSTRACT

In Distribution System it is necessary to distribute the power at a constant voltage, current and frequency (with tolerance). But due to the advancement in semiconductor devices, leads to generation of reactive power and poor Power Quality (PQ).

This poor PQ causes damage to the equipments used at the consumer's premises. In this project, PQ problem such as voltage sag and swell is discussed and they are nullified using Dynamic Voltage Restorer (DVR) with Proportional Integral (PI) and Fuzzy Logic controller.

In this project, modeling, analysis and simulation of a DVR is modeled in MATLAB/SIMULINK their Total Harmonic Distortion (THD) is compared.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2.

DECLARATION

We hereby declare that this Project Report is titled **"Voltage Sag Reduction Using Dynamic Voltage Restorer (DVR)"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by us.

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SOLAR BASED AUTOMATIC IRRIGATION SYSTEM

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

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M.VAMSHI PRAMOD	**15E11A0236**
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2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

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Internal Examiner

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ABSTRACT

In this Project we discuss about the design of solar tracking system to harness maximum solar energy that is converted into electrical energy which in turn is used to power the irrigation system. The designed single axis solar tracker device, on the basis of LDR sensor values, orients the PV panel in accordance with the position of the sun. The irrigation pump can be controlled by Automatic mode using moisture sensor

In recent days, agriculture field farmers are facing many problems in watering their plants to keep their crops green in summer season. It's because they don't have correct idea about the availability of the power. Even if the power is available, they have to wait until the pitch is properly watered. Thus this process restricts them to stop doing other deeds. But there is a solution, i.e., automatic solar submersible pump control panel for irrigation. In the trial of solar based plant irrigation using submersible pumps, PV cells are used to generate electricity, which is stored in rechargeable batteries. These batteries produce power for the system operation. A submersible pump controller is used to pump a water from a boor well to a storage water tank. Then, the water is drawn by a submersible pump at the slope's toe, where the installed sprinklers water the crops or plants.

In this project work addressed the program out comes (POs) PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10, PO11, PO12, PSO1, PSO2 and program specific outcomes (POs) are attained by demonstrate the working model of the project

DECLARATION

We hereby declare that this Project Report is titled "**SOLAR BASED AUTOMATIC IRRIGATION SYSTEM**" is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

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DAMPING OF POWER SYSTEM OSCILLATIONS USING STATIC SYNCHRONOUS SERIES COMPENSATOR (SSSC)

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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Internal Examiner

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ABSTRACT

In today's interconnected power system network power oscillations is a major source of concern for power utilities due to its negative impact on power system stability and reliability. And power demand is increasing day by day so we have to transfer more power and for this we must have to improve stability of our power system. SSSC is FACTS family device which is effectively utilized for power flow control in the power system. SSSC-based power oscillation damping [POD] controller is proposed for transient stability enhancement and to eliminate the power oscillation damping in powers system and to improve the rotor angle stability. A improved control signal can be superimposed as a power flow control signal for SSSC damping to improve the rotor angle stability and power oscillations damping in the system. A multi machine multi bus system with SSSC is simulated. In mat lab simulink software. Simulation results show the effectiveness of this controller for power system stability enhancement under different fault condition

In this project work addressed the program out comes (POs) PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO10, PO11, PO12, PSO1, PSO2 and program specific outcomes (POs) are attained by demonstrate the working model of the project.

DECLARATION

hereby declare that this Project Report is titled **"DAMPING OF POWER SYSTEM CILLATIONS USING STATIC SYNCHRONOUS SERIES COMPENSATOR"** is a uine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree rse of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been mitted to any other course or university for the award of my degree by me.

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"LOAD CALCULATIONS OF 1KW SOLAR SYSTEM"

A PROJECT REPORT SUBMITTED TO

Jawaharlal Nehru Technological University Hyderabad

In partial fulfilment the requirements

For the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

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MANGALPALLY(V), IBRAHIMPATNAM(M), RANGAREDDY (DIST)-501510

2018 - 2019

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Abstract

Now a day with the growing population, the energy demand has been rises rapidly. Renewable sources are the only option of energy source and also we should keep in mind that energy should not cause pollution and other natural hazards. Among all the renewable sources sunlight is often deemed as the only abundant and truly "free" energy resource. Among all the different techniques available to harness solar energy, the most popular and mature technology is the photovoltaic conversion of sunlight into electricity. Despite its merits, solar PV technology has issues with the land requirement (especially in urban areas), capture efficiency and public perception.

India is a highly populated country, so we should take the advantage of such an energy which requires a very less space to produce energy efficiently. The concept of a solar tree is capable of addressing these problems effectively with elegance. It can be applied in street lightening system, industrial power supply etc. It is much better than the traditional solar PV system in area point of view and also more efficient.

A solar tree is a decorative means of producing solar energy and also electricity. It uses multiple no of solar panels which forms the shape of a tree. The panels are arranged in a tree fashion in a tall tower/pole.

