K.L.N. COLLEGE OF ENGINEERING, POTTAPALAYAM
Department of Electrical and Electronics Engineering

Project Details 2012-2013

Subject Code & Name : EE1455 – Project

Year/Semester : IV/ VIII

Sl. No.	Project Title	Students Name	Guide Name
1	Optimal Capacitor Allocation in 69-bus RDF for Maximization of Annual Saving for Dynamic Load Conditions using PSO and MAPSO Methods	R.S.S. Sarath Bapu V. Chandra Prakash	Dr.S.M.Kannan Prof. & HOD/EEE
2	Power Theft Identification using Tracing of Power Flow	J.V. Swathi M. Somashree	Dr. S.Venkatesan Prof. /EEE
3	Maximization of Social Welfare in Deregulated Electricity Market	S.P. Priyanga V. Shirly Ann Nimmi	
4	Transmission Pricing Calculation using MW-MILE method for Deregulated Market	S. Vinoth Kannan T.J. Vishnu Kumar M.D. Vijaya Kumar	
5	Voltage Stability Analysis using Hybrid Differential Evolution and Particle Swarm Optimization	D. Dhandeeshwaran C.J. Anand Babu T.B. Gnanaprakasam	Dr. K.Gnanambal Prof./EEE
6	Artificial Neural Network based Voltage Stability Assessment	M. Karthiga Devi M. Divya P. Aarthy	
7	Modeling and Simulation of Position Control of PMBLDC motor using PI controller	K.K. Dhanan Jeyan S. Neeraj Kumar D.S. Balachandar	A. Marimuthu ASP/EEE
8	Microcontroller based Energy Efficient Operation of Three Phase Induction Motor in Tyre Manufacturing Industry	B.S. Anandan N.K. Arun Kumar K. Karmega Raja	P. Loganthurai ASP/EEE
9	Reduction of Line Losses in Distribution System by Optimal Location &Sizing of DG's using Evolutionary Programming	M.Monisha M.Mohanalatha J.Kokilapriya	M.Jegadeesan ASP/EEE
10	Current Harmonics Elimination for a Single- Phase UPS System using Thyristor Controlled Single Tuned Passive Harmonic Filter	S. Kanagavalli D. Keren Blessy C.R. Lakshmisri S. Manimekalai	S. Parthasarathy ASP/EEE
11	Harmonic Flow Analysis and mitigation in a non linear environment using DIGSILENT Power factory	P. Subathra S. Rajasundari K.R.Sridevi	
12	Harmonic Analysis using Radial Basis Neural Networks	M. Delmiya B. Dharini I. Kruthiga	A.S.S. Murugan ASP/EEE
13	Harmonic Distortion Measurement using Recurrent Neural Network	P.N. Balaji K.N. Balaji P.K. Saravana Kumar	
14	Design of Bridgeless SEPIC Converter for Speed Control of PMDC Motor	K.K. Dinesh Kumar S. Manikandan K.B. Naresh Kumar	S.Venkata Narayanan ASP/EEE

15	Generation of Electrical Energy Generation from Onroad Pressure Movement by using KY Converter	O.R. Balaji A. Mohammad Aaqib K.M. Jothikumar	
16	Design of Micro turbine Generator by using MATLAB Simulink for Smart Grid	P. RamaKrishnan B. Vishal K. Selvabarath	S. Manoharan AP(Sr.Gr)/EEE
17	Stability Improvement using UPFC	I.Sridhar P.S. Vinoth Babu V.S. Vasudevan	C. Muthamil Selvi AP(Sr.Gr)/EEE
18	Voltage Stability Improvement in Wind Turbine	S. Sreedhar T. Girithar M. John Victor	
19	Power Quality Event Detection based on Image Processing Method	G.S. Gurushankari A. Jamal Raihana M. Asha Kumari	M. Ganesh Kumari AP(Sr.Gr)/EEE
20	Photo Voltaic based DVR for PQ Improvement	R. Ragavan K.R. Ram Prasath S. Sabarish Kumar	
21	9 Level Cascaded H- Bridge Boost Inverter for Higher Power Applications	G.V. Sharmi T.R. Sarisha P. Priyanga M.Sindhiya	M. Jeya Murugan AP(Sr.Gr)/EEE
22	A Hybrid Wind-Solar Energy System-A New Fused Converter – Inverter Topology	K. Gokul Krishnan T.Saravana Kumar T. Mathivanan	
23	Transmission Pricing Based on Network Usage by Eliminating Circular Flows Under Open Access	P.N.B. Janakiraman R. Alaguneethi G. Elangovan	M. Balamurugan AP/EEE
24	SVC Based Controller Design for Power System Stability Improvement Using ANFIS	N.R. Anand Babu P. Chellaiya E. Vigneshwaran	P.K. Arunkumar AP/EEE
25	A Single Input-Dual Output Three Phase Matrix Converter	J.S. Balaji M.V. Prasanna Kumar K. Seeni Venkatesh	
26	Optimal Power Flow Using Simulated Annealing	T.J. Viswak J.A. Karthick J.S.A. Shiva Rama Krishnan	J. Merlin AP/EEE
27	Economic Dispatch at Maximum Allowable Load Using Harmony Search Algorithm	K. Vijay Sricharan C. Priyadharsan F. Yusuf	
28	Load Flow Analysis in Polar Coordinate using DEPSO	M. Kather Mydeen S. Marshall Isaac P. Hari Prasath	R. Jeyapandi Prathap AP/EEE
29	Power Quality Improvement for 3 Phase, 4 Wire Distribution System using UPQC	T.S. Balaji V.Ram Kumar K.Saravana Kumar	S. Rajalingam AP/EEE
30	Peak Demand Management For Domestic Loads	V. Mari Muthu V. Venkadeswaran M.K. Vivek	C. Muthu Pandi AP/EEE
31	Cascaded H-Bridge Multi Level Inverter Based DSTATCOM for Harmonic Reduction	B.B. Jawaharlal G.V.J. Kishorilal T.S. Krishna Diwan	
32	Energy Conservation in Plastic Industry Using Simplified Power Factor Controller and Temperature Based Coolent Controller	T.P.J. Prasanna Venkatesh A.R. Karthik Babu S. Ashok Kumar	A . Manoj AP/EEE

