



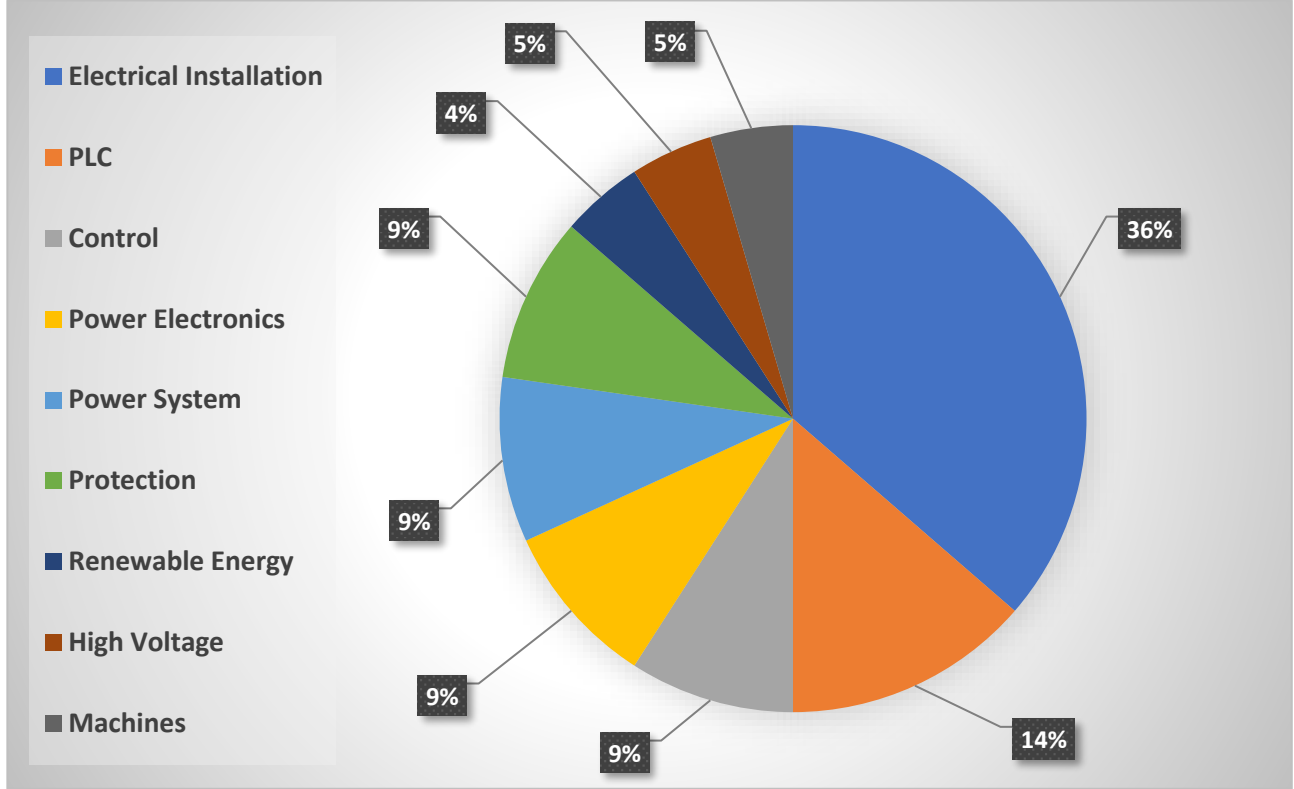
2021/2022

Graduation Projects Summary



Electrical Engineering Department
Faculty of Engineering
Menoufia University

بيان بنسب التخصصات المختلفة لمشاريع التخرج



عدد المشاريع	تخصص المشروع
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٣	PLC
٢	Control
٢	Power Electronics
٢	Power System
٢	Protection
١	Renewable Energy
١	High Voltage
١	Electrical Machines



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٢	Design of Electrical Distribution System for Administrative Building	Electrical Installation	أ.د/ مصطفى الشبيني
٣	Design of Electrical Power Distribution for an Entertainment Complex	Electrical Installation	أ.د/ مصطفى الشبيني
٤	Design Electrical Installation Works for a Medical Integrated Building	Electrical Installation	أ.د/ مصطفى الشبيني
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٩	PLC-based Control of Sorting Machine	PLC	أ.د/ اشرف زين الدين
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١٤	Pumping Systems Based on Three Phase Induction Motor Fed by Solar Energy	Power Electronics	أ.د/ عوض السبع
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٢٢	Inverter Fed Permanent Magnet Synchronous Motor	Electrical Machines	أ.د/ فتحي عبد القادر د/ ميرفت عبد البر

عنوان المشروع :

