

Development of Escalator Using Renewable Energy Resources

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ABSTRACT

Electricity is one of the most important resources in the life of a human. Especially now that we have entered the 21st century, there is hardly anything that does not work on electricity. However, due to the huge demand for electricity worldwide, it has become hard to produce electricity and provide it to everyone. However, if proper steps and measures are taken to save electricity then it is possible that both future generation and mankind can use them. This system helps in contributing to save and electricity by using natural resources such as, AIR, WATER, and SUNLIGHT. The escalator works on electricity generated by sunlight, wind and water droplets.

I. INTRODUCTION

Energy is the basic need of human being. Humans revealed the new path in sciences by using conventional energy sources and non-conventional energy sources. However, most of the innovation depending upon conventional energy sources gets affected on environment and human health in running days. We are interested to turn science into green science by using non-conventional sources. Sun, wind and water is clean source of energy which is inexhaustible. The aim is to take advantage of available renewable energy source to convert solar energy, wind energy and water

energy converted into electrical energy we use a clean source to generate energy for an escalator to run. By this, not only energy is generating without pollution but also at the same time, the energy is also saving. This is very economical for commercial complexes. Energy comes in different forms. Light is a form of energy. So is heat. So is electricity. Often, one form of energy can be turned into another. This fact is very important because it explains how we get electricity, which we use in so many ways.

II. MOTIVATION

Currently, the electricity that makes your life comfortable, safe and convenient is mostly derived from fossil fuels - almost 80% of your energy is provided by coal, natural gas, and oil. But our planet took hundreds of millions of years to create fossil fuels, and there's only so much of it. And, at current and projected energy usage, it's all going to run out sooner than we'd like - oil and gas in the next 40 years of so, and coal within 150 years. we will run out of electricity if we continue to rely on the burning of fossil fuels to drive transportation, power our personal energy devices, control the temperature of our homes, or run our industries. The drastic increase in electricity in March 2020 is 126.12 but which is shown in the article clip below.



III. PROBLEM STATEMENT

There are few stations where the power outage will affect the working of escalator. If there is low power consumption while working of escalator may leads to lack of electricity and may sometimes cause battery down and may not run the escalator in an efficient way. The Use of the escalator in various public places under one single backup source may not have a very good performance and may lead to pausing of the escalator.

PROBLEM STATEMENT

According to **SANJAY JANGID et.al** [1] solar energy is generated by sunlight. It is a renewable energy source that is not environmentally friendly and never disappears. Every hour, enough solar energy reaches the earth to meet the world's energy needs for one year. Today's generation needed electricity every hour. This solar energy is generated for industrial, commercial, residential and other uses. You can easily extract energy from direct sunlight. So, it is very efficient and free of surrounding environmental pollution. In this article, we reviewed solar energy from sunlight and discussed its future trends and aspects. This article also describes the types of solar panels that work. Highlights the different applications and methods for promoting the benefits of solar energy.

According to **Ankita Priyadarshini et.al** [2] in recent years the petroleum products and the natural resources decays drastically, whereas the energy requirement for different applications increases day by day. In this modern age though technology develops, still there is shortage of electrical energy for electrical appliances available in rural areas. In this paper, authors have taken an attempt to use the renewable energy as solar energy to utilize in rural areas. The solar cell has been used to generate DC voltage that can support the dwellers in rural areas. Further, this voltage is stored in the battery. By suitable design of boost converter and filter this voltage has been converted to ac power supply for domestic use. This is helpful to run the fan, TV and can enlighten the rural areas. The result shows, the efficiency of the proposed method.

According to **Keskar Vinaya N. et.al** [3] today energy is the main inspiration for socio-economic development. But due to incremental rate of environmental concern renewable energy provide a significant interest. This alternative power source is continuously achieving greater popularity due to continuous reduction in fossil fuels. It is the energy comes from sun, wind, rain

etc. Among the non-conventional, renewable energy sources,

Solar energy affords great potential for conversion into electric power. Maximizing power output from a solar system is desirable to increase efficiency. In order to maximize power output, needs to keep the panels aligned with the sun. This paper deals with the electricity generation using solar power. The proposed system ensures the optimization of the conversion of solar energy into electricity by properly orienting the panel in accordance with the position of the sun. The operation of the paper is based on a Stepper motor intelligently moves a panel according to the light intensity of the sun sensing by light sensor.