Title of the project

OPTIMAL CAPACITOR ALLOCATION IN 69 BUS RDF FOR MAXIMIZATION OF ANNUAL SAVINGS FOR DYNAMIC LOAD CONDITIONS USING PSO AND MAPSO METHODS

Project Members

CHANDRA PRAKASH V (Reg. No. 90409121014)

SARATH BAPU R S S (Reg. No. 90409121056)

Guided By

Dr. S.M.KANNAN, PROFESSOR & HOD /EEE

ABSTRACT

The link between the bulk power generation and the consumers is provided by the distribution system. Among the distribution systems, radial distribution systems are popular because of low cost and simple design. In radial distribution systems, the voltages at buses reduce when moved away from the substation, also there are losses incurred high. The reason for decrease in voltage and high losses is insufficient amount of reactive power, which can be provided by the shunt capacitors.

The location of the nodes where the capacitors should be placed is decided by a set of rules given by the fuzzy expert system and the sizing of the capacitors is modelled by the objective function to obtain maximum savings using Particle Swarm Optimization (PSO) and Multi Agent Particle Swarm optimization (MAPSO) techniques. The PSO and MAPSO, being evolutionary algorithms, helps in achieving the maximum savings by tuning itself during the run time itself. The applicability of the algorithms is studied with the help of IEEE 69- bus radial distribution feeder systems.

Title of the project

POWER THEFT IDENTIFICATION USING TRACING OF POWER FLOW

Project Members

SOMASHREE.M (Reg. No. 90409121064)

SWATHI.J.V (Reg. No. 90409121069)

Guided By

Dr. S.VENKATESAN, Professor/EEE

ABSTRACT

Over the past few years, the problem of tracing electricity has become important because it brings about transparency in the operation of a transmission system. Tracing is a simple and transparent methodology that attempts to trace the flow of electricity in the network from individual generators to individual loads. Once this is determined using complex algorithms, the problem of power theft can be handled with ease. Recently power theft scenario has eluded many. Power flow tracing would be very useful in avoiding this particular problem since the determination of amount of power flow in a line can clearly tell about the theft in that line. Also using simple ways, the pricing for transmission of power can be determined and a fair tariff can be obtained. This is a very vital part in a deregulated system. Once a deregulated system is introduced, this algorithm will provide a better allocation of cost. Thus it may help in obtaining a clear working of a power system.

Title of the project

MAXIMIZATION OF SOCIAL WELFARE IN DEREGULATED ELECTRICITY MARKET

Project Members

PRIYANGA.S.P (Reg. No. 90409121049)

SHIRLY ANN NIMMIE.V (Reg. No. 90409121062)

Guided By

Dr. S.VENKATESAN, PROFESSOR/EEE

ABSTRACT

In power systems, transmission network provides the infrastructure to support a competitive electricity market, but congestion occurs frequently in the weakly connected networks. By reducing the congestion, we have to maximize the social welfare. A practical method for maximizing social welfare in deregulated electricity market based on an optimization technique. Here, PSO have been used for finding the optimal transaction and DC power flow approximation is used. From an economic theory perspective, the proper criterion for investment in the transmission infrastructure is the maximization of social welfare which is composed of consumers and producers. This approach is illustrated on IEEE30 bus system, where the simulation result demonstrates the proposed method is very effective in maximizing social welfare.

Title of the project

TRANSMISSION PRICING CALCULATION USING MW-MILE METHOD FOR DEREGULATED MARKET

Project Members

VINOTH KANNAN S (Reg. No. 90409121075)

VISHNUKUMAR T J (Reg. No. 90409121077)

VIJAYAKUMAR M D (Reg. No. 90409121073)

Guided By

Dr. S.VENKATESAN, PROFESSOR/EEE

ABSTRACT

The electric power industry has been going through many rapid and fundamental changes from time to time. Deregulation of the power industry has been a major trend in the industry. Under Transmission Open Access (TOA), unbundled transmission companies will provide power market participants with non-discriminatory access to its transmission services. Wheeling can be defined as the transmission of electrical power and reactive power from seller to buyer through a transmission network owned by a third party. Determining wheeling rates is an area of intense research as all the currently proposed methods have its reservations. In this project we are determining the wheeling rates using MW-Mile method for a IEEE 14 bus system by which the allocation of costs of wheeling on the respective wheeling transactions will be achieved.

