

DESIGN AND DEVELOPMENT OF SOLARIZED AGRICULTURE SPRAYER BY USING MASK FOR HUMAN SAFETY

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ABSTRACT

Energy is the basic need of human being .Human revealed the new path in sciences by using conventional energy sources and non-conventional energy sources. But most of the innovation depends upon conventional energy sources get affected on environment and human health in running days. We are interested to turn science into green science by using non-conventional sources. Basically sun is clean source of energy which is inexhaustible. Sun emits solar radiation by using solar panel we easily conduct electricity and do any mechanical work. Farmer is the heart of Indian Economy and our new invention gives support by making farmer friendly solar operated spray pump. Use of other pesticide pumps causes fatigues, pollution which is harmful for green society. Considering all energy crisis, solar energy would be one of the best solutions. Here we prepared low cost farmer friendly solar operated pesticide pump with devices such as emergency LED and dc mobile charger. This pesticide pump is remotely use at various places such as farm, garden also in municipality to kill mosquitoes. We hope our new invention make the farmers modern and smarter.

Keyword : -PV solar panel,IR sensor,Health,Safety.

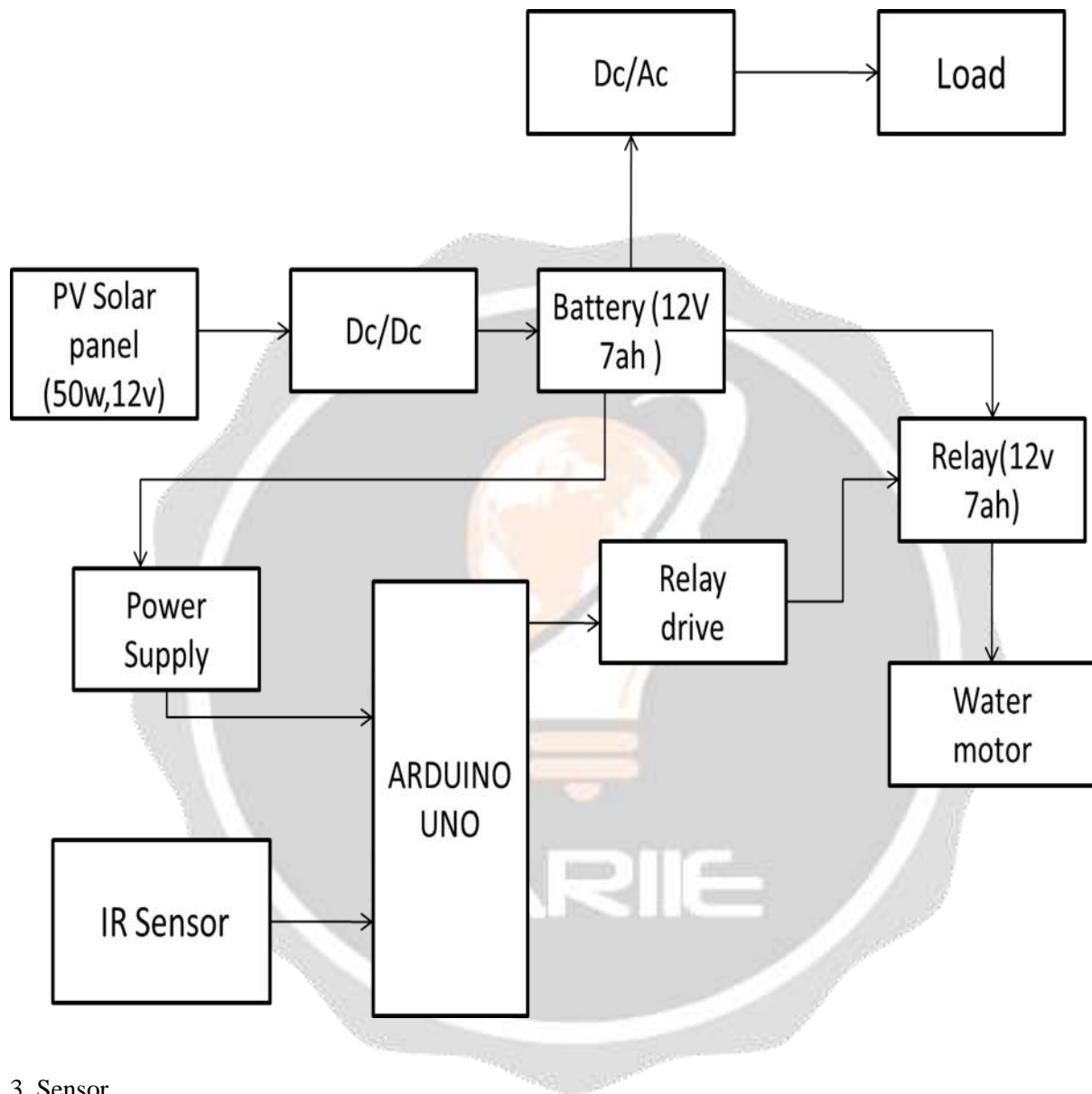
1. INTRODUCTION

Here prepared a low cost solar operated pesticide pump with devices such as emergency LED, dc mobile charger, which can work without any fuel .Here used IR sensor for detecting face mask.face mask is used to detect human side effect from spray the chemical liquid. This pesticide pump can be use at various places such as farm, garden also in municipality to kill mosquitoes. We hope our new invention make the farmer modern and smarter. In this project, we emphasized on the spraying of pesticides using solar power as energy.

2. PROPOSED SYSTEM

Sprayer is mechanical device that are specifically designed to spray liquid quickly and easily. They have number of different varieties. In this project we prepared solar operated spray pump and which can be used for many purposes. Our solar based pesticide spray pump is one of the most improved and modern version spray pump. It can be most often used at various locations such as farms, gardens although it can become more popular in rural areas as well. It is found more reliable to use. It uses solar power to run so it is maintenance free and pollution free pesticide pump as compare to two stroke engine pumps. The additional advantage of this model is that, it can be useful for appliances like emergency LED and unique DC mobile charger; also it can be used as home lighting system as its battery can be used at night too.

BLOCK DIAGRAM OF PROPOSED SYSTEM



3. Sensor

A sensor is a device that measures physical input from its environment and converts it into data that can be interpreted by either a human or a machine.

3.1 IR Sensor

