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Solar Based Automatic Water Level Sensing and Water Pumping System for Next Generation

Komal Pawar[1], Dipali Pawal[2], Pallavi Zagade[3]
[1, 2, 3]*Electronics & Tele-Communication AISSMS's IOIT, PUNE*

Abstract: Making an automated water pumping system is the aim of this project. This technology is able to detect the amount of soil moisture and makes an intelligent judgement regarding whether to turn on or turn off the water motor based on the amount of moisture in the soil. The motor is also powered by solar energy. Where people live and work, electricity is essential. The level of affluence and living conditions of a country directly affect its use of power. Due to industrial development, an increase in the use of electrical equipment, and other factors, the demand for energy globally is rising at an alarming rate.We obtain nearly 80% of our energy from traditional fossil fuels like coal (23%) and natural gas (21%) as well as oil (36%), according to the World Energy Report. It is well recognised that eventually, all of these resources will be entirely depleted. Alternative energy sources should therefore be used to prevent an energy catastrophe in the near future. Solar power is the best alternative energy source.

I. INTRODUCTION

The most significant source of energy in the planet is solar energy. Currently, solar energy lessens the usage of fossil fuels and lowers electricity prices in addition to being a natural energy source. Solar energy is energy that is transformed into thermal or electrical energy from the sun. Making an automated water pumping system is the aim of this project. The photovoltaic solar panel will track solar energy from the sun, generating direct current that is stored in the battery and allowing the system to sense the soil's moisture content and make an informed decision about whether to turn on or off the motor.The microcontroller kit will include a temperature sensor. Water level sensors are positioned in tanks, and moisture sensors are introduced into the ground. A photo controller is an intelligent gadget that can carry out the task when a moisture sensor detects it during operation. The water level sensor and motor are connected to the pic controller via a relay. Through a relay, the motor receives energy from the solar panel. Moreover, a battery is used to store solar energy. The controller continuously checks the moisture level and decides whether to turn the motor on or off based on that level. Using embedded C, the microcontroller

II. OBJECTIVE

1) To create a water pumping system for irrigation that runs on solar power
2) To create a pumping system with the least amount of human involvement.
3) A mechanism to clean the surface of solar panel.

III. LITERATURE SURVEY

A Review Economic viability of photovoltaic water pumping system solar energy Yhonis YG
Each solar cell has prepared layers of semiconductor material produces DC. Scarcity of electricity with that high cost of diesel affects the Water supply and irrigation. Solar energy for pumping water is therefore promising options in terms of conventional energy. We can conserve water by using Pv technology because we waste a lot of water when we don't use it properly . additionally, several socioeconomic considerations for environment goods are made. This document is intended for irrigation pumping system that are inexpensive. temperature, humidity .and soil moisture are measured by a programmable sensor module , which transmits the data to am ESP32 microcontroller. Additionally, this document explains how to set oil moisture limitations for particular. soil types. The RTC (Real Time Clock) and Microcontroller circuit help overcome the problem of manually operating the water pump.. The pump can be managed using pre – set time window .that Makes controlling much simpler and more dependable than the current system by integrating GSM and a soil moisture sensor into the current .

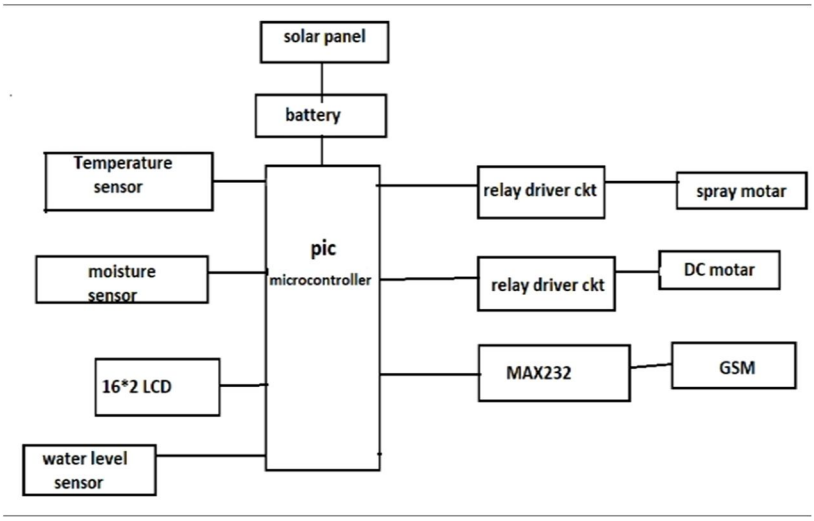
IV. METHODOLOGY

The system consists of solar panel, battery, water tank, and different sensor namely temperature sensor, moisture sensor and water level sensor.