Electrical Installation for an Administrative Center

المشرف: أ.د/ مصطفى الشيبيني

فريق العمل			
احمد منصور فؤاد الشبكة	٩	احمد عصام محمد الجداوى	١
محمود عبد الباسط حسن شعبان الشوربجى	١٠	احمد عطيه السيد عنز	٢
محمود محمد عبد الله عبد المقصود المصرى	١١	احمد مصطفى السيد احمد محمد على	٣
محمود محمد محمود الفخرانى	١٢	محمود ايهاب عبد العزيز عبد الوهاب بدر	٤
أحمد علي محمد محمد جاد	١٣	محمود حسين حفناوى احمد السيد الحفناوى	٥
محمد ياسر محمد فتحى الشبراوى	١٤	نجاه موسى عبد الله شاهين	٦
أحمد محمد صلاح الدين حبيب	١٥	نوران احمد محى شرشر	٧
حسام شريف دياب شاکر	١٦	هاجر سعد عوض زكى	٨

Abstract:

This graduation project aims to design the full electrical distribution system for administrative center. In this project we aim to provide the calculations of load estimation and provide all drawings of a proper design of lighting, sockets, power outlets, feeding circuits, single line diagram, voltage drop and short circuit calculations according to standard codes and using software programs such as (AutoCAD, DIALux and ETAP). This project also provides necessary tables and charts of electrical boards and loads schedules. We also designed low current systems such as (fire alarm system and CCTV system) and also provide all calculations for the earthing system.

عنوان المشروع :

Design of Electrical Distribution System for Administrative Building

المشرف: أ. د/ مصطفى الشبيني

فريق العمل			
عبد المرضى عماد عبد المرضى عبد العاطي	١٠	معتز رجب محمود دياب	١
ايمان محمود توفيق نصار	١١	محمود أحمد محمود جعفر	٢
محمد عادل عبدالستار تركي	١٢	محمد رجب إبراهيم الشوربجي	٣
عبد الحميد سعيد عبدالحميد الفقي	١٣	عبد الله أحمد عبد الله منصور	٤
محمود محمد لطفي محمد	١٤	إبراهيم بهي الدين شحاتة أبوغالي	٥
محمد سلطان جمال احمد عبدالنبي	١٥	محمود أحمد عبد العال جعفر	٦
عبد العزيز محمد الوصال متولي	١٦	مصطفى محمد السيد مصطفى	٧
هدير خالد العشري مطاوع	١٧	عبد الرحمن أحمد محمد عوف	٨
ميمنه السيد لاشين	١٨	عبد الرحمن سيد كامل عزب	٩

Abstract:

This graduation project aims to design the full electrical distribution system for administrative buildings. In this project we aim to provide drawings of a proper design of lighting, sockets, power outlets, feeding circuits and single line diagrams. This project also provides necessary tables and charts of electrical boards and loads schedules. We also designed low current systems including a fire alarm system, data system, telephone system, CCTV system and sound system.

عنوان المشروع :

Design of Electrical Power Distribution for an Entertainment Complex

المشرف: أ.د/ مصطفى الشبيني

فريق العمل			
خالد هشام عبد الله البتانوني	٩	احمد صبحي احمد مبروك	١
عمر احمد محمود سعد	١٠	احمد عاطف عبدالحميد حجازي	٢
محمد جمال السيد طلبه والي	١١	احمد عبدالحميد سليمان عماره	٣
محمد صلاح السيد عبد السميع	١٢	أحمد محمد محمود سلام	٤
محمد عبد السميع عبد الخالق خليفه	١٣	اسامه شعبان علي الفخراني	٥
محمود عبدالناصر محمد عبدالصمد	١٤	إسلام رمضان محمد أبو عرب	٦
هاني عبدالرسول السيد حلاوه	١٥	ايمن امين محمد علي الباهت	٧
وليد ناجي سالم عبدالواحد	١٦	جمال احمد محمد سكرمه	٨

Abstract:

In our graduation project we design full electrical power distribution systems for an entertainment complex. Our project consists of Three main buildings, in addition to some recreational and sports buildings, used for different purposes as administration, accommodation, food and beverage services, lodging, sports, entertainment and shopping. We have been working to provide drawings of a proper design of lighting, sockets, power outlets, HVAC system power supply, feeding circuits and single line diagrams for this resort. Our project also provides necessary tables and charts of electrical boards and load schedules, we also designed the light current system which include fire alarm system, sound system, CCTV system and telephones system. And we are more than thrilled to navigate through this team- generated report with you, hoping to appeal your satisfaction and praise.