DECLARATION

We hereby declare that this Project Report is titled **"LOAD CALCULATIONS OF 1KW SOLAR SYSTEM"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

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Power Quality Enhancement for a Grid Connected Wind Turbine Energy System

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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ABSTRACT

As the fossil fuels are exhausting and causing global warming, we are opting for wind energy. The wind energy penetration, utilization and its grid penetration in electrical grid are increasing worldwide. The wind generated power is always fluctuating due to its time varying nature and causing stability problems. This weak interconnection of wind generating source in the electrical network affects the power quality. Power quality is defined as a steady supply voltage that stays within the prescribed range and pure sinusoidal having a constant amplitude and frequency. In this project, to enhance the power quality an efficient and modern algorithm has been developed by using a four-leg inverter which is based on conservative power theory decompositions. The proposed methodology is to be performed in MATLAB/Simulink.

This Project Work addressed the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2 . These Program Outcomes (POs) and Program Specific Outcomes (PSOs) are attained by demonstrating the working model of the project.

DECLARATION

We hereby declare that this Project Report is titled **"Power Quality Enhancement for a Grid Connected Wind Turbine Energy System"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by me.

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DRIVING A MOTOR WITH THE HELP OF SOLAR PV PANEL

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY

IN

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Under the guidance

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External Examiner

ABSTRACT

Presently, the power consumed by household applications is more, for which we pay a lot. In this process a huge wastage of power occurs although it is not required. But coming to the expenditure we pay for both (for the power loss as well as for the power consumption). In order to overcome the expenditure loss and the power loss we use renewable energy sources. As solar energy is most efficient energy source, so we use it in our project to drive the motor. Its driven by solar PV panel. The source of energy utilized is free from pollution and also it sustains for longer time. This project serves the purposes of water pumping used for the gardening purpose as well as for agriculture as an application.

The deficit in electricity and high diesel costs affects the pumping requirements of community water supplies and irrigation; so using solar energy for water pumping is a promising alternative to conventional electricity and diesel based pumping systems. Solar water pumping is based on Photo Voltaic (PV) technology that converts solar energy into electrical energy to run a DC or AC motor based water pump. Renewable energy system offers an alternative way for sustainable development of a country. This project indicates that the solar water pumping system can be integrated to irrigation systems as it is feasible solution for longer period. Water tank is the economically feasible solution to meet the irrigation challenges faced during dry season.

This Project Work addressed the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2. These Program Outcomes (POs) and Program Specific Outcomes (PSOs) are attained by demonstrating the working model of the project.

DECLARATION

We hereby declare that this Project Report is titled **"DRIVING A MOTOR WITH THE HELP OF SOLAR PV PANEL"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by us.

Signature of the Student:

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MODELING AND IMPLEMENTATION IoT BASED TRANSMISSION LINE MONITORING, PROTECTION AND CONTROL

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

T Keerthana	**(15E11A0255)**
Md Shakeel	**(16E15A0238)**
S Rakesh	**(15E11A0253)**
R Gopal	**(15E11A0248)**

Under the guidance of

Dr.M.MADHIARASAN
ASSISTANT PROFESSOR

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2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

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Certificate

This is to certify that the project work entitled Modeling and Implementation of IoT Based Transmission line Monitoring, Protection and Control" is the bonafide work done

By

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Viva-Voce held on 30-04-2019

Internal Examiner

External Examiner

ABSTRACT

Power outage and power quality is the biggest problem in the current situation which cause the damaging of high cost power equipment and power interruption to the consumers. Power theft is one of major issue in the transmission line which leads huge losses to the electricity boards. Transmission lines are damaged due to factors such as over voltage, over current, over temperature and corona. Hence continuous monitoring, protection and control is required to ensure the quality and reliability power supply to the consumer. To overcome the above said problem we proposed IoT based monitoring, protection and control model to continuously monitor the transmission line parameters like voltage, current and temperature. During abnormal condition such as over voltage, over current, over temperature and power theft. The proposed model trip the circuit to safeguard the conductor and use what information to be provided with the help of IoT. So necessary action is taken to avoid the outage. Hence the proposed model and improve power quality and reliability.

This project work quality is measured in terms of consideration to factors including environment, safety, ethics, cost, type [application, product, research, review etc.] and standards. This project work mapping with the program outcomes [PO's]: PO1. PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and program specific outcomes [PSO's]: PSO1 & PSO2.

CHAPTER 8

CONCLUSION AND FUTURE SCOPE

Transmission lines are damaged due to the various factors such as atmospheric conditions, over voltage, corona, over current, lightening, over temperature etc.

Therefore monitoring system is needed for transmission line to prevent the outage and power quality problem.

To mitigate the issue related to the transmission line, we proposed IoT based concept.

According to the experimental validation, we achieve the ultimate objective successfully. Hence the proposed system aid the electricity board to improve the quality of power supply.

Summary of Proposed System:

The proposed system monitor the transmission lines with the help of IoT concept and detect the over voltage, over current and over temperature. The normal and abnormal condition information are transferred to the energy management system operators.

Hence before any damage and hazards occurs we can plan the necessary action to minimise the faults and ensure the uninterruptable power provision to the consumer.

The power theft also detected which reduce the losses of electricity board.

Future Direction:

- Real time implementation in transmission lines.
- Development of line walking robot.
- Improve the monitoring, protection and control performance by means of advanced IoT model[Raspberry Pi].