Title of the project

VOLTAGE STABILITY ANALYSIS USING HYBRID DIFFERENTIAL EVOLUTION AND PARTICLE SWARM OPTIMIZATION

Project Members

ANANDBABU C J **(Reg. No. 90409121003)**

DHANDEESHWARAN D **(Reg. No. 90409121017)**

GNANAPRAKASAM T B **(Reg. No. 90409121022)**

Guided By

Dr. K.GNANAMBAL, PROFESSOR/EEE

ABSTRACT

Stability analysis is an essential study in the field of power system. The Static Load Margin is the maximum loading level beyond which there is no steady state solution of power system. The voltage magnitude phase angle at this maximum loading level is one of the methods to determine the voltage stability margin. Differential Evolution (DE) algorithm has the main advantages of superior performance in the global optimization, faster convergence, simple with regard to application and modification and requires a few control parameters. Particle swarm optimization (PSO) has been developing rapidly and has been applied widely since it is introduced, as it can converge quickly. But PSO easily got stuck in local optima because it easily loses the diversity of swarm. In this paper DE and PSO algorithms are applied to determine the maximum loading level. To validate the performances of the proposed algorithms a sample 6 bus system is considered. The results are compared to those obtained by the Continuation Power Flow (CPF),

Title of the project

ARTIFICIAL NEURAL NETWORK BASED VOLTAGE STABILITY ASSESSMENT

Project Members

M. KARTHIGA DEVI (90409121031)
M. DIVYA (90409121020)
P. AARTHY (90409121001)

Guided By

Dr. K.GNANAMBAL, PROFESSOR/EEE

ABSTRACT

Voltage stability is a major concern in power system operation since it has been the cause for many power blackouts around the world. This is a stability phenomenon, where the power system losses its ability to control load bus voltage due to various reasons. This phenomenon can lead to failure of the total or partial power system due to interventions of various control and protective actions. Voltage stability refers to the ability of the power system to maintain steady voltages at all busses in the power system after being subjected to a disturbance from a given initial operating condition. In recent years, power demands around the world are increased rapidly due to increase in customers demand and maintaining stability of the system is also complex. So many approaches have been used to determine the voltage stability limit. One of the approaches is the determination of the maximum loading point. In this project, an ANN based back propagation algorithm method is used to determine the voltage stability. Continuation of power flow (CPF) is a powerful technique to trace the power flow solution but online monitoring is not possible with CPF. So by using ANN, online monitoring is possible and time consumption is also less. The study has been carried out on sample and 6 bus and the data are taken from CPF algorithm and are used for training the ANN. The trained ANN is used for the stability assessment.

Title of the project

MODELING AND SIMULATION OF POSITION CONTROL OF PERMANENT MAGNET BRUSHLESS DC MOTOR USING PI CONTROLLER

Project Members

NEERAJ KUMAR S (Reg No. : 90409121044)

DHANAN JEYAN K K (Reg No. : 90409121016)

BALACHANDAR D S (Reg No. : 90409121501)

Guided by,

Mr. A.MARIMUTHU, ASSOCIATE PROFESSOR, KLNCE

ABSTRACT

Growing need of industry for higher productivity is placing now demands on mechanisms connected with electrical motors. This is leading to different problems in work operation due to fast dynamics and instability. This stability of the system is essential to work at desired set targets. The nonlinear effects caused by a motor frequently reduce stability, which reduces the controller's ability to maintain speed or position at set points. Hence number of the industrial process applications requires position control of DC Motor.

A Brushless DC motor describes magnet being the rotor and its stationary windings forming the stator. This design provides many advantages over the brush DC motor. Brushless DC (BLDC) motor drives are becoming widely used in various consumer and industrial system, such as servo motor drives, home appliance, computer peripherals, and automotive applications in recent years because of their high efficiency, silent operation, compact form, reliability, and low maintenance.

The aim of the project is to design a simulation model of Permanent Magnet Brushless DC (PMBLDC) motor and to control its position. In the developed model, the characteristics of the speed, torque, back EMF, voltage as well as currents are effectively monitored and analyzed. The PI Controller is used to control the position of a Permanent Magnet Brushless DC motor by changing the current flow to control the average voltage and there by average current.

Title of the project

MICRO CONTROLLER BASED ENERGY EFFICIENT OPERATION OF THREE PHASE INDUCTION MOTOR IN TYRE MANUFACTURING INDUSTRY

Project Members

ANANDAN B S **(Reg. No. 90409121005)**

ARUN KUMAR N K **(Reg. No. 90409121007)**

KARMEGA RAJA K **(Reg. No. 90409121030)**

Guided By

Mr.P.LOGANTHURAI, ASSOCIATE PROFESSOR/EEE

ABSTRACT

Energy is an integral component of a modern economy. Now a days Energy shortage that is slowing economic growth is the major problem. A key method to solve this problem is to operate all the electrical machines with full efficiency condition. But in practical the full efficient utilization of electrical machines is difficult one. In order to achieve maximum efficiency; electrical machines should be operated with full load, high power factor.

The gap between electrical energy supply and demand is continuously increasing despite huge outlay for energy sector since independence. This gap between supply and demand of energy can be bridged with the help of energy conservation which is considered as a new source of energy and environmental friendly.