عنوان المشروع :

Design Electrical Installation Works for a Medical Integrated Building

المشرف: أ. د/ مصطفى الشبيني

فريق العمل			
آلاء عبدالناصر أبو المناصر بدر	٩	أحمد عباس رزق عباس شرف	١
آيه محمد بدر حجازي	١٠	أحمد إبراهيم عبدالحليم عبدالدايم	٢
أحمد مجدي عبدالمعطي	١١	أماني محمد منير عبدالحليم سعفان	٣
سعيد محمد سعيد بركات	١٢	إسراء عبدالحكيم محمد الشوربجي	٤
سلمى عبدالمنعم إبراهيم جروين	١٣	أريج نصر محمد كامل أبو العنين	٥
محسن إيهاب عبدالمحسن	١٤	نهى ياسر محمود عبدالعزيز	٦
آلاء عماد الدين فتحي عتيم	١٥	أحمد ماهر رمضان زكي بدر	٧
محمد سلامه فتحي أبو الزين	١٦	نرمين كمال مصطفى دسوقي	٨

Abstract:

Distribution system is one of the greatest industrial systems in the world. With the progress of human civilization, there has been a rapid increase in the production and use of electrical energy. When designing a commercial power system, special studies, experiences and knowledge must be comprised in order to evaluate the best performance of the system either at present or at future.

A lot of terms should be taken into consideration in order to achieve the desired goals of constructing such a system. These terms may comprise safety, reliability, adequate cost, high performance and ease of maintenance. We are concerned in our project with the distribution system.

We should achieve some points in our project as:

- 1) Power reduction
- 2) Low cost
- 3) Using LED luminaires for their long lifetime
- 4) Choosing suitable C.B according to the loads
- 5) Improving IP for protection of electrical equipment
- 6) Reducing cable lengths
- 7) Choosing suitable insulation material for cables according to environment conditions



عنوان المشروع :

Electrical Design Services & Smart Applications for a High-Rise Building

المشرف: أ.د/ هيثم زكي

فريق العمل	
محمد مرضي محمد عصر	١
محمد سعيد فتحي الجندي	٢
محمود ابراهيم مصطفى الجمال	٣
محمد وحيد عبدالعزیز محمد	٤
احمد مجدي محمد الجوهري	٥
احمد محمد محسن رزق	٦
سيف خالد محمد فراره	٧
شيماء خالد مختار البيومي	٨
عبدالرحمن محمد فوزي	٩
اسراء علي فاروق القصاص	١٠
نجاة صافي محمد الخولي	١١

Abstract:

The design, construction, and operation of electrical systems in High-rise building with multi-function applications and services, call for careful consideration of fire safety, energy efficiency, and electrician safety. This book presents many various topics concerning electrical installation and safety requirements. We have designed a complete wiring system for two identical- fifty floor-towers in Dubai. We have carried out many systems like light current, photo voltaic (PV) system, KNX and Building Management System (BMS) system .

The project was done according to codes, standards, and regulations. The stages and milestones of the project were as follows: Load estimation, Bulk Equipment and its space program, Switchgears and its space program, Zoning, Lighting, Small power, Mechanical Electrical plumping (MEP), Panel Schedule, Lightening and Earthing, Power System Calculation, Cable Routing, Power factor (PF) Correction, Light Current, PV System and Smart Solutions. We made all the required steps in order to achieve the desired goals of constructing such this building. The objective of this project is to present the different schemes adopted in the process of distribution of big buildings. We focused to achieve safety, reliability, high performance, and energy saving.



عنوان المشروع :

Design of Electrical Distribution System of a Tourism Hotel

المشرف: د/ دينا عشيبه

فريق العمل			
أحمد إبراهيم عبدالرازق	١	محمد محسن علي	٦
عبدالله حسام الدين عبدالله يوسف	٢	محمود مسعد إبراهيم	٧
محمود نجاح عبدالباقي نجم	٣	سامح محمد منير	٨
عاصم عبدالمؤمن الصاوي	٤	أحمد صفوت محمود عبدالمعطي	٩
محمد عبد المنعم احمد الحفني	٥	أحمد صلاح شحات عبدالمؤمن	١٠

Abstract:

This is an electrical distribution system design project of a tourism hotel, presented as the graduation project for the fore mentioned students. The project starts like any other project of this kind, first the site is studied and to know the total area and the location of the project, to determine which Standard Code will be used. Then the architectural plans are studied to determine further information about the building and floors the make up the project. Then the first step of design is implemented, which is: 1- load estimation for the entire project. Then there are three directions that can be started simultaneously; they are: 2- lighting design, 3- socket design, 4- light current system. From this point forward, all other design steps depend upon each other, and must be implemented in order, they are: 5- panel scheduling, 6- circuit breakers selection, 7- cables selection, 8- voltage drop and short circuit current calculations, 9- earthing system, and finally 10- feeding system. All of these design steps are discussed in details in the coming chapters.

