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Thanks, and appreciation for us to forget tiredness and misery, and to fill us with happiness and good feelings

We thank God for progress and success on this path.

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Here we are a group of six people who came from different countries as well as different languages ​​and ages to study electrical engineering major at Near East University located in Cyprus.

We would like to thank our university for granting us this opportunity. Whoever gives us a favor, we must meet charity with charity.

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**ABSTRACT:**

Technology and its changes are among the most important aspects affecting the fields related to human life, such as science, history and human lifestyle. Changes in the way of life are related

Therefore, we had to find solutions to some disasters that lead to damage and a long power outage due to weather events that lead to these damages, and many electrical systems were discovered and electrical systems considered to be important systems that operate during the necessary emergency situations in various weather situations and with the passage of time not We find a solution to the causes of power outages.

But after the discovery of these systems, they proved their importance in many places such as factories, banks and hospitals with important loads and are more reliable.

Design and simulation of a critical load generator backup system to be used in the event of a generator mains power failure and comes as a system to work as an alternative in an emergency.

**INTRODUCTION:**

In the beginning, electricity is one of the most common sources of energy in the world and it is considered one of the most important basic and indispensable resources at the present time and how life was in the past without the invention of electric energy where the world was before the discovery, the electric energy was very dark and different, and people used candles to light and burn with oil They also used drying to provide food instead of cooling, and they used the stove that works on wood, and people's lives were very difficult and there was a lot of suffering as electrical energy was discovered and these are discoveries that changed human life for the better and provided an easier life than they are used to and that electric energy has a function Fundamental and now the world is witnessing a revolution in development, and we are witnessing in more than one field, and this function continues to enter it as a major and indispensable operator in these areas.

We want to say that electricity is the lifeblood of the world, so we can say that there is no life or that it is a primitive life.

Electricity eliminated the difference between day and night and thus provided more time for people in addition to its contribution to many human activities that save their lives, which makes it easier and more comfortable to use a lot of electronic devices that rely on electrical energy in their work, such as refrigerators that are used to save Food and the use of electrical energy has a great role in hospitals, medical and medical tools, and I want to point out that development has reached the Internet that depends on it on electric energy, so electrical energy is a major source in life and it has entered our homes and the production of electrical energy sources depending on the primary sources of life By wind and tidal energy, I mean generating energy by motion, which is a conversion from mechanical energy to electrical energy, and in recent days, diesel generators have been discovered.

Here we will talk about an integrated system that works in the event of a power outage from the place or site that works as an emergency system that we cannot do without, so this system depends on generating electricity on diesel generators, and why were diesel generators chosen? Diesel generators are stronger in terms of torque, longer operating life and lower operating cost compared to other generators, and this system is highly reliable as well as high efficiency.

Our job in this project is to simulate this system on MATLAB software and make sure it works and we'll talk in detail about how to simulate this system later.

**CONTRIBUTION:**

We use electricity constantly in our daily life. It is worth noting that electricity is one of the most important blessings that God gave to mankind. It has also become a part of modern life and one cannot think of a world without it and we in this world are experiencing significant and remarkable development stages in electrical energy in terms of Ease of use and importance at the site, the existence of such a system of generators that act as an alternative source, and why do they require the availability of such a system at the site because the sites need such a system where there are important loads that cannot be separated from energy and that these loads need to continue to supply electricity in them and it is not possible Doing it and that this system has proven its work in the indispensable place and now we will see a lot of uses for this system.

Where can we use the electrical system?

We can use it in many locations that are greatly affected by power cuts that affect the lives of people, such as hospitals and health centers that use medical devices and which have a lot of loads and which cannot cut off the electricity and in any of them because it negatively affects the lives of people and hospitals from places Which cares about people's lives and there are many rooms that take care of patients, such as operating rooms, recovery rooms, and the emergency department that receive a lot of patients and at any time when patients come and imagine with me that a patient in the operating room has been cut off from the ventilator will die, and therefore the existence of such This system in hospitals is very important and another use is one of the important uses in factories and it is considered a high cost for the state or the owner of this factory consisting of a lot of machines and machines that require more care and if the power outage can suddenly lose this plant, it leads to damage where it is estimated. Its value in the millions without an alternative source of electrical energy to maintain these machines.

Banks are intermediary financial institutions that facilitate the process of supply and demand for money, and it is one of the most necessary places to use such a system because they deal in currency rates and we know that currency rates vary at every moment and they have customer data on stored computers, and the electrical current in the bank cannot be cut because this It can cause people to lose their money and lead to loss of the bank at any point of a power outage.

Transport is an important element in the world and it connects cities and is used by people on a daily basis. There are trains that depend on electricity and continuity of work that facilitate the movement of people and prevent disasters and in the event of a power outage without another source of energy disrupts the interests of the people.

In the presence of urban development in the world is building huge high-rise buildings and these German uses a lot of devices, including water pumps that work to transfer water to apartments inside these buildings and there are also electric elevators that depend mainly on electricity and used to transport people inside high buildings from one floor to another and we can not separate the electricity supply because it is dangerous and the elevators will be disrupted.

Technology and television has evolved as a means of influence and change in society, it has evolved, it has evolved, it has become a tool for education, communication between people, as well as a tool for communicating information, news, entertainment, entertainment to all people around the world and the influence of technology surrounded by the world of inventions and devices on education and religion, where the world has now become a small village, where people since the invention of television have become able to communicate with each other, and know the news of people around the world and any wherever the world, it invented television played a big role in the convergence of People and influence on political and global views and religious beliefs, and with the speed of development people began to touch these developments and live television broadcasts on television channels and that television is linked to his work in conveying information to the listener on the continuity of the power supply and here comes the importance of the system of precautions and currency in television stations.

Cooling stores are the process of producing low temperatures, and occurs when the heat of the material is removed. Cooling can be done using ice, ice, or machinery. People have used for thousands of years some kind of cooling, to cool drinks and to save food and the refrigerator is considered one of the most important devices existing in order to save fast food corruption and cooling reduces the proliferation of bacteria, bacteria are present naturally everywhere around us they are present in the soil, air, water and in the food we eat, and when the factors supporting their growth such as: food, humidity and appropriate temperatures, they grow and multiply rapidly and may reach the growth rate of some to a certain degree of infection and we did not maintain On these foods and can lead to the great loss of the owners of these stores and cold stores are expensive and the principle of the work of new innovation such as this electrical system that maintains continuity in the work of these stores.