The main objective of this project is to operate there induction motor at full load condition and to eliminate no load losses in industry located in Madurai, Tamilnadu

Title of the project

REDUCTION OF LINE LOSSES IN DISTRIBUTION SYSTEM BY OPTIMAL LOCATION & SIZING OF DG'S USING EVOLUTIONARY PROGRAMMING

Project Members

M. MONISHA (Reg. No. 90409121042)

M. MOHANALATHA (Reg. No. 90409121041)

J. KOKILAPRIYA (Reg. No. 90409121035)

Guided By

Mr. M.JEGADEESAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT

A distribution system is an interface between the bulk power system and the consumers. Among these systems, radial distribution systems, are popular because of low cost and simple design. In distribution systems, the bus voltage is reduced when moved away from the substation, also the losses are high. The reason for decrease in voltage and high losses is due to insufficient amount of reactive power, this can be reduced by placing DG at the proper location. The work reported in this paper is carried out with the objective of identifying the optimal locations of Distributed generator (DG) to be placed in radial distribution system based on minimization of losses. At first, base case load flow of distribution system is carried out by using forward and backward sweep load flow algorithm. After that, based on load flow solutions, loss sensitivity factors (LSF) indicating the optimal bus locations for DG placement are computed. By placing DG at suitable bus positions i.e., optimal bus positions, losses are minimized and overall cost is reduced. This method is tested on IEEE 33 bus distribution system using Differential evolution.

Title of the project

CURRENT HARMONIC ELIMINATION FOR A SINGLE PHASE UPS SYSTEM USING THYRISTOR CONTROLLED SINGLE TUNED PASSIVE HARMONIC FILTER

Project Members

S.KANAGAVALLI (Reg. No. 90409121029)
C.R.LAKSHMISRI (Reg. No. 90409121037)
D.KEREN BLESSY (Reg. No. 90409121034)
S.MANIMEKALAI (Reg. No. 90409121039)

Guided By

Mr. S.PARTHASARATHY, ASSOCIATE PROFESSOR/EEE

ABSTRACT:

The proposed work is to eliminate current harmonics for a single phase Uninterrupted Power Supply (UPS) system using single tuned passive harmonic filter. The deviation of the voltage and current waveforms from sinusoidal is described in terms of the waveform distortion, often expressed as harmonic distortion. Harmonics is one of the major power quality issues in modern power electronics scenario. In this project the passive harmonic filter is in turn controlled by the thyristor firing angle, is derived by sensing the magnitude of the distorted current harmonic content. The appropriate firing angle is determined by the analog sensing unit .The Harmonic current is sensed by the identified system is investigated in real time.

Title of the project

HARMONIC FLOW ANALYSIS AND MITIGATION IN A NON-LINEAR ENVIRONMENT USING DIgSILENT POWERFACTORY

Project Members

S.RAJASUNDARI (Reg. No. 90409121051)
K.R.SRIDEVI (Reg. No. 90409121066)
P.SUBATHRA (Reg. No. 90409121068)

Guided By

Mr. S.PARTHASARATHY, ASSOCIATE PROFESSOR/EEE

ABSTRACT

A power quality issue has become a problem concern nowadays. The widespread use of power electronic equipment has lead to a complete change of electric loads nature. The nonlinear loads are the major causes of power quality problem in a power system . Harmonics is one of the most important power Quality problem contributed due to nonlinear load in power systems. The proposed work focuses on analysis of power flow and harmonic flow in radial distribution bus system with nonlinear load conditions. Based on the analysis, an appropriate passive harmonic filters are designed and implemented so as to mitigate current harmonics in the proposed system .The proposed work is implemented in a DIgSILENT powerfactory14 platform. After the placement of harmonic filter power flow and harmonic flow is carried out so as to ensure that power quality of the system get improved.

Title of the project

HARMONIC ANALYSIS USING RADIAL BASIS NEURAL NETWORK

Project Members

M.DELMIYA (Reg. No. 90409121015)

B.DHARINI (Reg. No. 90409121018)

I.KRUTHIGA (Reg. No. 90409121036)

Guided By

Mr. A.S.S.MURUGAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT

This work proposes the method of determining the contribution of harmonic magnitude and phase angle using "**RADIAL BASIS NEURAL NETWORK"** and compare propagation neural network. Generally, it becomes complicated to determine the harmonic distribution due to the fact that the supply voltage waveform is distorted and rarely a sinusoidal waveform. Here we use radial basis neural network to determine the harmonic current which distinguishes the load or supply side without disconnecting the load. In FFT analysis we can calculate magnitude and phase angle. In this method we calculate the magnitude and phase angle same as the FFT analysis. This method is one of the methods to calculate harmonic analysis.

Title of the project

HARMONIC DISTORTION MEASUREMENT USING RECURRENT NEURAL NETWORK

Project Members

BALAJI K.N **(Reg. No. 90409121011)**

BALAJI P.N **(Reg. No. 90409121013)**

SARAVANAKUMAR P.K **(Reg. No. 90409121058)**

Guided By

Mr. A.S.S.MURUGAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT

This paper proposes a neural network solution methodology for the problem of measuring the actual amount of harmonic current injected into a power network by a non-linear load. The determination of harmonic currents is complicated by the fact that the supply voltage waveform is distorted by other loads and is rarely a pure sinusoid. Harmonics may therefore be classified as contributions from the load on the one hand and contributions from the power system or supply harmonics on the other hand. A recurrent neural network architecture based method is used to measure the harmonic distortion in input current and supply voltage, without disconnecting the load from the network. The main advantage of this method is that only waveforms of voltages and currents have to be measured. This method is applicable for both single and three phase loads. This could be fabricated into a commercial instrument that could be installed in substations of large customer loads, or used as a hand-held clip on instrument.