عنوان المشروع :

Electrical Distribution for an Administrative Building

المشرف: د/ دينا عشيبه

فريق العمل			
محمد ابراهيم محمد زناد	٧	اسلام امين عبد العزيز الجزيري	١
محمد رشاد عبد القادر محمد	٨	عبد الرحمن رشاد عيد سرحان	٢
محمد سمير عبدالمنصف المعداوي	٩	عبدالله محمود سامي احمد محمود يوسف	٣
محمد عثمان محمد عيسي	١٠	عيد جمال عيد طاحون	٤
محمد سامي محمد الجزيري	١١	علي جمال نصر الدين عطية	٥
		عبدالرحمن كمال احمد فرحات	٦

Abstract:

We chose electrical installations as our graduation project because this field is an integral and indispensable part of our lives. We applied electrical installations to an administrative building. We designed a solar system in order to save electrical energy consumption. We have done this by Using specific programs such as AutoCAD and DIALux to distribute lighting, lamps, electrical sockets, light current systems and Earth system, Using panel schedule Excel sheet to determine circuit breakers rating and cables dimensions , Using ETAP program for Voltage Drop and Short Circuit calculations , Using Sketch UP & PV sys. Programs to design the solar system and Using Microsoft Excel program for Earth system calculations, load Estimation and Bill of Quantity. Through that we Obtaining a set of designs for the building , Obtaining a set of sheet Excel containing the calculation for the building and Saving electricity by using the solar energy system.

عنوان المشروع :

Design of Electrical Installation for Five Stars Hotel

المشرف: أ.م.د/ عرفه منصور

فريق العمل			
احمد خالد علي الورقي	٩	إبراهيم حمدي ابوالعينين الأصفر	١
احمد خالد نبوي الدهيمي	١٠	احمد سامي عبد المنصف أبو شريف	٢
اسلام خالد حلمي احمد	١١	احمد سعيد فتحي شاهين	٣
إسلام عبدالرازق سليمان عنبر	١٢	إبراهيم عيد محمود زنكل	٤
اسلام عفيفي زكي صالح	١٣	إبراهيم رضا إبراهيم الفقي	٥
اسلام علي علي محمد	١٤	إبراهيم عادل إبراهيم عفيفي	٦
محمد احمد عبد العليم جويلي	١٥	إبراهيم عبد المنعم مصطفى الشامي	٧
مختار محمد سالم بسيوني	١٦	احمد حمدي سالم السيد	٨

Abstract:

This graduation project aims to design the full electrical installation system for five stars hotel, provide drawings of a proper design of lighting, sockets, power outlets, feeding circuits and single line diagrams, and provide necessary tables and charts of electrical boards and loads schedules. In addition, the project includes designing low current systems including fire alarm system, data system, telephone system, CCTV system and master antenna TV.

عنوان المشروع :

PLC-based Control of Sorting Machine

المشرف: أ.د/ اشرف صلاح الدين زين الدين

فريق العمل			
محمد احمد رضا عبده سليمان	٧	عبدالرحمن محمد هلال علي	١
محمد ابراهيم محمد حتوت	٨	احمد عادل رزق عبدالرحمن	٢
لبيب أسامة لبيب عبد النبي	٩	احمد محمد احمد حسن ابراهيم مرعي	٣
محمد السيد عبدالكريم رشوان	١٠	احمد محمود وهبة شلبي	٤
محمد أسامة عبدالرحمن ندا	١١	صبري شعبان منصور عبد القوي الشاعر	٥
محسن رمزي عبدالحميد مالك	١٢	محمد علاء ابو زيد عبدالعاطي حسن	٦

Abstract:

Sorting is an important thing in which any items or products can be differentiated based on their size, height and color. In order to sort items, we need to be able to compare them, i.e., to determine whether the object coming through the conveyor is smaller, greater, or equal to the respected height. Here we are going to do a simple object sorting system using the Programmable Logic Controller (PLC). The system consists of a conveyor model in which the sorting process takes place. The product will be coming through the conveyor system to the sensing part, based on the height of the object the product will be sorted through the conveyor system by using the Programmable Logic System (PLC).



عنوان المشروع :

PLC-Based Smart Car Washing Machine

المشرف: أ.د/ اشرف صلاح الدين زين الدين

فريق العمل	
١	احمد ابراهيم محمد البحيري
٢	احمد خميس قطب اسماعيل
٣	محمد انور محمد ابراهيم سرور
٤	محمد حامد مرسي حفني
٥	محمد صلاح عبد الغفار عبدالحافظ
٦	محمد عابد عبدالعظيم خيرالله
٧	محمد علي احمد البلوني
٨	محمد علي شحاته البي
٩	محمد عماد صلاح عافيه
١٠	محمد عماد مصطفى مرسي
١١	محمد عنتر مرسي خلوصي
١٢	محمود عماد صلاح محمد سالم عافيه

Abstract:

This graduation project aims to design and implement a smart car washing machine model. The project consists of the following Items (Programmable logic controller (PLC), DC motors, Mechanical frame, 3-phase induction motor, Compressor, Inverter, Valve, Sensor, and Limits witches). Simulation, Modelling of the project are presented Experimental set-up of the project is presented. Finally, smart car washing machine model project is tested.