This project work quality is measured in terms of consideration to factors including environment, safety, ethics, cost, type [application, product, research, review etc.] and standards. This project work mapping with the program outcomes [PO's]: PO1. PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and program specific outcomes [PSO's]: PSO1 & PSO2.

Single-Phase Seven Level Grid-Connected Inverter for Photovoltaic System (PV System)

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

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CERTIFICATE

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Viva-Voce held on.....

Internal Examiner

External Examiner

ABSTRACT

In current global energy scenario, renewable energy sources can play an important role in meeting the ever increasing energy demand. This is due to exhaustive nature of fossil fuels and the environmental pollution caused by other conventional energy sources. Among renewable energy sources, solar photo-voltaic system is the most popular one as solar energy is available in abundance without paying any cost.

The output voltage generated from the solar panels depends on solar irradiance level and temperature. This project intends to present a novel single-phase seven-level inverter for grid-connected photovoltaic systems, with a novel pulse width modulated (PWM) control scheme.

The inverter is capable of producing seven levels of output voltage levels from the dc supply voltage. The proposed configuration uses a modified single phase seven level inverter topology for converting DC voltage generated from solar photovoltaic sources to AC voltage for feeding to the grid.

In this project, modeling, analysis and simulation of a single phase seven-level inverter is modeled in MATLAB/SIMULINK their Total Harmonic Distortion is compared.

This Project Work Quality is measured in terms of consideration to factors including, but ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO8, PO10, PO11, PO12, and Program Specific Outcomes (PSOs): PSO1 & PSO2.

DECLARATION

We hereby declare that this Project Report is titled **"Single-Phase Seven-Level Grid-Connected Inverter for Photovoltaic System (PV System)"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by me.

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SOLAR POWERED DTMF CONTROLLED VEHICLE

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

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CH.PRANAYA	16E15A0233
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ABSTRACT

Our Project presents the construction of a vehicle that controlled by the GSM communication network. The designed vehicle could be operated from anywhere under GSM network which is powered by solar energy using 5-watt photo voltaic (PV) panel, stored in 12V rechargable batteries. The operation starts with a call generated from a phone which is auto answered by another phone. In the course of a call, if any of the key 1, 3, 2, 4, 6, 8, or 5 is pressed a tone corresponding to the key pressed is heard at other end of transmission which is called Dual Tone Multiple Frequency (DTMF) tone. The received signal (tone) in the cell phone at vehicle end is processed by 8051 microcontroller. These signals are sent to the motor driver which drives the motors. Most important as the car will be runs by solar energy, tracking systems naturally provide the best performance, given that the components have high enough accuracy as well. So the vehicle can be sent to a long distance and not worrying about the charge of the batteries, since it accumulates the energy required from the external Photo Voltaic panel that absorbs the sun light and converts energy to generate the driving power

DECLARATIONS

We hereby declare that this Project Report is titled **"SOLAR POWERED DTMF CONTROLLED VEHICLE"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by us.

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SMART SOLAR AGRICULTURAL SPRAYER

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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B SAI ABHINAV (15E11A0209)

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Under the guidance of

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CERTIFICATE

This to certify that project work entitled **"Smart solar agricultural sprayer"** is a benefited project work carried out by

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External Examiner

ABSTRACT

Energy -demand" is one the major thread for our country. Finding solutions, to meet the "Energy -demand" is the great challenge for Social Scientist, Engineers, Entrepreneurs and Industrialist of our Country. According to them, Applications of Non-conventional energy is the only alternate solution for conventional energy demand. Now-a-days the Concept and Technology employing this Non-conventional energy becomes very popular for all kinds of development activities. One of the major areas, which finds number applications are in Agriculture Sectors. Solar energy plays an important role in drying agriculture products and for irrigation purpose for pumping the well water in remote villages without electricity. This Technology on solar energy can be extended for spraying pesticides, Fungicides and Fertilizers etc., using Solar Sprayers. This paper deals how a 'Power Sprayer' which is already in use and works with fossil fuel can be converted into solar sprayers works without any fossil fuel.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2.

DECLARATION

We hereby declare that this Project Report is titled **"Smart solar agricultural sprayer"** is a genuine project work carried out by us, in **B. Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad,** and has not been submitted to any other course or university for the award of my degree by us.

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IoT BASED SOLAR POWER MONITORING SYSTEM

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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Certificate

This is to certify that the project work entitled **"IoT BASED SOLAR POWER MONITORING SYSTEM"** is the bonafide work done

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Internal Examiner

External Examiner

ABSTRACT

Using the Internet of Things Technology for supervising solar power generation can greatly enhance the performance, monitoring and maintenance of the plant. With advancement of technologies the cost of renewable energy equipment is going down globally encouraging large scale solar plant installations. This massive scale of solar system development requires sophisticated system for automation of the plant monitoring remotely using web based interfaces as majority of them are installed in inaccessible locations and thus unable to be monitored from dedicated location. The project is based on implementation of new cost effective methodology based on IoT to remotely monitoring a solar plant for performance evaluation. This will facilitate preventive maintenance, fault detection of the plant in addition to real time monitoring.

