



Solar And Wind Based Street Light Controller And Automatic Irrigation

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Abstract— This project is all about to save power from sunlight and wind and to control the power consumptions at the streets and eliminating manpower. This includes controlling a circuit of street lights with specific Sensors, LDR and Microcontrollers during day and night, watering the plants at remote areas. The purpose of this project was to design a portable and low cost power system that combines both wind electric and solar electric technologies. This system will be designed in efforts to develop a power solution for remote locations such as rural. It is an imperative to design a hybrid system that will deliver sufficient watts of continuous power which is

enough to power a wide range of appliances and medical equipment.

Keyword- Irrigation, Sensors, Microcontrollers, Integrated circuit modeling, Cellular phones, Hardware,GSM

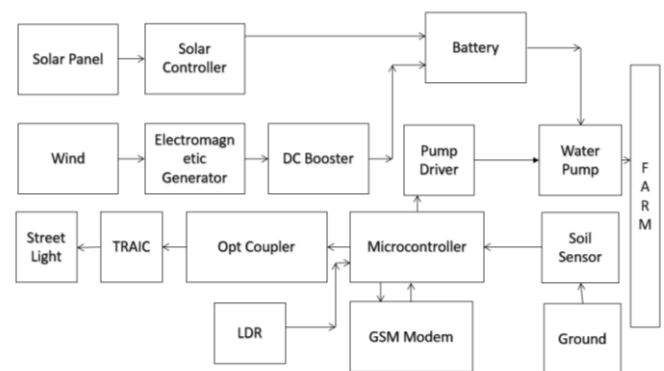
1.INTRODUCTION

Street lights are the major requirement in today's life of transportation for safety purposes and



avoiding accidents during night. Despite that in today's busy life no one bothers to switch it off/on when not required. The project introduced here gives solution to this by eliminating manpower and reducing power consumption. This requires three basic components i.e. LDR, Sensors and microcontroller. During daytime there is no requirement of street lights so the LDR keeps the street light off until the light level is low or the frequency of light is low the resistance of the LDR is high. This prevents current from flowing to the base of the transistors. Thus the street lights do not glow. As soon as the light level goes high or if light falling on the device is of high enough frequency, photons absorbed by the semiconductor give bound electrons enough energy to jump into the conduction band. The resulting free electron (and its hole partner) conduct electricity, thereby lowering resistance. Now the circuitry goes in on condition and the block diagram represented here starts working. If any phrase were to be used to describe the time in which we are living, it would be "renewable energy." For decades now, this term has caused many businesses to design and manufacture products in efforts of promoting this phrase. The cost and ease of transportation, however, is the biggest problem these companies are facing. For the past few years, new companies have been developing small power systems that can be used in locations where there is no electricity or in locations that suffer constant power outages. Different from a generator which is too heavy, too loud and requires

fuel these companies are focusing on small hybrid systems that use only the sun and the wind to generate electricity. Unlike a generator, a hybrid system uses clean energy, runs quietly and can be easily transported when compared to standard systems.



2.PURPOSED SYSTEM

The sensors will always sense the water level of the field and will send a message to the user's cell phone to inform the condition of irrigation through the GSM. Farmer will control the motor sending assigned code to the microcontroller. A Photo Voltaic (PV) cell is the only source of energy to drive this proposed system. The energy will be stored in the DC Battery through power supply. The sensors, microcontroller and cell phone interface are driven by DC power. However, pump driven by AC power; inverter is used to convert DC to AC power, and AC power interface ensures the proper AC power supply to the pump.

3.LITERATURE REVIEW



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2. Halcrow, S.W. A review on recent size optimization methodologies for standalone solar and wind hybrid renewable energy system.

3. Haley, M, and M. D. Dukes describes measuring soil moisture is very important in agriculture to help farmer for managing the irrigation system. Soil moisture the content of water it uses the capacitance to measure the water content of soil, It is easy to use this sensor .Simply insert the sensor into the soil to be tested and the volumetric water content of soil is reported in percentage.

4. SYSTEM ARCHITECTURE



5. Conclusion and suggested work

- ⊙ To fulfill increasing energy demand of the Societies this is best possible solution for current & future generations.
- ⊙ 5 times extra land can be saved by using this system.
- ⊙ This can resolve the shortage of power starving areas and countries.
- ⊙ The energy saved due to Solar Tree can be diverted to needy areas.
- ⊙ Solar power can help in Green Advertisements thus save more than 8-10 GW conventional power per year in India.

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