

Multienergy Resources Based Inverter Using Iot

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Submitted: 20-06-2022

Revised: 27-06-2022

Accepted: 30-06-2022

ABSTRACT: In modern time, multiple energy resources have come into the existence which include wind power technology, solar power generation, foot step power generation which has been growing widely. In present time there are many types. Improved Single Stage Grid Connected Solar PV System using Multilevel Inverter. In this project a microcontroller based grid tied solar inverter (GTSI) has been designed and developed. Keeping in mind solar that PV power is expensive with MOSFET switching has been used for higher DC to AC conversion efficiency. Here, microcontroller has been used. In order to synchronize the output voltage of the inverter with the Grid voltage, sinusoidal reference voltage for the microcontroller has been taken from the grid line. The microcontroller generates PWM signal which is modulated by the grid voltage.

Solar PV power is stored in a 12 V lead-acid battery which can be replaced by using maximum power point tracker. Solar DC power from the battery is feed to a switching circuit which is driven by the PWM signal. The output of the switching circuit is applied to the primary of a 18W step-up transformer.

Finally, the output of the step-up transformer is filtered by a capacitor. And here we used automation system which will turn on the lights depends on the light intensity of the room.

To do this automation we use LDR sensor which is connected to the micro controller.

I. INTRODUCTION

One of the major challenges that the European Union (EU) faces within the scope of sustainable development is the increasing energy demand patterns of cities. European cities should be places of advanced social progress and environmental regeneration, as well as places of attraction and engines of economic growth, based on a holistic integrated approach in which all aspects of sustainability are taken into account.

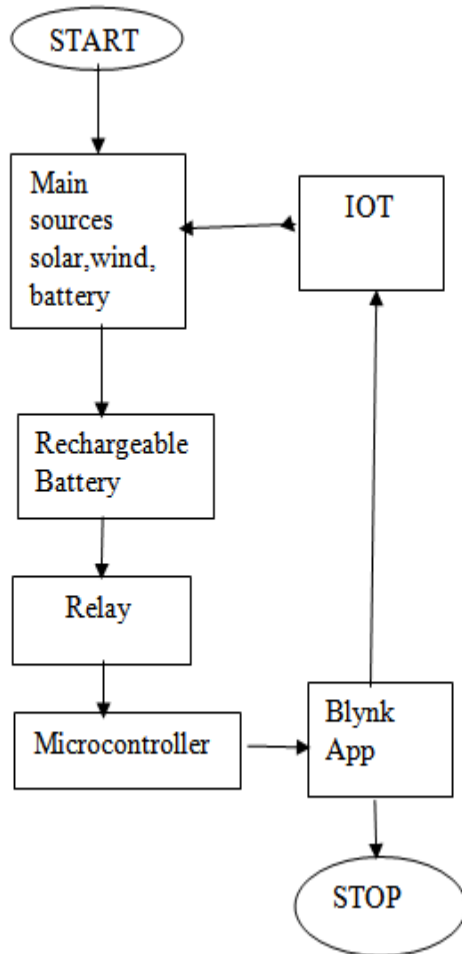
Cities are faced with a number of challenges associated with accommodation, atmosphere, transport and infrastructural development, making difficult for urban communities and cities to realize their objectives.

In recent years, cities have been turning to advanced technologies to become Smart Cities. This term is used to describe Information and Communication Technological (ICT) solutions for cities and to highlight ICT importance and potential in helping the city to develop competitive advantages. More specifically, Smart Cities are comprised of cities that work in frugal and sound ways, by incorporating every one of its substructure and administrations into a unified whole and utilizing insightful gadgets for observing and control, in order to guarantee maintainability and effectiveness. Energy demand is one of the most crucial and multifaceted problems for Smart Cities. As the quality of life is being improved, as well as the continuous increase of the population is given, it is obvious that the increase in energy demand is an irreversible situation.

II. EXISTING SYSTEM

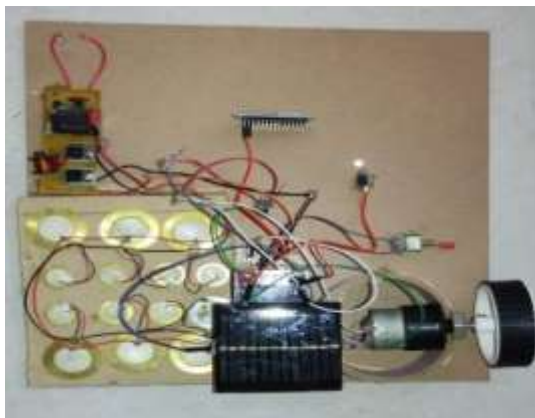
India still faces unprecedented energy crisis in rural and suburban area. The problems become more severe during summers. However, winter is no different as there was still an average power outage of 3-4 hours every day. Those without generators and UPS faced tremendous problems in these outages. The prices of both continued to increase due to a sharp increase in their demand. We are not using solar UPS as there replacement but it can be used as backup energy during grid failure. It also does no harm to environment. The sun shines bright throughout the year. Global solar Radiation estimates have been made for most parts of the world, and also for major cities of India which is essential for the optimum design of solar energy conversion systems and utilizing them with UPS applications.

III. MODELING AND ANALYSIS



IV. RESULTS AND DISCUSSION

The energy is stored in battery from various sources like piezo buzzers, solar and turbine. The maximum energy stored in battery is 14v.



Here it shows how to utilize the stored energy in the battery to the appliances like light, fan by using the LDR sensor and blynk app.



V. CONCLUSION

Our project “MULTI ENERGY RESOURCES BASED INVERTER USING IOT” has been successfully designed and tested. The Multi energy source UPS system using IOT is a very well-situated system for the customers who want to achieve UPS (uninterruptible power supply) from various sources like foot step, solar, generator, main, and Battery Powered. This System will Automatically Switch the Sources by the User through wireless IOT platform. Man has needed and used energy at an increasing rate for sustenance and wellbeing ever since he came on the earth a few million years ago. Due to this a lot of energy resources have been exhausted and wasted. Proposal for the utilization of waste energy of foot power with human locomotion is very much relevant and important for highly populated countries like India and China in future.

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