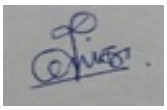
KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)
Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade

Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:13-06-2020

Department	ELECTRONICS AND COMMUNICATION ENGINEERING	Application No.	20200076
Area of Research	VLSI DESIGN	Research Mode	FULL TIME



Name :JENITHA R

Date of Birth / Age :09-06-1989 / 31 Years

Gender :FEMALE

Category :OBC

e-Mail ID :jenithaanburaj21217@gmail.com

Mobile :09986288383

Father's/Husband's Name	ANBURAJ	**Father's/Husband's Occupation**	SOFTWARE ENGINEER
Family Income	10 LPA	**Residental Type**	RURAL
Birth Place	RAJAPALAYAM	**Mother Tongue**	TAMIL
Religion	CHRISTIAN	**Martial Status**	SINGLE
Aadhaar No.	800466015202	**PAN No.**	ASKPJ3905B
Physically Challenged	NO	**Type of Disability**	-

Address for Communication:	**Permenant Address:**
1/36 TENKASI MAIN ROAD, SUNDARANACHIARPURAM RAJAPALAYAM VIRUDHUNAGAR DISTRICT TAMIL NADU INDIA Pin-626142	1/36 TENKASI MAIN ROAD, SUNDARANACHIARPURAM RAJAPALAYAM VIRUDHUNAGAR DISTRICT TAMILNADU INDIA Pin-626142

Qualification

Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
BE	ECE	MPNMJ ENGG. COLLEGE, ERODE	2010	8.1	1	REGULAR
ME	APPLIED ELECTRONICS	ANNA UNIVERSITY	2014	8.57	1	REGULAR

Experience

Organization	Designation	Experience From	Experience TO	Work Nature
NATIONAL INSTITUTE OF WIND ENERGY	PROJECT ENGINEER	1989-11-08	2014-12-31	DESIGNING OF SMALL WIND TURBINE USING MATLAB, CERTIFICATION OF SMALL WIND TURBINE

Payment Details

Transaction ID	Reference	Date of transaction	Amount	Status

20200076_200622193556	SHMP8922909609	22-06-2020	600	SUCCESS

DESIGN AND IMPLEMENTATION OF HYBRID WIND-SOLAR ENERGY SYSTEM FOR PUMPING WATER BASED ON ANN CONTROLLER

I. ABSTRACT

Solar energy and wind energy are being used more and more as a renewable source by various countries for different purposes. These energies offer many advantages and have a unique limitation due to the instability of energy. The aim of this proposal is to command and synchronize the power flow of one hybrid system using two sources of energy (solar and wind). The first contribution of the present work is represented by the utilization of an Artificial Neural Network controller to command the maximum power point at fixed atmospheric conditions. The second contribution is represented by the optimization of the system respecting real-time constraints in order to increase the generating system performance. For this, the simulation and hardware implementation of the proposed algorithm are accomplished using MATLAB/SIMULINK and a Xilinx System Generator. The simulation results confirm that the considered system presents acceptable execution real time performance and precision. The proposed designed model and its control strategy give the opportunity to optimize the hybrid power system performance, which is utilized in rural pumping applications.

II. PROBLEM STATEMENT

Water is absolutely necessary for life and the need of water increases more and more with the rise in world population. Pumping water is very important to clean water for drinking and irrigate agricultural fields. The expensive installation of the grid to pump water in rural villages is also considered a big problem in many developing countries. Furthermore, transporting fuel, needed for water pumping), in rural villages can be difficult, unsafe and with limited quantity. The most attractive energy used in rural areas to pump water is the renewable energy, such as Photovoltaic (PV) panels and wind machines. Thanks to the importance of these renewable energies, the combination of these two intermittent sources can guarantee the stability and continuity of the energy production. Regardless of day or night, a wind energy resource is always there. The solar energy resource is present only in daytime, but because solar energy is continuous and stable, it can make up for the intermittent characteristics and the discontinuity of wind energy in daytime.