An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measure only infrared radiation, rather than emitting it that is called a passive IR sensor. Usually, in the infrared spectrum, all the objects radiate some form of thermal radiation IR technology is used in daily life and also in industries for different purposes. For example, TVs use an IR sensor to understand the signals which are transmitted from a remote control. The main benefits of IR sensors are low power usage, their simple design & their convenient features. IR signals are not noticeable by the human eye. The IR radiation in the electromagnetic spectrum can be found in the regions of the

visible & microwave. Usually, the wavelengths of these waves range from 0.7 μm to 1000 μm . The IR spectrum can be divided into three regions like near-infrared, mid, and far-infrared. The near IR region's wavelength ranges from 0.75 – 3 μm , the mid-infrared region's wavelength ranges from 3 to 6 μm & the far IR region's infrared radiation's wavelength is higher than radiation.

4. ARDUINO

Arduino is an open source programmable circuit board that can be integrated into a wide variety of maker space projects both simple and complex. This board contains a microcontroller which is able to be programmed to sense and control objects in the physical world.

4.1 ARDUINO UNO

One of the most popular Arduino boards out there is the Arduino Uno. While it was not actually the first board to be released, it remains to be the most actively used and most widely documented on the market. Because of its extreme popularity, the Arduino Uno has a ton of project tutorials and forums around the web that can help you get started or out of a jam. We're big fans of the Uno because of its great features and ease of use.

5. PHOTOVOLTAIC CELL

Solar Photovoltaic (PV) is a technology that converts sunlight (solar radiation) into direct current electricity by using semiconductors. When the sun hits the semiconductor within the PV cell, electrons are freed and form an electric current. Solar PV technology is generally employed on a panel. It uses solar energy to operate. First the solar panel collects solar radiation and converts it into electrical energy by photovoltaic conversion process. Battery uses this electricity to charge itself. The stored electricity used to run the motor and other portable devices. The solar-powered sprayers also save crop cultivation cost and reduce environmental pollution. This review describes the current status of the solar-powered sprayer, flow chart and circuit diagram required for the successful development of the sprayer. The capacity of solar panel varied from 10 W to 60 W. A very good relation was found between the size and weight of the solar panel with the power rating of the solar panel. The capacity of the spray tank was varied between 12 L to 16 L.

6. CONCLUSIONS

Thus solar operated spray pump will help the farmers of those remote areas of country where fuel is not available easily and farmer safety from chemicals. They can perform their regular work as well as saves fuel up to large extent. At the same time they can do their pesticide spraying work with very less environment pollution. Thus, indirectly saving revenue of government and also most demanded fuel

7. REFERENCE

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