Title of the project

DESIGN OF BRIDGELESS SEPIC CONVERTER FOR SPEED CONTROL OF PMDC MOTOR

Project Members

DINESH KUMAR K K	**(Reg. No. 90409121019)**
MANIKANDAN S	**(Reg. No. 90409121038)**
NARESH KUMAR K B	**(Reg. No. 90409121043)**

Guided By

Mr. S.VENKATANARAYANAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT

The main aim of this project is to design a bridgeless SEPIC converter used for the speed control of permanent magnet DC motor. This paper focuses the design of Bridgeless SEPIC topology having reduced switching and conduction losses with improved power factor.

In this paper we designed a converter to work in Discontinuous Conduction Mode (DCM) operation to achieve the speed control of Permanent magnet DC motor. In this type of motor field is replaced by magnet so field control is not possible. But armature control is possible by varying the input supply to the armature speed of the motor can is controlled by the use of PID controller.

These converters are investigated theoretically and the performance comparisons of this proposed converter is verified with MATLAB simulation. The design with low voltage and PMDC Motor is developed.

Title of the project

GENERATION OF ELECTRICAL ENERGY FROM ON ROAD PRESSURE MOVEMENT BY USING KY CONVERTER

Project Members

BALAJI O.R **(Reg. No. 90409121012)**

JOTHI KUMAR K.M **(Reg. No. 90409121507)**

MOHAMED AAQIB **(Reg. No. 90409121513)**

Guided By

Mr. S.VENKATANARAYANAN, ASSOCIATE PROFESSOR/EEE

ABSTRACT

In the present scenario power becomes major need for human life. Due to day-to-day increase in population and lessen of the conventional sources, it becomes necessary that we must depend on non-conventional sources for power generation. While moving, the vehicles possess some kinetic energy and it is being wasted. This kinetic energy can be utilized to produce power by using a special arrangement called “POWER HUMP”.

This project attempts to show how man has been utilizing energy and to explore prospects of optimizing the same. Researches show that the world has already had its enough shares of its energy resources. Fossil fuels pollute the environment. Nuclear energy requires careful handling of both raw as well as waste material. The focus now is shifting more and more towards the renewable sources of energy, which are essentially, non-polluting.

Energy conservation is the cheapest new source of energy. This paper attempts to show how energy can be tapped and used at a commonly used system, the road power generation. Road Power Generation (RPG) is one of the most recent power generation concepts. This device converts the kinetic energy of the vehicles into electric energy by installing “POWER HUMP” on the road, it takes the stroke motion of the vehicles and converts it to the rotary motion by crank mechanism and it generates the electricity.

And this project is best source of energy that we get in day to day life.

Title of the project

DESIGN OF MICROTURBINE GENERATOR BY USING MATLAB SIMULINK FOR SMART GRID

Project Members

RAMAKRISHNAN P (Reg. No. 90409121052)

SELVABARATH K (Reg. No. 90409121060)

VISHAL B (Reg. No. 90409121076)

Guided By

Mr.S.MANOHARAN, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

Micro turbine generation is currently attracting lot of attention to meet users need in the distributed generation market due to the deregulation of electric power utilities, advancement in technology, environmental concerns. Modeling of micro-turbine distributed generation system has been implemented and a new converter controller for a simulink model of a Micro-Turbine Generation System (MTG) has been proposed. The model consists of speed control, acceleration control and temperature control. The system comprises to the Permanent Magnet Synchronous Machine (PMSG) and coupled to the micro turbine. The converter controllers are built on the dq synchronous frame. The converter controller models are implemented in the MATLAB / SIMULINK using SIMPOWER Systems library. The performance of the implemented MTG model is studied with an RL load.

Title of the project

STABILITY IMPROVEMENT USING UPFC

Project Members

SRIDHAR I	**(Reg. No. 90409121067)**
VASUDEVAN V S	**(Reg. No. 90409121070)**
VINOTH BABU P S	**(Reg. No. 90409121074)**

Guided By

Ms. C. MUTHAMIL SELVI, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

This project is to improve static voltage stability of the power system using UPFC with the help of Differential Evolution by comparing continuation power flow analysis. In analyzing voltage stability, continuation power flow method is utilized which consists of successive load flows.

Also this voltage stability analysis can be improved using the optimization technique of Differential Evolution. The voltages at various buses are calculated and weak bus and weak lines are determined to locate the UPFC. The results of CPF and DE were compared. The voltage stability limits are analyzed before and after the placement of UPFC. 9 bus system, IEEE 30 bus systems are considered as test cases for this analysis.

Title of the project

VOLTAGE STABILITY IMPROVEMENT IN WIND TURBINE

Project Members

JOHN VICTOR M **(Reg. No. 90409121028)**

SREEDHAR S **(Reg. No. 90409121065)**

GIRITHAR T **(Reg. No. 90409121505)**

Guided By

Ms. C. MUTHAMIL SELVI, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

This project presents the impacts of wind power penetration on the operation of a power system. Continuation power flow (CPF) is performed on the system without wind power and with wind power. The modeled wind turbine is connected to any of the bus. Voltage stability for the power system is determined by the corresponding PV curves for each bus with and without wind power. The effects of wind power penetration on the voltage collapse with loading parameters are investigated. The simulation analysis was performed by PSAT/MATLAB simulation package. Voltage collapse was found to occur at higher loading factor which enhances the voltage stability of the system. Finally, the steady state bus voltages became higher.