This Project Work addressed the Program Outcomes (POs):PO1,PO2,PO3,PO4,PO5,PO6,PO7, PO8,PO9,P010,P011,P012 and Program Specific Outcomes(PSOs):PSO1&PSO2. These Program Outcomes (POs) and Program Specific Outcomes (PSOs) are attained by demonstrating the working model of the project.

DECLARATION

We hereby declare that this Project Report is titled "**IoT BASED SOLAR POWER MONITORING SYSTEM**" is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Students

1. **M.PRASHANTH-** M. Prashanth
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SOLAR POWER FENCING AND WATER SYSTEM FOR AGRICULTURE

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

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Certificate

This is to certify that the project work entitled "**SOLAR POWER FENCING AND WATER SYSTEM FOR AGRICULTURE**" *is the bonafide work done*

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ABSTRACT

Agriculture solar fencing is one of the best methods for protection of crops and property from domestic and wild animal damages. This Agriculture solar fencing supply a low amount of electric current, which gives electric current to those entering the fenced area.

The fence is like barbed wire fencing with multiple strands of plain wires and metal/cement/ wooden posts to hold the strands in position. The wires carry high voltage current. The Solar Power Fence gives a sharp, short but a non-lethal shock to the intruder and creates psychological fear, against any tampering. The alarm incorporated in the system gets activated and alert the inmates of the protected area. These are tailor-made fences and can be designed according to customer needs and site condition.

The Farm Sector Agricultural Solar Fencing offered by us is a new concept, introduced to keep out the animals ranging from snakes to elephants includes wild boar, monkey, cattle, and leopard. With the help of these Agriculture Solar Fencing systems, our clients can also safeguard the properties from theft. This resulted in increasing the yield by way of protecting the damages by wild animals which proved in enhancement in the returns. Moreover, our range is widely used in various sectors like agri-horticulture farms, aqua farms and research stations.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review,etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & PSO2.

DECLARATION

We hereby declare that this Project Report is titled" **SOLAR POWER FENCING AND WATER SYSTEM FOR AGRICULTURE"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1. B.SUDHEER
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FLICKER MITIGATION BY INDIVIDUAL PITCH CONTROL OF VARIABLE SPEED WIND TURBINE WITH DOUBLY FED INDUCTION GENERATOR

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

By

AILURI SANJEEVA REDDY	**(15E11A0256)**
REKALA SUMAN	**(16E15A0215)**
MIRUDODDI MANASA	**(16E15A0212)**
PASUNURI VINAY KUMAR	**(15E11A0289)**

Under the guidance of

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Certificate

This is to certify that the project work entitled "FLICKER MITIGATION BY INDIVIDUAL PITCH CONTROL OF VARIABLE SPEED WIND TURBINE WITH DOUBLY FED INDUCTION GENRATOR" is the bonafide work done.

BY

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Viva-Voce held on 01/05/19

Internal Examiner

External Examiner

ABSTRACT

In this project, due to wind speed variations, wind shear and tower shadow effects, Grid connected wind turbines are the sources of power fluctuations which can turn out flicker throughout continues operation. In this it presents a model of associate MW variable speed turbine with a doubly fed induction generator to analyze the glint emission and mitigation problems. An IPC theme is projected for flicker mitigation of grid connected wind turbine with mathematical logic controller, the facility oscillations square measures attenuated pitch angle adjustment per the generator active power feedback and also the turbine AZ angle. So therefore for a DFIG based variable speed turbine the control objective is different according to different wind speed. In low wind speed the control goal is to keep tip speed ratio optimum, so that maximum power can be captured from the wind. In high wind speed since available power is beyond wind turbine capacity, which could overload the system, the control objective is to keep the extracted power constant at its rated value. Simulation results shows that damping the active power generator by IPC is a good suggest that for flicker mitigation of variable speed wind turbine throughout continues operation.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2.

DECLARATION

We hereby declare that this Project Report is titled **"FLICKER MITIGATION BY INDIVIDUAL PITCH CONTROL OF VARIABLE SPEED WIND TURBINE WITH DOUBLY FED INDUCTION GENERATOR "** is a genuine project work carried out by us, in **B.Tech (Electrical And Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1. **A.SANJEEVA REDDY-** A. Sanjeev
2. **M.MANASA-** M. Manasa
3. **R. SUMAN-** R. Suman
4. **P.VINAY KUMAR-** P. Vinay Kumar

A TWO-TERMINAL ACTIVE INDUCTOR WITH MINIMUM APPARENT POWER FOR THE AUXILIARY CIRCUIT

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

Inpartial fulfillment of the requirements For the award of the degree of

BACHELOR OF TECHNOLOGY IN ELECTRICAL & ELECTRONICS ENGINEERING

By

P.UMA	**15E11A0288**
P.SANDEEP	**15E11A0290**
M.BHASKAR	**16E15A0225**
M.LIKHITH GOUD	**16E15A0229**

Under the guidance of

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ASSISTANT PROFESSOR

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2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)

Ibrahimpatnam - 501 510, Hyderabad

Certificate

This is to certify that the project work entitled **"A TWO TERMINAL ACTIVE INDUCTOR WITH MINIMUM APPARENT POWER FOR THE AUXILIARY CIRCUIT"** *is the bonafide work done*

By

P.UMA	**15E11A0288**
P.SANDEEP	**15E11A0290**
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Viva-Voce held on.....1/05/2019.....