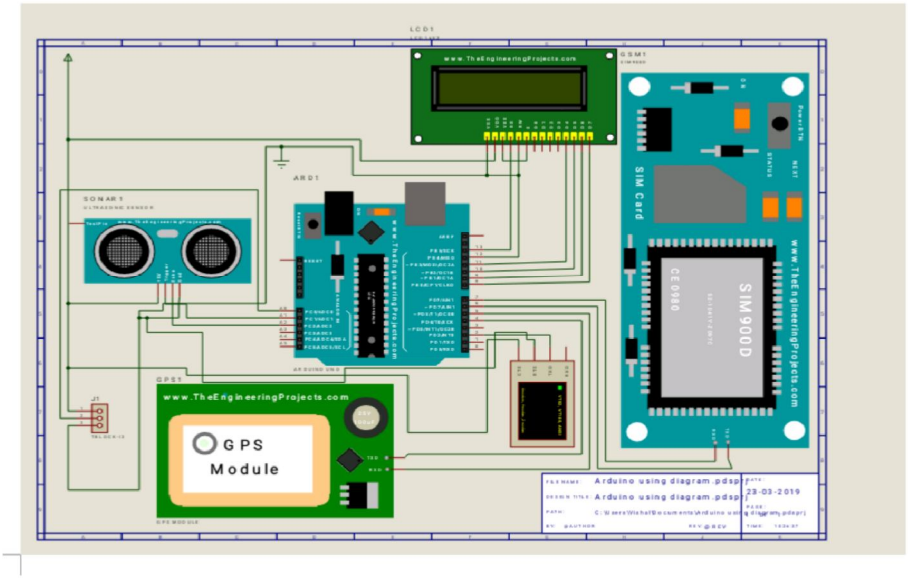
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The solar panel will l observe the solar energy from the sun which results in the generation of direct current which will be stored in the battery. Temperature sensor will be placed in the microcontroller kit, moisture sensor are inserted into the land, water level sensor is placed in tank. During the operation, moisture sensor Sense the moisture of land and temperature sensor sense the temperature of the atmosphere, water level sensor sense water level in the tata and gives the signal to the operator through a phone SMS.The SMS consist of AL information regarding moisture level of land temperature of atmosphere and tht water level in the tank.

V. BLOCK DIAGRAM



VI. CIRCUIT DIAGRAM



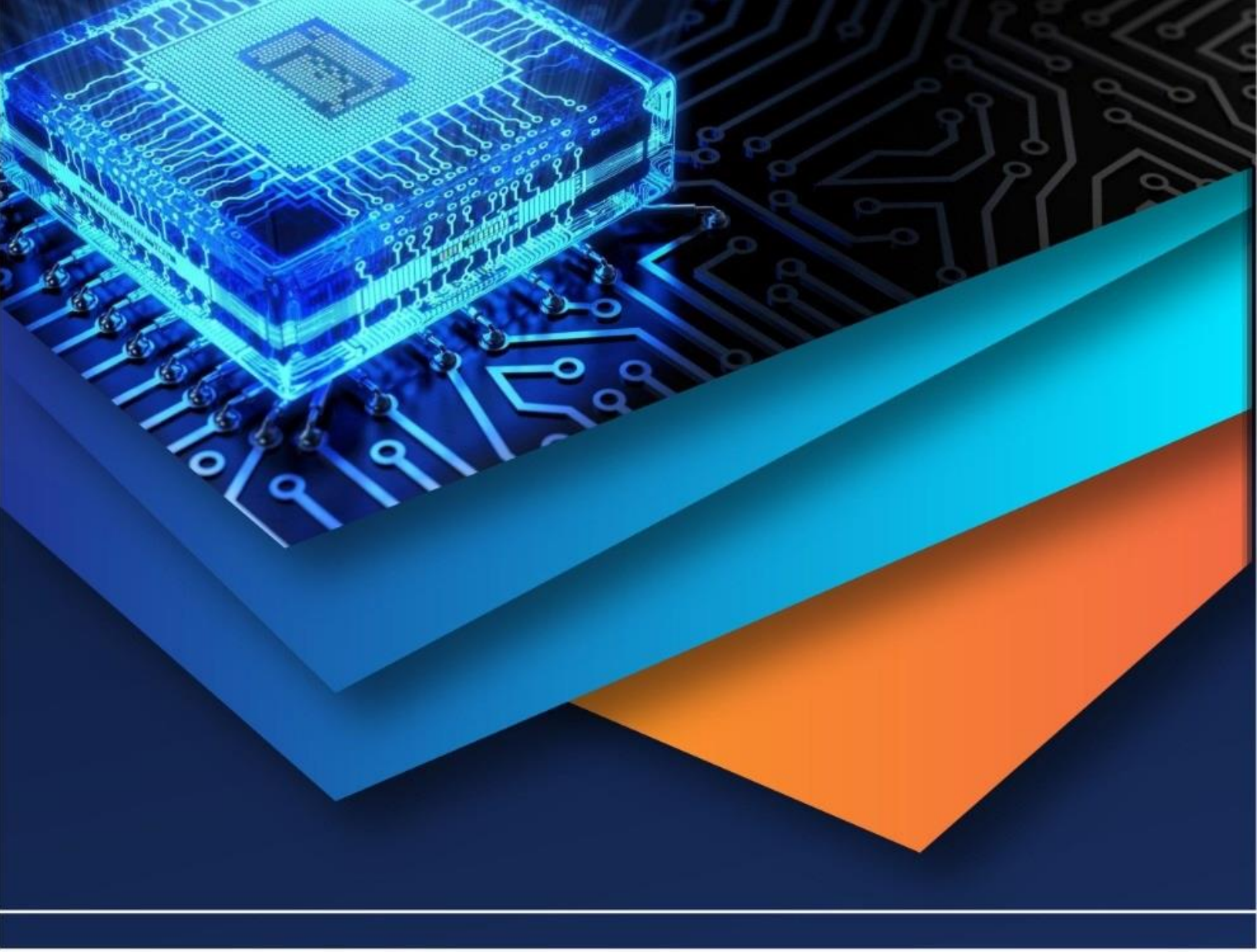
VII. CONCLLUSION

In India there are many village which are totally dependent on agriculture. So, for the betterment of automated pumping system is important, however because to a lack of electricity farmers are unable to timely water their land .So the solar based automated water pumping system this technology also help in proper management of electricity and time.this strategy boosts crop growth and yeild which aids in the nation economic development

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