Title of the project

POWER QUALITY EVENT DETECTION BASED ON IMAGE PROCESSING METHOD

Project Members

ASHA KUMARI M (Reg. No. 90409121008)

GURUSHANKARI G S (Reg. No. 90409121023)

JAMAL RAIHANA A (Reg. No. 90409121025)

Guided By

Mrs. M. GANESH KUMARI, ASSISTANT PROFESSOR/EEE

ABSTRACT

Power quality is one of major concerns in the present era. It has become important, especially with the introduction of sophisticated devices, whose performance is very sensitive to the quality of power supply. Power quality problem is an occurrence manifested as a non standard voltage, current or frequency that results in a failure of end use equipments. Some of the major problems dealt here is the voltage sag, voltage swell, Interruption and Notches.

This project represents a novel technique to visualize and detect various power quality events. There are various power quality disturbances such as sag, swell, notch, flicker and transients which are created using MATLAB simulation. For accuracy, the disturbance images are detected by using image processing (2D-Dwt). The image patterns are obtained by horizontal vertical as well as Diagonal Details. The two image processing techniques such as 2D-DWT and true compression 2D-DWT are compared.

Title of the project

PHOTOVOLTAIC BASED DVR FOR POWER QUALITY IMPROVEMENT

Project Members

RAGAVAN.R (Reg. No. 90409121050)

RAM PRASATH.K.R (Reg. No. 90409121054)

SABARISH KUMAR.S (Reg. No. 90409121055)

Guided By

Mrs. M. GANESH KUMARI, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

This project work focus on model of photovoltaic (PV) array operated DC/DC boost converter fed three phase VSC (Voltage Source converter) for Power Quality improvement. The proposed DVR which includes PV array based VSC dc link capacitor and injection transformer and it provides voltage disturbances compensation at the Point of Common Coupling (PCC). The PV array operated boost converter is used to step up the voltage to match the DC link requirement of the three phase VSC. The overall system is developed and validated by using MATLAB–SIMULINK environment and the proposed approach is that, it will provide compensation for the power quality problem like voltage sag, swell and implemented hardware using battery.

Title of the project

NINE LEVEL CASCADED H-BRIDGE BOOST INVERTERS FOR HIGH POWER APPLICATIONS

Project Members

PRIYANGA P	**(Reg. No. 90409121048)**
SARISHA T R	**(Reg. No. 90409121059)**
SHARMI G V	**(Reg. No. 90409121061)**
SINDHIYA M	**(Reg. No. 90409121063)**

Guided By

Mr. M.JEYAMURUGAN, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

This project presents a cascaded H-bridge multilevel boost inverter for High power applications implemented without the use of inductors. Currently available power inverter systems for High power applications use a dc–dc boost converter to boost the battery voltage for a traditional three-phase inverter. It has low power density, expensive and low efficiency because they need a bulky inductor. A cascaded H-bridge multilevel boost inverter design for High power applications implemented without the use of inductors is proposed in this project. Generally, each H-bridge needs a dc power supply. The proposed design uses H-bridge in series with inverter which uses a capacitor as the dc power source and it produces the output wave nearer to the sine wave, thus the efficiency is increased. A fundamental switching scheme is used to produce a nine-level phase voltage and the level of the output voltage depends upon on the number of switches used. Our project is simulated using MATLAB.

Title of the project

A HYBRID WIND – SOLAR ENERGY SYSTEM - A NEW FUSED CONVERTER - INVERTER TOPOLOGY

Project Members

GOKUL KRISHNAN.K (Reg. No. 90409121506)

MATHIVANAN.T (Reg. No. 90409121512)

SARAVANAKUMAR.T (Reg. No. 90409121514)

Guided By

Mr. M.JEYAMURUGAN, ASSISTANT PROFESSOR (Sr.Gr.)/EEE

ABSTRACT

Environmentally friendly solutions are becoming more prominent than ever as a result of concern regarding the state of our deteriorating planet. This project presents a new system configuration in the converter circuit design for a hybrid wind-photovoltaic energy system. This configuration allows the two sources to supply the load separately or simultaneously depending on the availability of the energy sources. The inherent nature of this newly proposed Cuk - Bridgeless SEPIC fused converter is that, additional input filters are not necessary to filter out high frequency harmonics. THD values can be greatly reduced -achieved through the subsequent use of Multilevel Inverter by using MATLAB

Title of the project

TRANSMISSION PRICING BASED ON NETWORK USAGE BY ELIMINATING CIRCULAR FLOWS UNDER OPEN ACCESS

Project Members

ALAGU NEETHI R (Reg.No.90409121002)
ELANGOVAN G (Reg.No.90409121021)
JANAKIRAMAN PNB (Reg.No.90409121026)

Guided By

Mr. M.BALAMURUGAN, ASSISTANT PROFESSOR /EEE

ABSTRACT

Functions and ownerships of generation, transmission and distribution are unbundled and separated from the traditional power system structure. The competition among generation is allowed to supply the economical energy and customers have more options to choose their suppliers. With the development of power industry restructuring and transmission open access, it is extremely important to calculate contributions of individual generators and loads to line flows.

