Smart Automatic Transfer Switch

Students

(1) Mohamed Mahmoud Ahmed Elmeleigy
(2) Eslam Meshref Mostafa Allam
(3) Hesham Mohamed Mohamed Elmergawy
(4) Mostafa Abdelfadeel

Supervisor

Prof. Hamdy Ashour
Electrical & Control Eng
College of Engineering & Technology
Arab Academy for Science and Technology

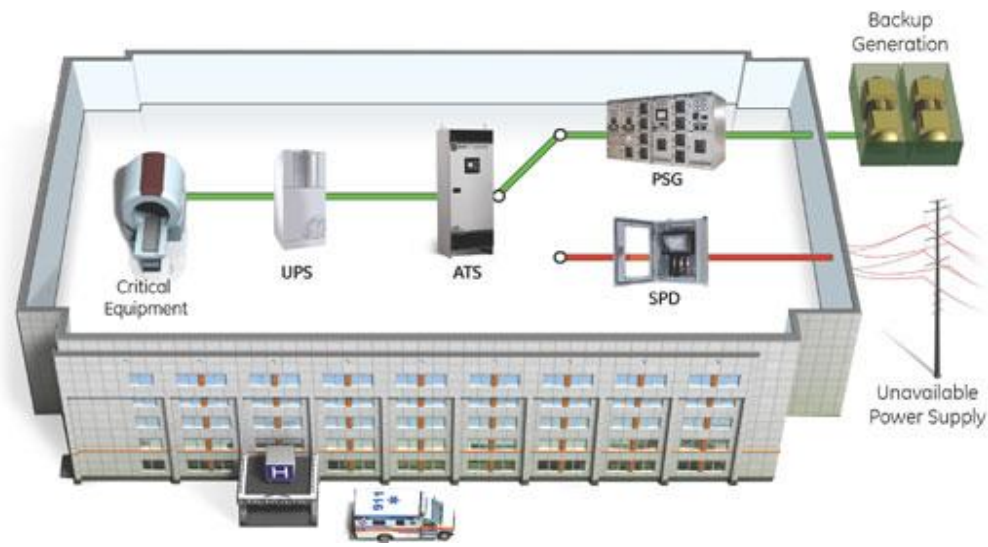
Abstract

Feeding different loads in the power distribution systems, such as residential, commercial and industrial areas, depends on the requirements and importance of each load. Some loads maybe only fed from the main source while others could be fed from different backup sources. Standby power is an integral part of many industrial and domestic electrical systems. High energy prices, energy demand increase and aging power systems have been the prime movers or the growth of standby power sources. Every load that is connected to the grid and backed up by a generator set needs a transfer device for commutating the power sources when needed. With recent research and development of smart grid technologies, smart transfer switch has been introduced as a part of such smart system.

The work through this project will cover:-

- Understanding the concept of smart grid technologies.
- Review of different applications of ATS system.
- Study requirements for smart devices.
- Simulation analysis of the proposed setup.
- Experimental implementation of a prototype hardware system.

Keywords: Automatic transfer switch, Smart grid.



Energy Management in Industrial Facilities

Students

(1) Sameer Osama Ibrahim Mohamed Eid
(2) Sherif Salah Eldin Ali Mohamed Hassan
(3) Hany Badr Eldin Emara Nayel

Supervisor

Dr. Waleed Ghoneim
Electrical & Control Eng
College of Engineering & Technology
Arab Academy for Science and Technology

Abstract

In Egypt, industrial, commercial and governmental organizations will all be under tremendous economic and environmental pressures in the coming few years. Building their economic profits on subsidized energy rates is critical since these profits will not remain if all or part of the subsidizing is removed. Thus, being economically competitive in the global marketplace, then meeting the environmental standards to reduce air and water pollution will be the major driving factors in most of the recent operational cost and capital cost investment decisions for all organizations. Energy management is an important tool to help organizations meet these critical objectives for their short term survival and long-term success.

The main objective of this project is to study and implement part of the concepts of Energy Management in industrial and commercial facilities.

The work through this project will cover:-

- The Value and Profession of Energy Management
- The Effective Energy Management Conditions
- The Standards and Codes
- Energy Auditing Equipments and Components
- Control Systems
- Electric Energy Management
- Energy Management Control Systems
- Economic Analysis
- Case Studies
- Conclusion and discussion

Keywords: Energy Management, Industrial Facility.

Grounding MAT Design of Medium Voltage Substation

Students

(1) Ahmed Essam Hussein
(2) Mahmoud Ayman Abdelhalim Elsayed
(3) Mahmoud Mohamed Adham Mohamed
(4) Mohamed Abdelrashid Ahmed Hagag

Supervisor

Prof. Hussein Eldessouky
Electrical & Control Eng
College of Engineering & Technology
Arab Academy for Science and Technology

Abstract

Precise design of grounding MAT for medium voltage substation is mandatory to achieve safety requirements of people and equipment inside the substation.

The work through this project will cover:-

- Design grounding mat using MATLAB for medium voltage substation.
- Achieve the safety requirements of people and equipment.
- Case study verification of step voltage, touch voltage, and transfer voltage.

Keywords: Energy Management, Industrial Facility.