According to **Mirela Panainte-Lehadus et.al** [4] Renewable energy refers to forms of energy produced by the energy transfer of energy resulting from renewable natural processes. In Romania, practically, the internal resources of oil, coal and natural gas are decreasing rapidly, and Romania is dependent on imports, a dependency that tends to increase dramatically in the coming years. Under the conditions imposed by the EU in terms of increasing the share of renewable energy (ER) in energy consumption at the level of each member country, Romania is in the process of implementing measures to help meet these objectives. The present paper aims to evaluate the potential for the production of electrical energy in a wind farm in the North East area of Romania for the purpose of using this data as a recommendation for future developments of wind energy projects in the region. Following the research, it was found that the North East area of Romania is an area with a high potential for producing electricity from wind sources.

According to **YING JIN et.al** [5] Electricity generation systems are dependent on water availability and planning for future water scarcity is currently hindered by limited data and predictive models. The Energy-Water-Emissions Dashboard (EWED) is an oval environmental data management system that integrates multiple heterogeneous data sources and provides information for nearly 10,000 individual power plants across the United States. This article describes our empirical research of using machine learning models for electricity prediction and water usage in the context of water availability constraints.

We evaluate the use of linear regression, decision tree regression, random forest regression, extreme Gradient Boosting (XGBoost), and Artificial Neural Network (ANN). Based on the performance evaluation of each model, we use

ANN for generation and water consumption and XG Boost for water withdrawal prediction in the production environment. Model performance evaluation is based on statistical measures including Root Mean Square Error (RMSE), Mean Absolute Error (MAE), coefficient of determination (R²), Wilmot’s Index of Agreement (WIA), RMSE-observations to Standard deviation Ratio (RSR), Nash– Sutcliffe model Efficiency Coefficient (NSEC), and Percent Bias (PBIAS).

According to Umama Farah et.al [6] Renewable energy, such as solar, is one of the main reasons for changing the scope of the electricity sector. However, their availability depends on the climate so they cannot be a constant source of producing electricity. Considering all these aspects, water is considered a steady source for generating power. The main motive of the system, proposed in this paper, is to generate hydroelectricity by utilizing wastewater through the recycling process. Different chambers are provided with exclusive features to make the recycling process for getting reliable and sustainable energy. One motorized pump has been incorporated to maintain the constant water flow during the recycling process

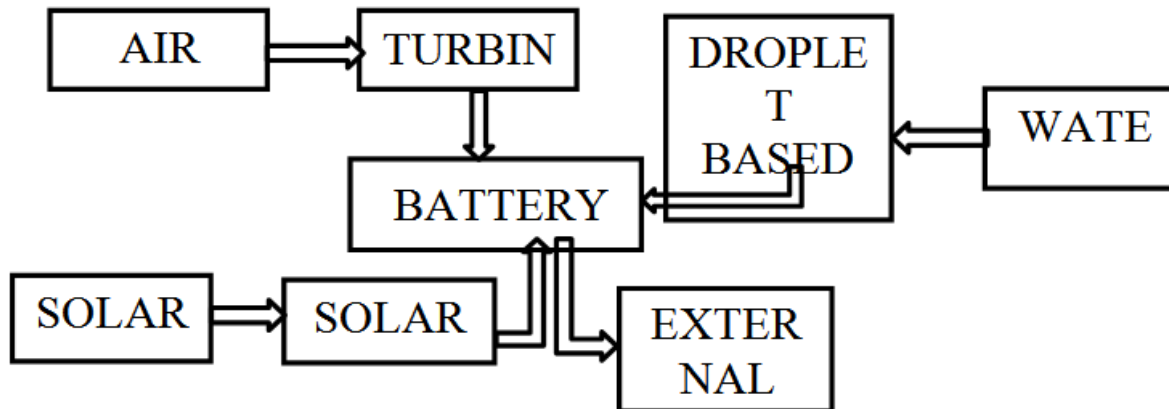
and this DC motor has been powered by the solar panel accordingly giving energy based on the utilization of sunlight. By utilizing this prototype device, a succeeding amount of electricity can be generated as an output with continuous recycling of water. Approximately, 119.3 mA of electricity and 12.69 volts DC controlled output can be measured after the proper implementation of the project. Therefore, 1.51 watts of power is possible to generate by utilizing this prototype device. Furthermore, one of the main utilizations of this project is to install it in the mosques where ablution water will be used as a flow of source as this water is not too much contaminated. Thus it can be a possible source for generating hydroelectricity.