Current research and development efforts are required to ameliorate the efficiency and performance of PV panels as well as wind turbines, which are one of the most studied subjects of modern modular technologies. According to the irregular character of solar and wind energies, Maximum Power Point Tracking (MPPT) algorithms are utilized for the extraction of the maximum power in order to get the optimum performance of a hybrid system. The MPPT algorithms are classified into two principal categories. One category utilizes classic methods, like hill-climbing, incremental conductance and Perturbation and Observation (P&O). Another category uses intelligent methods, like Artificial Neural Networks (ANNs), fuzzy logic or a combination of both methods. Recently, ANNs have been used to solve very complex problems in many application fields. The specific solution for various non-linear and complex systems can be determined using the function and results of ANNs.

III. AIM

The main contribution of this article is to implement a controller, on a Field-Programmable Gate Array (FPGA), named ANN MPPT. The power management controller is used to command, supervise and synchronize, in real time, the power output of a system consisting of two energy sources (wind and solar).

IV. OBJECTIVE

The first objective of the present work is to develop intelligent ANN controllers for the proposed hybrid system and to control the duty cycle (d) and the proportional-integral of solar energy and wind turbine, respectively. For the wind system, in order to extract the Maximum Power Point (MPP), the boost converter is controlled to check, for every wind speed, the optimum rotor speed. In the same way, for the solar system, the PV-array MPP is variational. Indeed, the boost converter is adjusted to determine the optimum Pulse Width Modulation (PWM) in accordance with the current-voltage characteristics. The solar and wind energy systems are designed using MATLAB/SIMULINK

The second objective of this paper is to implement, on a FPGA, the ANN MPPT controller proposed in the hybrid wind-solar conversion system using a Xilinx System Generator (XSG) a plug-in to SIMULINK which actually allows designing and simulating a system through the use of MATLAB/SIMULINK and Xilinx library. XSG handles most routing and placement timing. Furthermore, FPGA offers many advantages compared with a sequential machine microcontroller. It achieves the current operation where the instructions are executed continuously and simultaneously. FPGA is suitable as a rapid implementation controller which can be programmed to do several types of digital functions.

V. PROPOSED SYSTEM

The global scheme of the wind-solar system, presented in this article, is shown and detailed in Figure 1. Its principal blocks are: one Permanent Magnet Synchronous Generator (PMSG), a continuous DC-DC bus, one wind turbine, a PV generator, boost converters and ANN controllers. For the management of the energy produced, we use a DC-DC converter for each energy source directly connected to the batteries in order to maintain the values of the voltage. In addition, we use control loops in the wind subsystem to facilitate the neural control of the optimal speed.