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Internal Examiner

ABSTRACT

The main problem in power electronic circuits while using passive elements such as capacitors and inductors is that they consume reactive power. The conventional capacitor and inductor have high cost and size and the main disadvantage by using this device is decrease in power factor which may affect the efficiency of the system. To overcome this problem active inductor concept is implemented. In this project we are going to minimize the apparent power consumption by using two terminal active inductor with a current control strategy. The two terminal inductor can be used for the same rating and the energy storage as conventional inductor with reduced weight and volume. The reliability of the system can be improved by using this auxiliary circuit.

The harmonic content in power electronic devices is more in order to eliminate those we use filters.we have many type of filters such as Active Front End Filter(AFE) and Active Shunt Power Filter(ASPF).But the major disadvantage with these filters is the cost will be more.While using passive filters the maximum performance can be achieved when THD ≈ 30% and λ =0.95.The L value should be in the range of 3-5%(2mH< L_{ac} <3.5mH).Main purpose of this project is to design filters as compact and high efficient reactive components.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is **"A TWO TERMINAL ACTIVE INDUCTOR WITH MINIMUM APPARENT POWER FOR THE AUXILIARY CIRCUIT"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

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Performance Analysis of a Hybrid Renewable Energy System by Using i-HOGA Software

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

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B.GANESH	**15E11A0260**
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Under the guidance of

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Certificate

This is to certify that the project work entitled "Performance Analysis Of A Hybrid Renewable Energy System By Using i-HOGA Software "is the bonafide work done

By

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Viva-Voce held on.....

Internal Examiner **External Examiner**

ABSTRACT

This project presents The energy shortage and environment pollution is attracting more and more attention with the social development. Hence it is important to develop hybrid renewable energy systems (HRES) Consisting of photovoltaic cells, wind turbine, battery energy storage system, and diesel generator system. And this project is to analyze the performance of HRES considering three cases viz.i) variation of load ii) variation of wind speed and iii) variation of solar irradiation.

Proper sizing of the components of HRES is important as over-sizing may lead to increased establishment cost and under sizing might cause inabilityto supply the load demand. This project discusses a detailed methodology to optimally size the components of a HRES using the software i-HOGA

This Project Work Quality is measured in terms of consideration to factors including, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2.

DECLARATION

We hereby declare that this Project Report is titled *"Performance Analysis Of A Hybrid Renewable Energy System By Using i-HOGA Software"* is a genuine project work carried out by us, in **B.Tech (Electrical and Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by us.

Signature of the Students

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"MAXIMUM POWER POINT TRACKING OF SOLAR PHOTOVOLTAIC SYSTEM USING P&O"

A Project work report submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

In partial fulfillment of the requirement

for the award of the degree of

BACHELOR OF TECHNOLOGY

in

ELECTRICAL AND ELECTRONIC ENGINEERING

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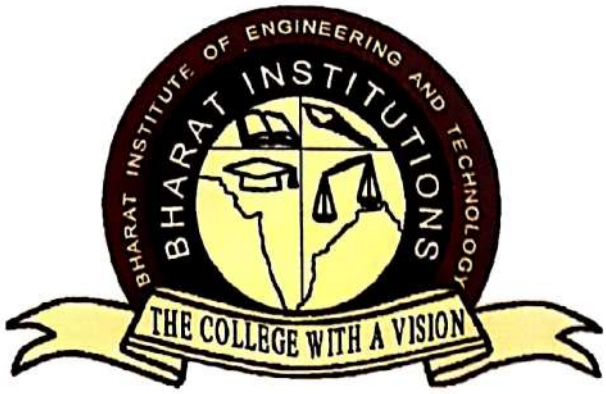

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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CERTIFICATE

This is to certify that Project report " **MAXIMUM POWER POINT TRACKING FOR PHOTOVOLTAIC SYSTEM** " is bonafide work done

by

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Internal Examiner

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ABSTRACT

Solar energy has received worldwide attention in the field of renewable energy systems. Among the various research in solar PV, most proverbial area is extracting maximum power point from solar PV system. Application of maximum power point tracking for extracting maximum power is very much appreciated and holds the key in developing efficient solar PV systems. The perturb and observe (P&O) maximum power point tracking algorithm is a simple and efficient tracking technique. However, the P&O tracking method suffers from drift in case of increase in insolation. Drift occurs due to the incorrect decision taken by conventional P&O algorithm at the first step change in duty cycle during increase in insolation. A modified P&O technique is proposed to avoid drift problem by incorporating the information of change in current in the decision process in addition to change in power and change in voltage. The drift phenomena and its effects are clearly demonstrated for conventional P&O algorithm with both fixed and adaptive step size technique. MATLAB/SIMULINK is used for simulation studies, and for experimental validation, a microcontroller is used as a digital platform to implement the proposed algorithm. The simulation and experimental results showed that the proposed algorithm accurately tracks the maximum power and avoids the drift in fast changing weather conditions.

