

# Enhanced Energy Harvesting Method In Healthcare Monitoring using IOT

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**Abstract:-** IOT is a current trending technology which access electronic components through internet .In this paper, various sensor nodes can be placed on different positions of the body to measure the subject's body temperature distribution, heartbeat and detect falls. To extend the lifetime of the wearable sensor node, a flexible solar energy harvester with an output based maximum power point tracking (MPPT) technique is used to power the sensor node. The system with solar energy harvesting demonstrates that long-term continuous medical monitoring is possible. There are various energy harvesting techniques available from that solar energy harvesting is used to extract energy and send it to the rechargeable battery. By using rechargeable battery with energy harvesting technique long term 24 hours autonomous medical health monitoring is possible.

**Keywords:-** Iot, MPPT, Wearable sensor, Energy harvesing.

## I. INTRODUCTION

Internet of things (IOT) is a technology that gains attention in recent years. Nowadays most of the electronic devices and appliances with IOT trending in markets. The automatic health monitoring system using solar energy based on IOT. These health monitoring devices to detect the blood pressure and heart rate monitors and body temperature. Some hospitals have implementing "smart beds" system, that system to detect the people standing and downing position. These methods can be adjusting it. But our method to monitor the people body condition of heart rate, temperature range and pressure value. This method proposed by using solar energy, LDR, and different various sensor like temperature sensor, heart rate sensor, pressure sensor and control unit using ARDUINO, power saving unit using battery, and display unit LCD, and GSM , IOT server. The solar energy can be convert sunlight to electrical energy. This energy used to home or business. Benefits of solar energy represented by renewable energy, and reduced electricity bill, design cost low. LDR is light depended resister, another name photo cell and principle of photoconductivity. To decreases the resistance of photo resister and increases the incident light intensity. This device to sense the presence and absence of the light. Mainly used alarm clock, street light, light intensity meter. Temperature sensor used that project range LM35. To sense the body temperature. Pressure sensor used that project is to detect the value of blood pressure. And heart rate sensor to detect the heart pulse rate. LCD used display these sensors values.

## II. COMPONENTS OF HEALTHCARE MONITORING

### A. Solar panel

Solar panels to collect the renewable energy form sunlight. And convert light energy to electrical energy. This power used to electrical load. Solar panels are consists of many solar cells and its composed layers of silicon, phosphorous, it's too provides the negative charge, and boron to provides the positive charge. The photons fall on the solar panel its convert to electrical energy.



Fig 1:- Solar panel

### B. LDR

The LDR define as Light Dependent Resistor (LDR). The principle is a light control variable resister to decreases the resistance of a photo resister. And the incident light intensity increases.LDR represented by photoconductivity.LDR using that project like to detect the light intensity of maximum tracking point from solar energy.



Fig 2:- LDR



data rate 64Kbps to 120Mbps. main used GSM in these paper, temperature value and pressure value send to website server, and emergency time send alert SMS to authorized mobile number.

### I. IOT

IOT is defining Internet of Things. The Internet of Things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity, and the Communication between objects and other Internet device and systems. The IOT servers have purposes of different like administration, monitoring, data gathering and analysis. This project used IOT for these sensor values can be looking for anywhere.

### III. BLOCK DIAGRAM EXPLANATION

In this work, enhanced energy harvesting method in healthcare monitoring using IOT, This block diagram is shown in Fig. 7. The solar panels to track the sun light energy, this energy convert to electrical energy. And LDR to track the maximum power from the solar panel, an output based MPPT technique. Two LDR are used to capture the maximum light from sun. Battery used can be store energy, and rechargeable wearable sensor. And the temperature sensor to detect the body temperature value, the hart rate sensor to detect the human heart rate value, pressure sensor to detect the blood pressure value. And the data collected from wearable sensor are transmitted to a smart phone. This will be monitored by the authorized server.

### IV. ADVANTAGES

- Fast response rate
- Low Maintenance Costs
- Flexible method
- Low power consumption
- Easy to operate
- Better accuracy

### V. RESULT AND DISCUSSION

The PROTEUS simulation result for Enhanced Energy Harvesting Method In Healthcare Monitoring Using IOT.

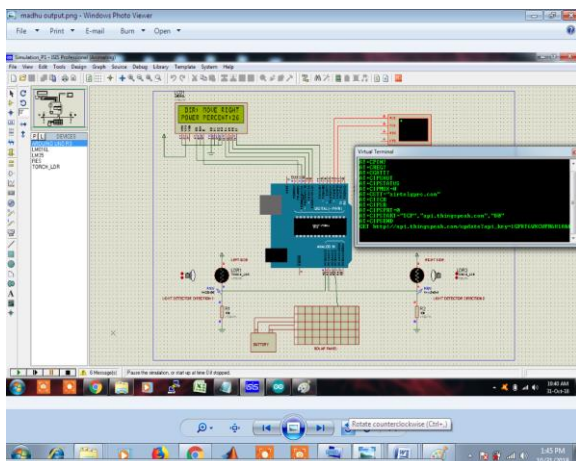


Fig 8:- simulation result

### VI. APPLICATION

- This project can be used in home for patients or ill person
- Hospital
- Best to be used rural area

### VII. CONCLUSION

This paper presents a wearable sensor node with solar energy harvesting that enables the implementation of an autonomous these system IOT applications. To improved efficiency and flexible method. These papers conclude by person monitoring using solar energy successfully completed.

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