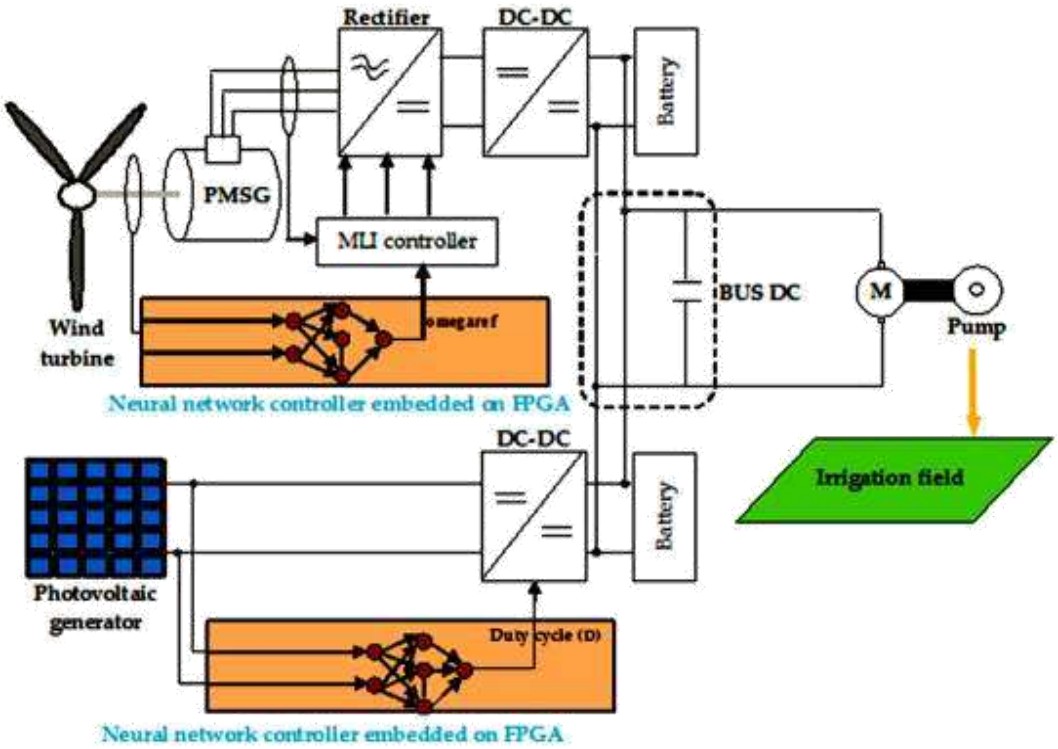


Figure 1: Global scheme of hybrid pumping system

VI. CONCLUSION

The research mainly concentrated on the usage of the recent technology on our real time applications. So the renewable technology has been chosen as the energy source which is non-depleting in nature and non-polluting as well. This technique utilizes the energy as much as possible on the environment for a remote environment where the power demands are there and less reachable. This work can be slowly expanded to the next level to meet all the needs. Even though it is little expensive we can afford with the subsidy provided by the Government agencies.

VII. LITERATURE REVIEW

1. **"Hardware Implementation of Hybrid Wind-Solar Energy System for Pumping Water Based on Artificial Neural Network Controller", Studies in Informatics and Control, Ons ZARRAD1, Mohamed Ali HAJJAJI, Mohamed Nejib MANSOURI (2019).**

   This study revealed various methods of MPPT techniques which can be deployed at the wind solar hybrid system and it gave the knowledge of the new technique involved in the MPPT algorithm which is more effective when compared with the other techniques. The Artificial Neural network technique has feed forward and feed backward networks, out of which MLP (Multilayer Perceptron) method has been chosen. The other objective of this study is the design of the wind solar hybrid system, the MPPT, PWM, the battery bank has been designed using Xilinx System Generator (XSG) at Matlab/Simulink tool.

2. **"Modeling and Simulation of Solar PV and DFIG Based Wind Hybrid System", Smart Grid Technologies, Rajesh Ka, A.D Kulkarni, T.Ananthapadmanabha(2015).**

   This proceeding gave the detailed picture of designing the Wind and Solar hybrid system using Matlab / Simulink tool. As well as each sub systems have been designed individually with simulation. This gave the concept and mathematical way of designing the circuit in the matrix laboratory.

Anna University

Reg. No.71306106014/RG

The Syndicate of the Anna University hereby makes known that **JENITHA R** *has been admitted to the* **DEGREE OF BACHELOR OF ENGINEERING** *in* **ELECTRONICS AND COMMUNICATION ENGINEERING** *under the Faculty of Information and Communication Engineering, having completed the prescribed programme of study and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in* **FIRST CLASS WITH DISTINCTION** *at the Examination held in* **APRIL 2010.**

Given under the Seal of the University

Chennai 600 025

ANNA UNIVERSITY CHENNAI, CHENNAI - 600 025

Folio No. H918509

B.E. DEGREE EXAMINATIONS

CONSOLIDATED STATEMENT OF MARKS

NAME OF THE CANDIDATE	JENITHA R	REGISTER NO.	71305106014
COLLEGE OF STUDY	713 M.P.Nachimuthu M.Jaganathan Engineering College	MONTH & YEAR OF LAST APPEARANCE	April 2010
PROGRAMME & BRANCH	B.E. Electronics and Communication Engineering	REGULATIONS	2004