This project work quality is measured in terms of consideration to factors including, but not limited to, environment ,safety,ethics cost, type (application, product, research, review etc.) and standards .This project work mapping with the program outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and program specific outcomes (PSOs): PSO1, PSO2

DECLARATION

We hereby declare that this Project Report is titled **"MAXIMUM POWER POINT TRACKNG OF PHOTOVOLTAIC SYSTEM"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1. R. Vineeth
2. Vaishnavi.Y
3. S. Harikrishna
4. Afreen

"DESIGN AND IMPLEMENTATION OF 1KW SOLAR TREE"

A PROJECT REPORT SUBMITTED TO

Jawaharlal Nehru Technological University Hyderabad

In partial fulfilment the requirements

For the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

BY

METHUKU VAIBHAV	**16E15A0228.**
VENKAIAH GARI DIGNA	**16E15A0218.**
KATLA SRAVAN KUMAR	**15E11A0273**

Under the esteemed guidance of

Mr.K.SRINIVAS RAO

(ASSISTANT PROFESSOR, EEE DEPT)

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, Affiliated to JNTUH)

MANGALPALLY(V), IBRAHIMPATNAM(M), RANGAREDDY (DIST)-501510

2018 - 2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
BHARAT INSTITUE OF ENGINEERING AND TECHNOLOGY
Approved by AICTE-Affiliated to JNTUH
Mangalpally (V), Ibrahimpatnam (M), R.R. Dist-501510.

CERTIFICATE

This is to certify that the project work entitled **"DESIGN AND IMPLEMENTATION OF 1KW SOLAR TREE"** is the bonafide work done

BY

METHUKU VAIBHAV	**16E15A0228.**
VENKAIAH GARI DIGNA	**16E15A0218.**
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In the Department of Electrical and Electronics Engineering, **BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY,** Ibrahimpatnam is submitted to **Jawaharlal Nehru Technological University, Hyderabad** in partial fulfilment of the requirements for the award of **B.Tech** degree in **Electrical and Electronics Engineering** during **2015-2019.**

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Viva-Voce held on.....

Internal Examiner

External Examiner

Abstract

Now a day with the growing population, the energy demand has been rises rapidly. Renewable sources are the only option of energy source and also we should keep in mind that energy should not cause pollution and other natural hazards. Among all the renewable sources sunlight is often deemed as the only abundant and truly "free" energy resource. Among all the different techniques available to harness solar energy, the most popular and mature technology is the photovoltaic conversion of sunlight into electricity. Despite its merits, solar PV technology has issues with the land requirement (especially in urban areas), capture efficiency and public perception.

India is a highly populated country, so we should take the advantage of such an energy which requires a very less space to produce energy efficiently. The concept of a solar tree is capable of addressing these problems effectively with elegance. It can be applied in street lightening system, industrial power supply etc. It is much better than the traditional solar PV system in area point of view and also more efficient.

A solar tree is a decorative means of producing solar energy and also electricity. It uses multiple no of solar panels which forms the shape of a tree. The panels are arranged in a tree fashion in a tall tower/pole.

DECLARATION

We hereby declare that this Project Report is titled **"DESIGN AND IMPLEMENTATION OF 1KW SOLAR TREE"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Name and Signature of the Student

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DESIGN AND DEVELOPMENT OF IoT BASED SOLAR POWERED VERSATILE MOVING ROBOT FOR MILITARY APPLICATION

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

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CH. MITHRASRIMUVVA	**16E15A0222**
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K. SAINATH	**15E11A0272**

Under the guidance of

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Certificate

*This is to certify that the project work entitled "***Design and development of IoT based solar powered versatile moving Robot for Military applications***" is the bonafide work done*

By

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Viva-Voce held on.....

Internal Examiner

External Examiner

ABSTRACT

In the present scenario of India war situations, unmanned surveillance is mandatory to reduce soldier death ratio. Internet of Things (IOT) technology is new concept, aid for effective monitoring, to ease defence surveillance problem, this work carried out design and implementation of IOT based solar powered including battery backup and versatile moving. The proposed model provides 360 degrees surveillance and also detects intruders, metal bomb, fires and land mines,

In this proposed system, solar panel is used to provide power supply to the developed model in addition battery backup also provided to do effective surveillance without interruption of power supply. IOT based new multifunctionality moving robot introduced with the help of raspberry pi and novel app SASNAVIA for defense application. In addition, hazard protection and control are done with the help SMS to the defence authority and alarm indication to the soldier. Hence, the proposed approach successfully achieves the ultimate aim and aid for enhanced defence surveillance.

This Project Work Quality is measured in terms of consideration to factors including, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, **PO6, PO7, PO8**, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2

DECLARATION

We hereby declare that this Project Report is titled "**Design and development of IoT based solar powered versatile moving Robot for Military applications**" is a genuine project work carried out by us, in **B.Tech (Electrical and Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1.B. Pavan- Pavan.B

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SMART CARD BASED E-CAR BATTERY CHARGER

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements

for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

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KOTTALA MAHESH KUMAR	**(15E11A0275)**
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Viva-Voce held on.....