Development Of Escalator Using Renewable Energy Resources

Objective

Our objective is to extract electricity from solar energy. To generate sustainable and reliable hydroelectricity, in absence of sun. The use of wind turbines to generate electricity. And Operating escalator using renewable resources such as wind, water and air

BLOCK DIAGRAM



The block diagram depicts the energy us being converted from one source of energy to an electrical energy. As the intensity of the sun light falls on the panel, the electricity is generated and can be stored within battery. The breeze, the turbine gets activated and conversion of the air to electrical is being done. Hence, based on the few drops of water that is the conversion of hydro-energy to electrical energy is accomplished. The energy which is stored in the battery can be used for various other applications.

IV. APPLICATION

ESCALATORS which run using renewable energy sources can be implemented in shopping malls, transit system (railway, metro and Airport), hotels public buildings departments stores . The energy generated by renewable sources can also be used for watching television, to heat the water, to run the appliances which we use in our daily life The energy from renewable sources can also be used in agriculture. Renewable energy

sources can also be used in small or large scale industries to run their machines etc. The energy generated from Renewable sources can also be used in military

V. ADVANTAGES

Renewable energy won't run out means Renewable energy technologies use resources straight from the environment to generate power. These energy sources include sunshine, wind, tides, and biomass, to name some of the more popular options. Renewable resources won't run out, which cannot be said for many types of fossil fuels as we use fossil fuel resources, they will be increasingly difficult to obtain, likely driving up both the cost and environmental impact of extraction. Maintenance requirements are lower for renewable energy:-In most cases, renewable energy technologies require less overall maintenance than generators that use traditional fuel sources. This is because generating technology like solar panels and wind turbines either have few or no moving parts or don't rely on flammable, combustible fuel sources to operate. Fewer maintenance requirements translate to more time and money saved. Renewable save money means the Using renewable energy can help you save money long term. Not only will you save on maintenance costs, but on operating costs as well. When you're using a technology that generates power from the sun, wind, steam, or natural processes, you don't have to pay to refuel. The amount of money you will save using renewable energy can vary depending on a number of factors, including the technology itself. In most cases, transitioning to the renewable energy means anywhere from hundreds to thousands of dollars in savings find out how much you can save by switching to solar energy

VI. CONCLUSION

Renewable energy sources at this moment are highly appreciated and their effectiveness has been recognized worldwide. To promote Renewal energy sources many states have developed and implemented policies and strategies which facilitate to these sources . Renewable energy sources are, at this moment, highly appreciated and their effectiveness has been recognized worldwide. To promote renewable energy sources, many states have developed and implemented policies and strategies that facilitate access to these sources in the electricity system and support investments in this area. Romania has initiated various actions with the aim of increasing its level of ambition regarding the share of renewable energy sources and energy efficiency objectives, Escalators are

now widely used in all sectors, but the power required to run the Escalators is relatively high and this leads to high maintenance. To avoid this we came up with our project to reduce the usage of electricity and also to make use of naturally available energy resources. The solar cells used in photovoltaic plants convert sunlight directly into electrical energy. Planning large facilities is a very complex process, however. This causes a problem, however, because increasing the distance between modules means fewer installed modules and thus less overall output. Planning engineers therefore have to make technical and economic compromises for a large number of parameters.

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