SEM.	SUBJECT CODE	SUBJECT TITLE	MAX	MIN	MARKS SECURED	MONTH & YEAR OF PASSING
01*	CY1X01	Engineering Chemistry	100	50	075	APR 2007
01*	EC1X01	Electron Devices	100	50	070	APR 2007
01*	EC1X02	Circuit Analysis	100	50	077	APR 2007
01*	GE1X01	Engineering Graphics	100	50	063	APR 2007
01*	GE1X02	Computer Programming	100	50	074	APR 2007
01*	HS1X01	Technical English	100	50	066	APR 2007
01*	MA1X01	Engineering Mathematics - I	100	50	076	APR 2007
01*	PH1X01	Engineering Physics	100	50	084	APR 2007
01*	GE1X03	Engineering Practices Laboratory	100	50	095	APR 2007
01*	PC1X01	Physics and Chemistry Laboratory	100	50	093	APR 2007
03	CS1151	Data Structures	100	50	078	NOV 2007
03	CY1201	Environmental Science and Engineering	100	50	089	NOV 2007
03	EC1201	Digital Electronics	100	50	092	NOV 2007
03	EC1202	Electronic Circuits - I	100	50	076	NOV 2007
03	EE1211	Electrical Machines	100	50	071	NOV 2007
03	MA1201	Mathematics - III	100	50	069	NOV 2007
03	CS1152	Data Structure Lab	100	50	095	NOV 2007
03	EC1204	Electronic Devices and Circuits Lab I	100	50	088	NOV 2007
03	EE1261	Electrical Machines Lab	100	50	094	NOV 2007
04	EC1251	Electronic Circuits II	100	50	070	APR 2008
04	EC1252	Signals and Systems	100	50	081	APR 2008
04	EC1253	Electromagnetic Fields	100	50	063	APR 2008
04	EC1254	Linear Integrated Circuits	100	50	075	APR 2008
04	EC1255	Measurements and Instrumentation	100	50	065	APR 2008
04	MA1254	Random Processes	100	50	077	APR 2008
04	EC1256	Electronics circuits II and simulation lab	100	50	087	APR 2008
04	EC1257	Linear Integrated Circuit Lab	100	50	093	APR 2008
04	EC1258	Digital Electronics lab	100	50	095	APR 2008
05	EC1301	Communication Theory	100	50	057	NOV 2008
05	EC1302	Digital Signal Processing	100	50	071	NOV 2008
05	EC1303	Microprocessors and its Applications	100	50	067	NOV 2008
05	EC1304	Control Systems	100	50	081	NOV 2008
05	EC1305	Transmission Lines and Waveguides	100	50	080	NOV 2008
05	MA1251	Numerical Methods	100	50	091	NOV 2008
05	EC1306	Digital Signal Processing Lab	100	50	091	NOV 2008
05	EC1307	Microprocessor and Application Lab	100	50	092	NOV 2008
06	CS1251	Computer Architechure	100	50	085	APR 2009
06	CS1302	Computer Networks	100	50	082	APR 2009
06	EC1351	Digital Communication	100	50	085	APR 2009
06	EC1352	Antenna and Wave Propagation	100	50	087	APR 2009
06	MG1351	Principles of Management	100	50	070	APR 2009
06	EC1006	Medical Electronics	100	50	077	APR 2009
06	EC1353	Communication System Lab	100	50	098	APR 2009
06	EC1354	Networks Lab	100	50	096	APR 2009
06	EC1355	Electronic System Design Lab	100	50	096	APR 2009
06	GE1352	Communication Skills Laboratory	100	50	085	APR 2009
07	EC1009	Digital Image Processing	100	50	092	NOV 2009
07	EC1401	VLSI Design	100	50	069	NOV 2009
07	EC1402	Optical Communication	100	50	086	NOV 2009
07	EC1403	Microwave Engineering	100	50	079	NOV 2009
07	EC1003	Computer Hardware and Interfacing	100	50	079	NOV 2009
07	MG1401	Total Quality Management	100	50	071	NOV 2009
07	EC1404	VLSI Lab	100	50	092	NOV 2009
07	EC1405	Optical and Microwave Lab	100	50	098	NOV 2009
08	EC1451	Mobile Communication	100	50	056	APR 2010
08	EC1013	Wireless networks	100	50	069	APR 2010
08	EC1015	Satellite Communication	100	50	061	APR 2010
08	EC1452	Project Work	200	100	196	APR 2010

* Annual Pattern is followed in the First Year of study and Semester Pattern is followed from Second Year onwards.