Internal Examiner

External Examiner

ABSTRACT

Now-a-days E-cars are becoming more popular and will be widely used due to the incremental conventional fuel cost, pollution and decrement in fuel resources worldwide. This E-cars provide many advantages like less air pollution, less running cost, etc. In order to charge the batteries used in E-cars, E-cars charging centers have to be established like fuel stations at which the batteries are automatically and quickly charged by accessing the smart card. The charging centers can also be established in all kinds of parking slots near Industries, shopping malls and theatres etc.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO5, **PO6, PO7, PO8**, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is titled **"SMART CARD BASED E-CAR ATTERY CHARGER"** is a genuine project work carried out by us, in **B.Tech (Electrical & lectronics Engineering)** degree course of **Jawaharlal Nehru Technology University lyderabad, Hyderabad** and has not been submitted to any other course or university for the ward of our degree by us.

Name and Signature of the Students

1. P. Sriharsha
2. D. Nikhitha reddy
3. K. Mahesh Kumar
4. MD. Shakeel Ahmed

RBFN BASED SINGLE MPPT TECHNIQUE FOR HYBRID DC MICROGRID WITH ENERGY STORAGE SYSTEM

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
For the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

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D. SHANKHAR REDDY	**(15E11A0268)**
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This is to certify that the project work entitled **"RBFN BASED SINGLE MPPT TECHNIQUE FOR HYBRID DC MICROGRID WITH ENERGY STORAGE SYSTEM"** *is the bonafide work done*

BY

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Viva-Voce held on.....

Internal Examiner

External Examiner

ABSTRACT

This project presents modeling and simulation of a hybrid DC microgrid with energy storage in **MATLAB/Simulink** environment. The proposed microgrid system consists of wind turbine, solar PV array as an input source. The wind turbine is interfaced to the microgrid with a rectifier and a DC to DC converter whereas, the PV array is connected to dc bus using DC to DC converter. A Radial Basis Function Network (RBFN) based single MPPT is proposed in this project to extract the maximum power from both Solar and Wind Source. The hybrid system is connected to 380V DC bus. The proposed configuration also consists of a Battery Energy Storage System (BESS) which is connected to the DC bus bar which stores the energy produced by both wind and solar system when in excess and delivers the power to DC system when there is less power produced. To validate the efficiency of the MPPT and Battery Management system, a highly non-linear input is subjected to both the wind and solar system.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, **PO6, PO7, PO8,** PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, PSO2.

DECLARATION

We hereby declare that this Project Report is titled as **"RBFN BASED SINGLE MPPT TECHNIQUE FOR HYBRID DC MICROGRID WITH ENERGY STORAGE SYSTEM"** is a genuine project work carried out by us, in **B. Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

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1. K Saikumar
2. N Pruthvider reddy
3. D Shankar reddy
4. P Vamshi

RBFN BASED MPPT CONTROL WITH QUADRATIC BOOST CONVERTER FOR PV APPLICATIONS

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements
for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

By

NERAVETLA DIVYA REDDY	**(15E11A0287)**
KOLIPAKA ABHISHEK	**(15E11A0274)**
THADABOINA SHAMRAO HARIPRASAD	**(16E15A0213)**
SAINDLA SHIVA RAM	**(15E11A0297)**

Under the guidance of

Dr. N.BALAJI. ME,Ph.D,
ASSOCIATE PROFESSOR

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Ibrahimpatnam - 501 510, Hyderabad

2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Certificate

This is to certify that the project work entitled "**RBFN BASED MPPT CONTROL WITH QUADRATIC BOOST CONVERTER FOR PV APPLICATIONS**" *is the bonafide work done*

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Viva-Voce held on.....01/05/2019.....

Internal Examiner

External Examiner

ABSTRACT

To design and analyze a high gain converter namely Quadratic Boost Converter which acts as an interface with the solar Photovoltaic power generation. The design and testing of the Quadratic Boost Converter is done using MATLAB and SIMULINK. The performance parameters such as voltage gain, output voltage ripple and stress across the switches are computed. The losses in the converter are calculated and listed. Here we had used RBFN technology in order to extract maximum power from the solar pv panels and it is demonstrated using MATLAB/SIMULINK.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2 .

DECLARATION

We hereby declare that this Project Report is titled **"RBFN BASED MPPT CONTROL WITH QUADRATIC BOOST CONVERTER FOR PV APPLICATIONS"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1.NERAVETLA DIVYA REDDY N.Divya.

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3.THADABOINASHAMRAO HARIPRASAD

4.SAINDLA SHIVARAM S Shivaram.

A NEW TOPOLOGY FOR A THREE PHASE BI-DIRECTIONAL CONVERTER

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements

for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

By

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Certificate

*This is to certify that the project work entitled "***A NEW TOPOLOGY FOR A THREE PHASE BI-DIRECTIONAL CONVERTER"** *is the bonafide work done*

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Viva-Voce held on.....

Internal Examiner **External Examiner**

ABSTRACT

A Bi-directional converter is a type of power electronic converter where the power flow is in both the directions. It would act like an rectifier when voltage and current are in phase and the power flow is considered positive .When the voltage and current are exactly out of phase then it will act as a inverter. Different topologies are adopted to design a bi-directional converter. We have adopted a new topology by using SPWM with two carrier waveforms.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is titled **"A NEW TOPOLOGY FOR A THREE PHASE BI-DIRECTIONAL CONVERTER"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of our degree by us.