Description of the project in brief:

A push on start button and sensor detects the car. Compressor lifts the car. Dc motors make brushes rotate to clean car. Use inverter to control speed of induction motor to move the upper part (which has brushes) in forward and reverse. Upper part barges into limit switch at forward mode and reverse mode. Finally, compressor is off then immediately the lifted part that car on it move down and every part of project is off.

عنوان المشروع :

PLC-Controlled Assembly and Warehouse System

المشرف: أ.م.د/ تامر فتوح عطية

فريق العمل	
١٣	احمد مصطفى محمد زيدان
١٤	احمد ابراهيم عبد الرحمن السيد
١٥	احمد حمدي احمد خليل
١٦	احمد حمزة علي خفاجي
١٧	احمد خالد عبد الرؤوف عزام
١٨	احمد خليفة بسيوني خليفة
١٩	احمد رمضان رزق ع شماوي
٢٠	اسراء جمال عبدالحميد جعفر
٢١	السيد عبدالعزيز السيد عبدالعزيز
٢٢	امنية توفيق السيد احمد
٢٣	انجي صابر عبداللطيف الدهيمي
٢٤	بسنت عادل حلمي توفيق مشعل
١٣	حسان محمود محمود ابراهيم
١٤	شاهر عبدالله عبد الجواد غالي
١٥	صلاح سامي عبدالعال خلاف
١٦	عبدالرحمن عصام محمود احمد رزق
١٧	محمد ابراهيم محمد عسر
١٨	محمد احمد عبد العزيز صالح
١٩	محمد ثروت علي زغيمر
٢٠	محمد طارق محمد خلاف
٢١	مصطفى شعبان حسنين معوض
٢٢	نبيل عاطف الصاوي تركي
٢٣	هاجر محمد الصاوي الخلوي
٢٤	هايدي قاسم فرماوي الصيفي

Abstract:

Automation is very important for control the industrial processes in factories and machines. Programmable Logic Controller (PLC) plays a significant role in the automation processes through the control of production, assembly lines and warehousing systems.

In this project, the complete design and implementation of an assembly and warehousing system is introduced. Siemens S7-300 PLC is used to produce the control actions. The mechanical system, power circuit and control circuit are designed, implemented, and tested for appropriate operation of the system.

The industrial process starts by assemble two parts (base and lid) to produce the final product using the assembler. Then the final product is transferred to the warehousing system using a stackable box. The box is transferred to the target position in the warehouse. This process continues until the warehouse reaches its full capacity.

عنوان المشروع :

Drone Design and Problem Solving

المشرف: أ.د/ عطية السباعي

فريق العمل	
أحمد جمال فؤاد	١
محمد محسن نصار	٢
محمود زين العابدين طه	٣
إسلام كمال أحمد عمر	٤
أميرة حمدي محمد بعيزق	٥
أسامة نبيل الجداوي	٦
مصطفى رضا الشاعر	٧
أحمد فتحي مدين	٨
مصطفى أحمد محمد عبد السلام	٩
نادر عادل محمد عبد الله	١٠

Abstract:

In the last few years, communications and electronics technology has developed greatly and its price has been cheap, and one of its manifestations was drone. The drone appeared because of the urgent need for it, as it can be used to deliver aid in remote areas, photograph hard-to-reach areas, and even use it recreationally and at parties.

In this book we deal with two main subjects:

- First subject deals with the components of the system and the method of communication between its parts in a theoretical way.
- Second subject deals with the design of the drone in a practical way and some of design problems that we faced and how to solve them.

عنوان المشروع :

Advanced Control of Electric Power Systems by Means of Fuzzy Logic Methodology

المشرف: أ.م.د/ رجب أحمد عبد العزيز

فريق العمل			
احمد محمد السيد صلاح ابويوسف	١٠	عمار ياسر محمد حسين عزب	١
احمد وجيه عبد الهادي سالم	١١	عمرو محمد فوزى مصطفى ابوالخير	٢
اسلام حماده عبدالله الفوال	١٢	فتحي سعيد فتحي احمد	٣
اسلام محمد عابدين جادالله	١٣	كريم حسين منصور الهلباوى	٤
شيماء السيد ابوالفتوح الفقي	١٤	كمال ضياء الدين كمال عافيه	٥
شيماء مهدى عبدالخالق داود عبدالحى	١٥	محمد على فوزى على خلف	٦
صفاء شعبان محمود المنوفى	١٦	نورهان محمد محمد سيف	٧
عبدالحميد الدسوقي عبدالحميد سعيد	١٧	يوسف مجدى سيد احمد غباشى	٨
على شلبى على مرسى عطا			٩