End of Statement

Classification : FIRST CLASS WITH DISTINCTION

Total Marks (from 3rd to 8th semester) : 3979 / 4900

Percentage (rounded to nearest integer) : 81

Controller of Examinations, Anna University Chennai, Chennai-600 025

Medium of Instruction ENGLISH

Chennai - 600 025

COLLEGE OF ENGINEERING GUINDY
ANNA UNIVERSITY :: CHENNAI - 600 025.

TRANSFER CUM CONDUCT CERTIFICATE

No 1036

Date 16 OCT 2014

1.	Name of the Student	: JENITHA R
2.	Name of the Father	: RAJADURAI T
3.	Name of the Mother	: ANNAPUSHPAM R
4.	Nationality, Religion	: INDIAN,CHRISTIAN
5.	Community and Caste	: BC,NADAR
6.	Date of Birth (as entered in the University records)	: 09.06.1989 (NINETH JUNE NINETEEN EIGHTY NINE)
7.	Date of admission	: AUGUST 2011
8.	Degree to which the student was admitted	: M.E. APPLIED ELECTRONICS
9.	Duration of Degree	: 6 SEMESTERS
10.	Semester studied at the time of leaving	: 6th SEMESTER
11.	Whether completed the Degree	: YES
12.	Actual date of leaving	: APRIL 2014
13.	Whether paid all the fees and Cleared the dues to the University	: YES
14.	Conduct and Character	: GOOD

OFFICE OF DEAN (COLLEGE OF ENGINEERING) ANNA UNIVERSITY CHENNAI - 25. SEAL

DEAN
College of Engineering Guindy
Anna University, Chennai - 25

पवन ऊर्जा प्रौद्योगिकी केन्द्र
[नवीन और नवीकरणीय ऊर्जा मंत्रालय (एमएनआरई)]
CENTRE FOR WIND ENERGY TECHNOLOGY
[Ministry of New and Renewable Energy (MNRE)]
भारत सरकार / GOVERNMENT OF INDIA

C-WET/P&A/Proj.Asst.(34)/2013

Date: 31.12.2013

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. R. Jenitha was engaged as Project Assistant in C-WET, purely on contract from 08.11.2010 to 31.12.2013 (AN). She assisted C-WET in the various projects of our Research and Development (R&D) Unit at a consolidated stipend of Rs.18,200/- (Rupees eighteen thousand and two hundred only) per month at the time of relief.

Her character and conduct during the above tenure as Project Assistant have been good and we wish her a bright future.

(D. LAKSHMANAN)
General Manager (F&A)

वेलचेरी - ताम्बरम प्रमुख मार्ग, पल्लिकरणई, चेन्नै - 600 100. तमिल नाडु, भारत.
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ई-मैल/E-mail : dlakshmanan@cwet.res.in / dlaxmanan@yahoo.com वेबसाईट/Website : www.cwet.tn.nic


आयकर विभाग
INCOME TAX DEPARTMENT
भारत सरकार
GOVT. OF INDIA
JENITHA
RAJADURAI
09/06/1989
Permanent Account Number
ASKPJ3905B
Signature
06122011

இந்திய தேர்தல் ஆணையம்

Election Commission of India

வாக்காளர் புகைப்பட அடையாள அட்டை ELECTOR PHOTO IDENTITY CARD

ZUQ2599215

வாக்காளரின் பெயர் : ஜெனிதா

Elector's Name : JENITHA

உறவினரின் பெயர் : ராஜதுரை

Relation's Name : RAJATHURAI

இனம் / Sex : ஆண் / Male

பிறந்த தேதி / வயது / DOB / Age : 09/06/1989, 26 Yrs.