Name and Signature of the Students

1. V.JAIPAL
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SPEED CONTROL OF SINGLE PHASE INDUCTION MOTOR BY USING PID CONTROLLER IN LABVIEW

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL AND ELECTRONICS ENGINEERING

By

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B NARESH	16E15A0209
N AKSHAY KUMAR	15E11A0285

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(Affiliated to JNTUH Hyderabad, Approved by AICTE & Accredited by NAAC)

Ibrahimpatnam - 501 510, Hyderabad

Certificate

This is to certify that the project work entitled "**speed control of single phase induction motor by using PID controller in labview**" *is the bonafide work done.*

By

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Internal Examiner

External Examiner

ABSTRACT

Induction Motors are also known as "Workhorse of the Industry". This is because it is one of the most widely used motors in the world. It is used in transportation, industries, household appliances, and laboratories. The speed control methods are pole changing, frequency variation, variable rotor resistance, variable stator voltage, constant v/f control, slip recovery method etc.

In the proposed method, the V/F control by using PID controller in Lab VIEW which in turn the speed control of the induction motor achieved. Thus, the wide range of speed control is achieved. It is effortless, cost-effective and easier to design in closed loop.

This Project Work Quality is measured in terms of consideration to factors including, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & POS2.

DECLARATION

We hereby declare that this Project Report is titled **"SPEED CONTROL OF SINGLE PHASE INDUCTION MOTOR BY USING PID CONTROLLER IN LABVIEW"** is a genuine project work carried out by us, in **B.Tech (Electrical and Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

1. D Suresh- D Suresh
2. B Naresh- B. Naresh
3. N Akshay kumar- N. Akshay

DECOUPLED ACTIVE AND REACTIVE POWER CONTROL OF GRID CONNECTED DFIG

A Project Report Submitted to

Jawaharlal Nehru Technological University Hyderabad

In partial fulfillment of the requirements

for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

ELECTRICAL & ELECTRONICS ENGINEERING

By

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P. KEERTI	**(16E15A0217)**
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Under the guidance of

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2018-2019

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

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Certificate

This is to certify that the project work entitled **"DECOUPLED ACTIVE AND REACTIVE POWER CONTROL OF GRID CONNECTED DFIG"** *is the bonafide work done*

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Viva-Voce held on.....

Internal Examiner

External Examiner

ABSTRACT

The main objective of this work is to control the active and reactive power of a grid connected DFIG. This can be accomplished by injecting or by extracting the current from the rotor terminals of DFIG. The power can be controlled by implementing back to back IGBT converter. The controlling scheme is explained and the modeling of DFIG is done in MATLAB – SIMULINK environment.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, **PO8**, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1, POS2.

DECLARATION

We hereby declare that this Project Report is titled **"DECOUPLED ACTIVE AND REACTIVE POWER CONTROL OF GRID CONNECTED DFIG"** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of our degree by us.

Name and Signature of the Students

1. T. MUTHU CHARY
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VOLTAGE PROFILE IMPROVEMENT FOR THREE PHASE PV POWER SYSTEM UNDER UNBALANCED GRID VOLTAGES

A PROJECT REPORT SUBMITTED TO

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE

BACHELOR OF TECHNOLOGY
IN
ELECTRICAL & ELECTRONICS ENGINEERING

BY

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CH. UDAY TEJA	**15E11A0261**
P. KARTHIK	**15E11A0291**
M. NITIN SOURABH	**16E15A0205**

UNDER THE GUIDANCE OF

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

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CERTIFICATE

This is to certify that the project work entitled ***"Voltage Profile Improvement For Three Phase PV Power System Under Unbalanced Grid Voltages"*** is the bonafide work done

By

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ABSTRACT

The objective of this model is to propose a Dynamic Power Decoupling (DPD) strategy for the three-phase PV power system under the unbalanced grid fault scenario. A two stage structure consists of an interleaved DC-DC converter and a three phase DC-AC inverter is utilized for the PV power system. Under normal operation, the system will track the maximum PV power as well as transfer the energy to the grid. However, if an unbalanced grid fault occurs, there will be a double-line frequency oscillation on the output power.

As a result, the double-line frequency ripple will occur on the DC-link voltage. The simplest way to deal with this problem is to increase the DC-link capacitance, but the cost and size of the circuit will be increased while the reliability of the system will be decreased. Therefore, the aim of this model is to propose a DPD strategy for the three-phase PV power system to suppress the DC-link oscillation caused by the unbalanced grid fault without increasing the DC-link capacitance.

This Project Work Quality is measured in terms of consideration to factors including, but not limited to, environment, safety, ethics, cost, type (application, product, research, review etc.) and standards. This project work mapping with the Program Outcomes (POs): PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11, PO12 and Program Specific Outcomes (PSOs): PSO1 & PSO2.

DECLARATION

We hereby declare that this Project Report is titled ***"Voltage Profile Improvement For Three Phase PV Power System Under Unbalanced Grid Voltages"*** is a genuine project work carried out by us, in **B.Tech (Electrical & Electronics Engineering)** degree course of **Jawaharlal Nehru Technology University Hyderabad, Hyderabad** and has not been submitted to any other course or university for the award of my degree by me.

Signature of the Student

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2. A. Vijaya Teja
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