Abstract:

Modern electric power systems are large scale systems with a complex structure comprised of meshed and interconnected networks to guarantee adequate load supply. Power systems are continuously subject to unpredictable and sudden operating point variations due to changes of generation and fluctuation of loads. Switching of lines or increasing such loads in the system. The aim of management and control is then to plan, coordinate and quickly perform suitable and effective actions on the system with respect to its limits as Such disturbances will initiate low frequency power system oscillations which should be consequently endangering the overall stability of the system. Control methods we applied to achieve the system stability is PSS, PID Controller and Fuzzy logic methodology.

عنوان المشروع :

Pumping Systems Based on Three Phase Induction Motor Fed by Solar Energy

المشرف: أ.د/ عوض السبع

فريق العمل			
عبد المعبود جمعة عبد المعبود	٦	أحمد إبراهيم كامل الشنوفي	١
فهمي ماهر فهمي ندى	٧	أحمد زكي محمد	٢
محمد سالم فرج أبو غنيم	٨	أحمد عادل أحمد الشوا	٣
هشام رفعت السيد غالي	٩	أحمد عادل أحمد محمد	٤
		أحمد طارق محمود سلامة	٥

Abstract:

The main objective of this project is the design, simulation, and testing of a single-phase and three-phase inverter for educational purposes. In order to achieve this, the first step is a theoretical reminder about inverters. The most important task in this project is the implementation of the PWM modulation digitally. For this purpose, the way to obtain the PWM signal from the Arduino board is explained. After that, Proteus simulations are carried out in order to have a better idea about the results expected. Once the theoretical simulation is made, the circuit should be built into a protoboard for real testing.

عنوان المشروع :

Single Switch High Voltage Gain DC-DC Boost Converter

المشرف: أ.م.د/ عرفه منصور

فريق العمل			
احمد متولى أحمد شادي	٦	محمد مصطفى رشاد مصطفى صبره	١
احمد سامح عبدالمطلب عامر	٧	محمد هشام محمد صابر بدر	٢
احمد صبحي عبدالستار جدوع	٨	محمد يحيى محمد السيد علي	٣
محمود ابراهيم محمد حفناوي	٩	محمود محمد سعيد معوض	٤
محمد وجيه سعيد محمد عبدالله	١٠	يوسف حسين أحمد السيد	٥

Abstract:

In this project, high gain DC-DC boost converter is proposed. The proposed converter has only one switch with continuous input current and reduced voltage stress across switching devices. The operating range of the duty cycle is wider, and it obtains a higher gain at a lower value of the duty cycle. Moreover, the converter has higher efficiency at a lower duty cycle while drawing a continuous input current. The continuous input current is a desirable feature of the dc-dc converter making it suitable for solar photovoltaic applications. The proposed converter is compared with other similar recently proposed converters on various performance parameters.

The performance of the proposed converter is verified by simulation and experimental testing. The system modeling on MATLAB/Simulink is carried out to evaluate the proposed circuit performance. An experimental system is established in the laboratory. Simulation and experimental results are presented to evaluate the accuracy of the proposed circuit.

عنوان المشروع :

Performance Evaluation of Distribution Network Including Photovoltaic Sources

المشرف: أ.م.د/ هبه خطاب

فريق العمل	
١	دينا محمد فوزي شاهين
٢	دينا مختار محمد ابو حسين
٣	مروه ابراهيم سعد الليثي
٤	ندي احمد جميل عبد الفتاح
٥	عبدالله عبد الرحمن شبل فايد
٦	محمد وليد عبد الحميد ابو اليسر

Abstract:

Distributed generations (DGs) play an important role in distribution networks. Among many of their merits, loss reduction and voltage profile improvement can be the salient specifications of DG. Studies show that non-optimal locations and non-optimal sizes of DG units may lead to losses increase, together with bad effect on voltage profile. So, this project aims at determining optimal DG allocation and sizing. The optimal location is determined based on two indices which are combined loss sensitivity factor (CLSF) and voltage stability index (VSI). Simulations are carried out on the well-known IEEE 33-bus and 15-bus radial distribution networks. The Simulated result compares between all proper placement and sizing of DG from the viewpoint of losses reduction in the system and voltage profile improvement and thereby enhancing the performance of distribution networks.