Real power tracing algorithms were invented to find the network usage by various generators and loads. There are two versions of real power tracing are popularly known, namely Linear equations based and graph theoretic based. Both the methods make use of proportional sharing assumption. Circular flows are occurring due to phase shifting devices and node aggregation in modeling. So the tracing problem is formulated as a linear constrained optimization problem and with the use of developing the conservation of commodity flow constraints, every generator and load commodity is balanced at each node. Hence, it can be concluded that by virtue of the conservation of commodity flow constraints, a feasible solution can be obtained. So in this project electricity power tracing is formulated as linear constrained optimization problem.

Title of the project

SVC BASED CONTROLLER DESIGN FOR POWER SYSTEM STABILITY IMPROVEMENT USING ANFIS

Project Members

ANAND BABU.N.R (Reg. No. 90409121004)

CHELLAIYA.P (Reg. No. 90409121503)

VIGNESHWARAN.E (Reg. No. 90409121517)

Guided By

Mr. P.K.ARUNKUMAR , ASSISTANT PROFESSOR /EEE

ABSTRACT

The electric power generation, transmission and distribution grid in developed countries constitutes a large system that exhibits a range of dynamic phenomena. Stability of this system needs to be maintained even when subjected to large and small scale disturbances so that the electricity can be supplied with high reliability to consumers. A damping controller of the SVC is designed by using Adaptive Neuro Fuzzy Inference System (ANFIS) to contribute adequate damping characteristics to the dominant modes under various operating conditions. Here the proposed ANFIS approach overcomes the drawback of fuzzy-logic control schemes with constant gain factor. The entire system has been modeled using MATLAB SIMULIK environment. Also MATLAB Simulation result shows the stability of single machine infinite bus system (SMIB) system with and without adaptive neuro fuzzy inference system.

Title of the project

A SINGLE INPUT – DUAL OUTPUT THREE PHASE MATRIX CONVERTER

Project Members

BALAJI.J.S.	**(Reg.No: 90409121010)**
PRASANNA KUMAR.M.V.	**(Reg.No: 90409121045)**
SEENI VENKATESH.K.	**(Reg.No: 90409121515)**

Guided By

Mr. P.K.ARUNKUMAR , ASSISTANT PROFESSOR/EEE

ABSTRACT

This project presents the design of matrix converter with one AC input and two AC outputs using MATLAB simulation. The presented topology is based on the direct matrix converter with nine switch converter. With only three extra switches added to the existing circuit, the proposed converter can produce two sets of three phase AC outputs, whose amplitudes, frequencies and phases can appropriately regulated. Features such as sinusoidal input and outputs, unity power factor and minimum commutation count are all retained by the proposed topology, despite having an additional output.

Title of the project

OPTIMAL POWER FLOW USING SIMULATED ANNEALING

Project Members

VISWAK T J (Reg. No. 90409121078)

KARTHICK J A (Reg. No. 90409121508)

SHIVARAMA KRISHNAN J S A (Reg. No. 90409121516)

Guided By

Ms.J.MERLIN, ASSISTANT PROFESSOR/EEE

ABSTRACT

This project work presents an evolutionary based algorithm for solving the Optimal Power Flow (OPF) problem. The algorithm employed here is the Simulated Annealing algorithm. In this work, the OPF is formulated as the multi-objective optimization problem such as minimization of total generation fuel cost as well as the transmission loss in a power system. The proposed method solves the OPF problem subject to the power balance equality constraints, limits on the control variables namely active power generations, controllable voltage magnitudes, limits on the dependent variables namely reactive power generations and load bus voltage magnitudes and limits on MVA line flows as the inequality constraints. The test system employed here is IEEE 30-bus system to validate the proposed algorithm and the results are compared with other techniques

Title of the project

ECONOMIC DISPATCH AT MAXIMUM ALLOWABLE LOAD USING HARMONY SEARCH ALGORITHM

Project Members

PRIYADHARSAN C **(Reg. No. 90409121047)**

VIJAY SRICHARAN K **(Reg. No. 90409121072)**

YUSUF F **(Reg. No. 90409121079)**

Guided By

Ms.J.MERLIN, ASSISTANT PROFESSOR/EEE

ABSTRACT

Estimating the maximum allowable load of power systems is the approach to find how much a power system can be loaded within the security limit. The maximum allowable load is the margin between the operating point of the system and the maximum loading point. In order to reduce the generation cost Economic Dispatch is performed at the maximum allowable load point. Both the objectives can be formulated as an optimization problem. In this work, Harmony search (HS) algorithm was studied for solving maximum allowable load and economic load dispatch (ELD) problems in power systems. Harmony search has proven to be effective in solving many real world constrained optimization problems in different domains. Details of the implementation of the proposed method to the test system (Case 6ww-bus system and IEEE 30- bus system) are presented. Simulation results show that the proposed approach converges to a better solution much faster and this proves the loadability and applicability of the proposed method.