முகவரி: 64, வால்மீகி தெரு, கிழக்கு தாம்பரம், காஞ்சிபுரம்

Address: 64, Valmeegi Street, East Tambaram, Kanchipuram

வாக்காளர் பதிவு அலுவலர்
Electoral Registration Officer

Date: 07-04-2016

தொகுதி எண் மற்றும் பெயர் : 31, தாம்பரம்

பாகம் எண் மற்றும் பெயர் : 60, தாம்பரம் (ரு), சேலையூர் (வ.கி) , வால்மிகி தெரு

AC NO & Name : 31, Tambaram

Part No. & Name : 60, Tambaram (M) Selaiyur (R.V) , ÒÚÑèlÛªÛ ÅaÏÝ

குறிப்பு / Note :

1. வாக்காளர் புகைப்பட அடையாள அட்டை வைத்திருப்பது மட்டுமே தற்போதைய வாக்காளர் பட்டியலில் நீங்கள் வாக்காளராக இடம்பெற்றிருக்கிறீர்கள் என்பதற்கு உத்தரவாதமல்ல.ஒவ்வொரு தேர்தலுக்கு முன்பும் நடப்பிலுள்ள வாக்காளர் பட்டியலில் உங்களுடைய பெயர் உள்ளதா என்று சரிபார்க்க வேண்டும்

1. Mere Possession of Elector photo identity Card is no guarantee that you are elector in the current electoral roll. Please check your name in the current electoral roll before every election.

2. இந்த அட்டையில் குறிப்பிட்டுள்ள பிறந்த தேதியை வாக்காளர் பட்டியலில் பதிவு செய்யும் நோக்கத்திற்கு அல்லாது.வேறு எதற்கும் வயது/பிறந்த தேதி குறித்த சான்றாகக் கொள்ளக்கூடாது.

2. Date of birth mentioned in this card shall not be treated as proof of age / D. O. B. for any purpose other than registration in electoral roll. .

2016 / 03 / 031 / 060 / 0163

480/2012/916

FORM OF CERTIFICATE TO BE PRODUCED BY A CANDIDATE
BELONGING OTHER BACKWARD CLASSES IN SUPPORT OF HIS CLAIM

This is to certify that R. JENITHA son
Of T. RAJADURAI
Village TAMBARAM Taluk KANCHEEPURAM
District of the state of TAMIL NADU belongs
to CHRISTIAN NADAR Community which is recognized
as a Backward Class under the Government of India, Ministry of Welfare Resolution No. 12011/68/93-BCC (C),dated 10th September, 1993 Published in the Gazette of India Extraordinary Part 1 section 1 dated 13th september 1993.

It is certified that R. JENITHA and his
Family ordinarily reside (s) at 41/19 AMBETHKAR STR., EAST TAMBARAM, CH-59 Town /
Village TAMBARAM Taluk KANCHEEPURAM District
of TAMILNADU State. This is also to Certify that he does not belong to the Persons/sections (Creamy Layer)mentioned in column 2 of the Schedule to the Government of India, Department of personnel and Training.

O.M. No. 36012/22/93

Estt.(SCT).

Dated 8.9.1993.

Seal கிராம நிர்வாக அலுவலர் 12
07, சேலையூர் கிராமம்
தாம்பரம் வட்டம்

Signature :

Date :

வருவாய் ஆய்வாளர்
சிட்லபாக்கம் குறுவட்டம்
தாம்பரம் வட்டம்

Name in Capital Letters:

Designation:

Tahsildar
Tambaram

Certificate should be from any one of the Competent authorities mentioned below:

a. Dt.Magistrate /Add. Dt. Magistrate/ Collector / Deputy commissioner/Addl. Dy.comnr. /Dy. Collector/ 1st Class Stipendary Magistrate Sub. Divl. Magistrate / Taluk /Magistrate / Executive Magistrate / Extra Asst. Commissioner. (not belong the rank of 1st Class Stipendary Magistrate).

b. Chief Presidency Magistrate / Additional Chief Presidency Magistrate/Presidency Magistrate.

c. Revenue officer not below the rank of Tahsildar and

d. Sub-Divisional Officer of the area where the candidate and/on his family normally resides.