عنوان المشروع :

Enhancement of Distribution Systems Performance using Modern Optimization Techniques

المشرف: د/ محمد موافي

فريق العمل			
محمد علي السيد عبدالجليل	٧	مصطفى محمد عبدالغني عبدالله شاهين	١
محمد الدسوقي أحمد حليلة	٨	محمد خالد أحمد سلطان	٢
محمد رجب عبدالمعطي خفاجة	٩	محمد ربيع عبدالحميد محمد الشيخ	٣
مصطفى أحمد صبري أحمد العشماوي	١٠	مصطفى محمد عبدالغني ندا	٤
اسلام جمال حسين الاغا	١١	محمد فكري محمد عبدالوارث زهران	٥
		محمد عمادالدين عبدالنبي عبدالله	٦

Abstract:

This project presents a procedure to determine the optimal placement of DGs and capacitors with an objective of power loss minimization or total voltage deviation minimization. The Archimedes Optimization Algorithm (AOA) is introduced to find the optimal locations and sizes of DGS and Capacitors considering the minimization of total power loss or TVD as objective function, while the security and operational constraints are fully achieved. The backward/forward sweep (BFS) algorithm is introduced for the load flow calculations. The proposed procedure is applied on 34-bus standard radial distribution system and East Delta Network (EDN) distribution system as a part of the Unified Egyptian Network (UEN) in order to solve the optimal DGs and capacitors placement problem. The obtained results are compared with other methods. Simulation results show the capability of the proposed procedure to find the optimal solution for significant minimization in the objective function with more accuracy and efficiency.

عنوان المشروع :

Simplified Technique for Detecting Faults in Photovoltaic Power Systems

المشرف: أ.د/ ناجي القلشي

فريق العمل	
١	عمرو شعبان عبدالرؤوف زيد
٢	مصطفى فؤاد يوسف حوا
٣	إسلام جمال الدين عفيفي فرحات
٤	أحمد محمد حسن الخولي
٥	شريف أشرف السطوحي عنب
٦	سمير نبيل يعقوب سليمان
٧	عمرو جمال جمعة زيد
٨	عبدالله شرف صلاح الدين
٩	عبدالناصر سيد رشدي محمد

Abstract:

In this project, a fault detection technique is proposed to detect faults in the photovoltaic (PV) power systems. The project is concerned with studying the characteristics of the PV modules, PV fault analysis, PV fault diagnosis, and PV fault detection. The proposed fault detection technique is based on the dynamic operation of the involved series diodes with the PV strings. During internal string faults, the faulted string is isolated due to its diodes reverse condition. For the string-to-string faults, a diode of each involved faulted string is reversed, where this interaction operation of diodes is utilized for the fault detection. A comprehensive simulation is built for internal and external faults, and the performance of the system is analysed. An experimental set-up is built for the experimental verification. The project motivates the students to deal with PV strings connections, validation tests, constructing processing solar system with fault detection and simulation before any procedures. The results provide evidence of the efficiency of the proposed fault detection technique.

عنوان المشروع :

Protection of Transmission Line using Advanced Techniques

المشرف: د/ محمود الجمسي

فريق العمل			
محمد حسين عبدالغني المغربي	٧	حمدي علي عبدالمنعم رمضان	١
محمد خالد احمد فهيم عطية	٨	عمر عبد العزيز شحاته شعيب	٢
حازم حسن محمد الرفاعي	٩	عز عبد الله شفيق ابراهيم	٣
احمد عبدالعظيم محمود خالد	١٠	باسل ابراهيم رزق محمد	٤
سلام عماد الدين محمدى احمد	١١	اسامة احمد محمد احمد احمد	٥
		زياد محمد سعيد ابراهيم الدجوي	٦

Abstract:

This report discusses transmission line protection using advanced different techniques for faults under various conditions. The protection scheme is based on fault detection, line identification, and fault type classification by the methods introduced in this report. All algorithms and computations in this report are based on the IEEE 9-bus model which has been widely used to represent transmission lines in previous research and books. The first method is distance-based protection which depends on the impedance caused by fault and seen by relays in the faulted line. The second method is directional-based method to detect the faulted section. The third method is the wavelet transform and analysis to detect the faulted lines in the system using a threshold value for the processed signal and current directionality to specify the faulted line from any other lines. Additionally, the artificial neural network is introduced as a confidential concept for simulated and trained different fault cases. Furthermore, a support vector machine method is represented for fault detection and location identification based on the virtual machine concept. Eventually, a prototype represents an IoT solution for protection systems to exemplify a simple real-life application.