Title of the project

LOAD FLOW ANALYSIS IN POLAR COORDINATE USING DEPSO

Project Members

HARI PRASATH P (Reg No. : 90409121024)

KATHER MYDEEN M (Reg No. : 90409121033)

MARSHALL ISAAC S (Reg No. : 90409121040)

Guided By

Mr. R.JEYAPANDI PRATHAP, ASSISTANT PROFESSOR/EEE

ABSTRACT

This project presents a new hybrid evolutionary algorithm to solve the power flow problem in polar coordinate. Differential Evolution (DE), a simple evolutionary algorithm which shows superior performance in global optimization. But it gives premature convergence, as it utilizes the differential information to get the new candidate solution. Particle Swarm Optimization (PSO) converges quickly but gets stuck in local optima.

The hybrid DEPSO algorithm presented in this project eliminates the disadvantages of DE and PSO and solves the power flow problem with higher accuracy. The proposed algorithm is tested on 6 bus and IEEE-30 bus systems.

Results clearly indicate the better performance of DEPSO algorithm over DE and for solving power flow problems. It works well for both base load and heavily loaded condition with greater accuracy and consistency.

Title of the project

POWER QUALITY IMPROVEMENT IN THREE-PHASE FOUR-WIRE SYSTEM USING UPQC

Project Members

BALAJI T S (Reg. No. 90409121502)

SARAVANAKUMAR K (Reg. No. 90409121057)

RAMKUMAR V (Reg. No. 90409121053)

Guided By

Mr. S.RAJALINGAM, ASSISTANT PROFESSOR/EEE

ABSTRACT

A simplified control algorithm for a three-phase, four-wire unified power quality conditioner is presented to compensate for supply voltage distortions/unbalance, supply current harmonics, the supply neutral current, the reactive power and the load unbalance as well as to maintain zero voltage regulation at the point of common coupling . The UPQC is realized by the integration of series and shunt active filters sharing a common dc bus capacitor. The shunt AF is realized using a three-phase, four leg voltage source inverter and the series AF is realized using a three-phase, three leg VSI. A dynamic model of the UPQC is developed in the MATLAB/SIMULINK .

Title of the project

PEAK DEMAND MANAGEMENT FOR DOMESTIC LOADS

Project Members

V. MARI MUTHU (Reg. No. 90409121511)

V. VENKADESWARAN (Reg. No. 90409121071)

M.K. VIVEK (Reg. No. 90409121518)

Guided By

Mr.C. MUTHU PANDI, ASSISTANT PROFESSOR /EEE

ABSTRACT

Energy management means to optimize one of the most complex and important technical creations in electrical system. There are more methods of optimization in generation and transmission. But we have to give more concentration on the consumption side. DSM is the key of measure to improve the energy system at the customer. It improves energy efficiency by using better materials over smart energy tariff with offers for certain consumption patterns, up to advance real-time control of distributed resources.

Title of the project

CASCADED H-BRIDGE MULTI LEVEL INVERTER BASED DSTATCOM FOR HARMONIC REDUCTION

Project Members

B.B. JAWAHARLAL (Reg. No. 90409121027)

G.V.J. KISHORILAL (Reg. No. 90409121509)

T.S. KRISHNA DIWAN (Reg. No. 90409121510)

Guided By

Mr.C. MUTHU PANDI ASSISTANT PROFESSOR /EEE

ABSTRACT

This paper presents an investigation of five-level cascaded H – bridge (CHB) inverter as Distribution Static Compensator (DSTATCOM) in power system for compensation of reactive power and harmonics. The advantages of CHB inverter are low harmonic distortion, reduced number of switches and suppression of switching losses. The DSTATCOM helps to improve the power factor and eliminate the Total Harmonic Distortion (THD) drawn from a non-linear diode rectifier load (NLDRL). The D-Q reference frame theory is used to generate the reference compensating current for DSTATCOM while proportional integral (PI) control is used for capacitor DC voltage regulation. A CHB inverter is considered for shunt compensation of a 11kv distribution system. Finally a level shifted PWM (LSPWM) and phase shifted PWM (PSPWM) techniques are adopted to investigate the performance of CHB inverter. The results are obtained through MATLAB/SIMULINK software package.

Title of the project

ENERGY CONSERVATION IN PLASTIC INDUSTRY USING SIMPLIFIED POWER FACTOR CONTROLLER AND TEMPERATURE BASED COOLENT CONTROLLER

PROJECT MEMBERS

T.P.J. PRASANNA VENKATESH (Reg. No. 90409121046)

A.R. KARTHIK BABU (Reg. No. 90409121032)

S. ASHOK KUMAR (Reg. No. 90409121009)

GUIDED BY

A. MANOJ, ASSISTANT PROFESSOR/EEE

ABSTRACT

With the rapid and sharp rise in energy prices in India, energy cost is becoming a value that cannot be ignored in India's industrial sector. However, there are still many practices adopted in industries that do not take energy efficiency as a prime consideration, but rather focus on immediate and direct savings in materials and machinery. This project deals with the energy conservation in Mohan plastics through some conventional energy conservation techniques. First, a thorough study has been done about the industry and the process involved in making the hangers. It is found that the machines in that industry are overrated and power factor is lagging while operation. Adding to that, they are using water pumps continuously for cooling the hydraulics. Overall movements in the machine are done by hydraulics. In order to improve the power factor, a control circuit that switches the capacitor banks for a desired time period has been designed to improve the power factor with less circuit complexity. In addition to this, a temperature control circuit to automatically switch ON and OFF the water pump whenever the hydraulics reaches a preset temperature has been designed to save energy from continuously running cooling water pump. This project also deals with suggesting the other ideas to reduce the energy consumption.