A Survey Paper on Advanced Footstep Power Generation

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Abstract— Our Project is all about saving human energy & converting into electric energy. The demand for electricity is increasing day by day & its use has become so advanced & applicable in the present lifeline of human beings. The arising value of new technology in today's world each day demands more power of electricity. The population of human beings is increasing day by day Hence, the energy demand is increasing linearly. Our Project is all about saving human energy & converting into electric energy. Day by day the population of the country is increasing & the requirements of the power are also increasing at the same time the wastage of energy is also increasing in many ways. The power generated from our project can be useful in many ways.

Keywords: Energy Conservation, Footsteps, Piezoelectric Sensor, Application- Greenhouse Monitoring & control

I. INTRODUCTION

This project is to generate voltage using a footstep force. It is based on a principle called the piezoelectric effect. The circuit is an IOT based monitoring circuit that allows users to monitor the voltage & charges connected battery by it. We use Node MCU to transfer the data from the sensor to the web. There are many applications for this project. We are using Generated energy for the Greenhouse monitoring & controlling System. The parameters used in our greenhouse applications our Soil Moisture, Humidity & Temperature. Our Project is all about saving human energy & converting it into electric energy. Day by day the population of the country is increasing & the requirement of the power is also increasing at the same time the wastage of energy is also increasing in many ways. The power generated from our project is used in the greenhouse parameters controlling. The low cost & low maintenance can help the farmers in their agriculture work. The IoT helps with its advance technology to control & monitor the greenhouse without human help by using the generated energy by piezo sensors. The energy is stored in the battery is used by IoT through a voltage regulator. Saving of Energy with low cost is needed. Thus, Piezoelectric technology is used. This power source can be used in home applications, street light, schools & colleges & various public places.

A. Existing System

The use of advance technology is helping people in agriculture nowadays. The greenhouse requires lots of human efforts, care & handling thus through the automatic process it becomes easy for keeping watch on the inside greenhouse process. In our project, the energy generated through the piezo sensors is used with the internet of things. To maintain the desired conditions in the greenhouse IOT based project is designed. Data regarding these controlling parameters are sent to the IoT module(ESP8266), with the gathered data & observing periodic conditions, this study has the reason for securing the connection between sensors flags & reference estimations. Taking a look at the system now it is more flexible with the changing condition & the utilization of the generated energy through piezo sensors is used properly through this application

B. Proposed System

The proposed System will nearly screen & control the small scale climatic parameters of a greenhouse on a usual premise. The required energy generated from piezo is been supplied by the battery on the usual everyday need. Today programmed control frameworks are the standard for the advanced greenhouse. The important principle parts are estimation controller, information preparing, information securing, information presentation & recording. By observing various climatic conditions by the user this exploration has been the reason for making, breaking the development, the advancement of crops and the natural variables to which they are uncovered. Moreover, control programming will give all the information without a moment's delay, a farmer can see how development conditions are changing, and respond to those conditions with a specific goals to expand its effectiveness.

II. SYSTEM BLOCK DIAGRAM
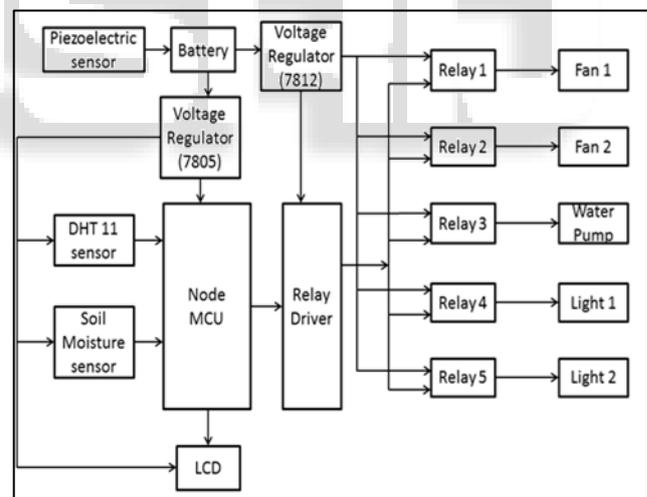
III. MODULES

- Piezoelectric sensor
- Voltage Regulator
- Battery
- Node MCU
- DHT 11 Sensor
- Soil Moisture Sensor
- Relays
- LCD

A. *Module Description*

1) *Piezoelectric Sensor*

Piezoelectric Sensors Converts Mechanical Stress into Electrical charge. These sensors are mainly used for process control, research, and development in various industries. The applications of this sensor involve, aerospace, medical, nuclear instrumentation, and as a pressure sensor, it is used in the touchpad of mobile phones.

2) *Battery*

The batteries have excellent charge acceptance, large electrolyte volume. Lead-acid batteries Are tested using Computer-Aided Design.

3) *Voltage Regulator*

It is used to regulate voltage levels. When a Steady, reliable voltage is needed, then it is the device which generates a fixed output voltage that remains constant for any changes.

4) *Battery*

The batteries used in our project have excellent charge acceptance & low self-discharge. They Are tested using Computer-Aided Design.

5) *Node MCU*

It is an open-source IoT platform. It includes a firmware that runs on the ESP8266. The firmware uses the Lua scripting language it supports wireless connection like Wi-Fi, Bluetooth.

6) *DHT 11 Sensor*

DHT 11 is the Temperature & Humidity Sensor it sense the temperature & stickiness sensor complex with a calibrated digital signal input. It ensures high reliability and excellent long-term stability.

7) *Soil Moisture Sensor*

This Moisture Sensor can be utilized to recognize the dampness of soil or say if there is water around the sensor. With the help of this sensor, it will be easy to make the plant remind its thirsty now or it need some water.

8) *Relays*

A cluster of actuators can be utilized as a part of our project. They are utilized to turn on AC devices like Fans, Water pump etc.

9) *LCD*

A Liquid crystal display is used to indicate the present status of parameters and the respective AC devises on its screen.

IV. CONCLUSION

Our project using IOT" is implemented which is the best economical, energy solution to common people. This can be used for many applications in rural areas where availability is less or totally absences here the energy management is a big challenge for a huge population. A piezo is easy to construct and implement. This system uses the wireless connection with using latest technology IoT. So humans can interact with the device, monitor the function of the device and control the activities of the device.

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