عنوان المشروع:

Smart Precision Agriculture

المشرف: أ. د/ أحمد عبد الله

فريق العمل			
١	احمد حلمى عبد الحميد شلتوت	١٢	كريم مجدي صابر حماد
٢	احمد عادل عيد طلبه	١٣	ماهر رمضان منصور
٣	احمد محمد محمد	١٤	محمد ابراهيم عثمان الغنيمي
٤	احمد مصطفى كامل البغدادي	١٥	شريف احمد محمد أبو العزم
٥	احمد ممدوح عيد مرسى	١٦	طارق نوح ابو النجا
٦	ايمان احمد فتحى هلال	١٧	محمد حسب الله سليمان
٧	تقي محمد محمد شبل	١٨	محمد حلمى عبدالعليم احمد
٨	حسام السيد عباس لحمه	١٩	منار طارق صابر
٩	سلمي فوزي امين امين	٢٠	نيرة عصام عبد القادر
١٠	فاطمة رضا محمد علي	٢١	هند رجب حسين طه
١١	فتحي اشرف العطار		

Abstract:

This project presents the design and economic analysis of a solar PV smart precision irrigation system, the adopted approach was made in such a way that can be applied to any area. Also, the investigation of the environmental impacts of solar PV smart precision irrigation systems was done.

Design and build two prototypes had been done, which are: 1. The smart garden monitoring and control system prototype. This prototype was powered entirely by solar PV, fully automatic, and provided with a monitoring system to reduce costs and maximize efficiency. 2. Automatic weeding robot prototype for detecting and removing weed as well as checking the plant health. The smart garden monitoring and control system prototype was built to simulate smart precision irrigation system. Results of the smart precision irrigation prototype showed that the application of VRT reduced the use of inputs and air pollution. It was also shown that using color sensors and weed seekers achieved big savings in herbicide; reducing costs and significantly achieving environmental benefits. Finally, it was shown that the solar PV precision irrigation method cut down the consumption of energy, saving water and a significant reduction in CO2 emission.



عنوان المشروع :

Design and Investigation of Grounding Systems in Multilayer Soil

المشرف: أ.د/ نحمده صبيحه

فريق العمل	
١	محمد مصطفى اسماعيل شنيشن
٢	محمد مرعى محمد احمد عيد
٣	عبدالرحمن حسن يوسف الصديق
٤	احمد نصر السيد على عطوه
٥	محمود السيد سعيد حسن
٦	محمود حسنى فرج عبدالمقصود
٧	محمود عبدالله شحاته شحاته
٨	مصطفى علي مصطفى محمد خير الدين
٩	مصطفى محمد محمد السيد جنيته

Abstract:

In this project, the grounding systems embedded in multilayer soil are accordingly designed and investigated considering a simple pit, a substation as well as wind turbine. The design procedure of grounding systems is discussed. The grounding pit is designed considering uniform and multilayer soils. A treatment of soil using bentonite is studied for different allocations along with the electrode length. Also, the effectiveness of the protective surface layer on maximum permitted step and touch voltages are investigated. For a large area such as a substation, the corresponding grounding system is designed based on the IEEE80-2000 standard for square grids with and without ground rods embedded in uniform or multilayer soils. The grounding systems are investigated concerning their grounding resistance, surface voltage, and electric field profiles. For renewable energy, the Zafarana wind farm grounding system is modified with two suggested configurations of wind turbine grounding. These modified systems are compared with the actual and published systems concerning grounding resistance, surface voltage, and electric field profiles. Finally, maintenance of grounding system is declared. COMSOL multiphysics and MATLAB software are utilized. The grounding systems are designed using the Finite Element Method (FEM) using COMSOL Multiphysics. The results of grounding resistance, surface voltage and electric field profiles are exported to MATLAB for analyzing. The evaluated performance of the designed grounding systems confirms ascertained the standard rules.

عنوان المشروع :

Inverter Fed Permanent Magnet Synchronous Motor

المشرف: أ.د/ فتحي عبد القادر

د/ ميرفت عبد البر

فريق العمل			
١	ابراهيم ناصر ابراهيم الجندي	٧	محمد صابر متولى احمد موسى
٢	احمد صبري عبد المحسن عبد الجواد	٨	محمد عيد محمد عبد الله مرسال
٣	عبد الحميد عبد الفضيل صبحى عبد الفضيل	٩	محمد ماهر السيد الدسوقي
٤	عبد الله السيد عبد التواب حسيني	١٠	محمد مجدى محمد عبد الجواد
٥	عبد الله حسن عبد الله عشوش	١١	محمود فكرى شرف عبد الحلیم علام
٦	محمد جابر محمد نصار		

Abstract:

This report discusses Feeding the PMSM motor by inverter and studying its properties and comparing them with the induction motor, which the inverter is one method of starting methods of permanent magnet synchronous motor, the theoretical study of PMSM done by using MATLAB simulation and the experimental study of PMSM done in the laboratory in two groups, first at constant frequency and varying load, Second at varying frequency and varying load.