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Literature Review on Smart Flower and Agricultural System

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Abstract – The *solar energy is converted into to the mechanical energy by absorbing the solar radiation from the sunlight. In this paper, we have introduced a solar photo voltaic cell for collecting the sun rays through the solar array and transforming this sun rays in to electricity.*

In this system, the supply electricity is supplied through the sun rays and it is used for the purpose of irrigation in the rural areas where the electricity scare is expected. In this solar kit, we have introduce an Automatic solar tracker which stimulates and increases the efficiency of the solar panel by keeping the solar panel which moves according to the direction of movement of sun rays. A solar photovoltaic *(PV) cell is an electrical device that converts the energy of light directly to electricity by the photovoltaic effect. A photoelectric cell is defined as a device whose electrical characteristics like current, voltage, resistance, vary when exposed to light. Solar cells are the basement for any photovoltaic modules panels. Solar cells are used as a photo detector for detecting light near the visible range, or measuring light intensity.*

***Key Words*: *Solar panels, Moisture Sensor, Light Dependent Resistor Sensor, Battery, Pump*, etc.**

1. INTRODUCTION

Worldwide, water pumping is generally dependent on conventional electricity or diesel generated electricity. Solar water pumping minimizes the dependence on diesel, gas or coal based electricity. The use of diesel or propane based water pumping systems require not only expensive fuels, but also create noise and air pollution. The overall upfront cost, operation and maintenance cost, and replacement of a diesel pump are 2–4 times higher than solar photovoltaic (PV) pump. Solar pumping systems are environment friendly and require low maintenance with no fuel cost. Keeping in view the shortage of grid electricity in rural and remote areas in most parts of world, PV pumping is one of the most promising applications of solar energy. The technology is similar to any other conventional water pumping system except that the power source is solar energy. PV water pumping is gaining importance in recent years due to non-availability of electricity and increase in diesel prices. The flow rate of pumped water is dependent on incident solar radiation and size of PV array. A properly designed PV system results in significant long-term cost savings as compared to conventional pumping systems.

In addition, tanks can be used for water storage in place of requirement of batteries for electricity storage Agricultural production in developing countries is largely dependent on rains and is adversely affected by the non availability of water in summers. However, maximum solar radiation is available in summers as such more water can be pumped to meet increased water requirements. Urban water supply systems are also dependent on electricity to pump water in towns. There is a wide scope to utilize PV pumping systems for water supplies in rural, urban, community, industry and educational institutions.

2. LITERATURE REVIEW

We observe that the working of the photo voltaic cell absorbs the ultra violet rays from sun and store the energy in the battery and helps in the working of the water pump which can be comparable to diesel power plant due to this we can save fuel. The comparison between the diesel using pump and solar pump is made such that the utilization of sun rays results in more economical benefit rather than the diesel one [1].

We observed that by using various sensors for the respective purposes we can able to reduce the manual work there by utilization of water can be properly done [2].

The economy and reliability of solar electric power made it an excellent choice for remote water pumping. The implementation of the solar at the initial, costs high but the maintenance cost is low [3].

The farmers react timely manner to preserve crop loss based on received information. Due to this the farmers can overcome all the harm causes to the crop and yield well and more crop using smart agriculture method [4].

This system is totally control by android so farmer can easily control the pumps and detect the motion if any cause by the animals and anyone he can take action through the android app [5].

The general flow about the network interfacing with the sensors to obtain the required parameters is discussed in

this project. This project includes various featured like GPS based remote controlled monitoring, moisture and temperature sensing, intruder scaring, security, leaf wetness and proper irrigation facilities [6].

The farmer receives the data from the sensor connections, and stores the data, analyzes it, and provides a user to interface it. A related study and cloud computing that incorporates development is helping to quickly modernize agriculture and realize smart solution for agriculture [7].

3. PROPOSED SYSTEM

The main process which is involved in our system is to make use of the solar power which is abundant in our region there by utilizing it for the purpose of irrigation. We implemented here is that the energy is trapped according to the direction of the ray which incident on the panel with the help of the LDR sensor. These sensors make the panel to move towards the direction of sun rays and the energy obtained through this is stored in the battery when the sun rays from the sun light are received at an angle where we can get the maximum radiation. So, the sun rays will get in to the interaction stage on the top most arrays in the panel which traps the photon energy from the sun lights and incident to the electron to interest towards the junction. This develops an open circuit voltage across the two terminals. The energy conversion process continues as long as light is incident on the active top surface of the cell. The power developed by these cells are collected and stored in a battery. There is a sensor placed to measure the moisture content and another sensor place along with the panel to trace the more sun rays falling angle. All are connected to a control unit. The power from the battery is sent to the inverter and then it gives power to the AC motor. It runs the pump coupled to it. The suction head is connected to the tank and discharge head is directed towards the field. The water from the well is pumped out and it is used for the domestic or agricultural purpose.

3. CONCLUSION

A review of current status of solar photovoltaic water pumping system technology research and applications is presented. The study focuses on update on solar water pumping technology. The performance analysis studies carried out worldwide. The optimum sizing techniques, degradation of PV generator are supplying the power to pump. The economic evaluation, environmental aspects and recent advances in materials are involved in this system. The efficiency improvement of photovoltaic technology and experience of using solar PV pumps worldwide is related to this system.

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