

Wearable Body Sensor by Using Human Body Heat Connected With IoT and Provide Security

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Abstract— Internet of Things (IoT) is a new technological paradigm that can connect things from various fields through the Internet. For the IoT connected healthcare applications, the wireless body area network (WBAN) is gaining popularity as wearable devices spring into the market. In this paper propose human body heat for sensing the wearable body sensor and provide the security for the IoT system. Now a day’s security problem is the main issues of the IoT system. Users need to trust that IoT devices and related data services are secure from vulnerabilities, especially as this technology become more pervasive and integrated into our daily lives.

Key words: IoT, WBAN, TEG

wearer. in sensing technology, low power processing and communication have enabled a rapidly emerging field, the Internet of Things (IoT), poised to become the largest electronics market for the semiconductor industry. A promising vision is to have billions of sensor devices that are wirelessly connected and can collect and process data to facilitate a wide range of application such as fitness and sports, machinery or health monitoring [2]. The major trend in IoT technology is decreasing of both form factor and power consumption while increasing functionality. A fast growing class of such devices is wearable, where sensors nodes are tightly coupled with the human body.

I. INTRODUCTION

Internet of Things (IoT) is a new technological paradigm that gains attention from vast research fields in the past few years. In the future healthcare circumstance, the IoT will connect the subjects and the healthcare professionals seamlessly. With the advancement of wearable sensors, low-power integrated circuit (IC) and wireless communication technologies, the wireless body area network (WBAN) is becoming an emerging research field worldwide. WBAN, also known as body sensor network (BSN), is a wireless network to enable the health monitoring anywhere anytime around the human body. This can be used for the e-health applications, such as the computer-assisted rehabilitation, early detection of medical issues and emergency notification. In recent years, the portable devices, especially smartphones, have almost been an indispensable part of people's daily life.

Wearable sensors are the key components in the WBAN as they collect the vital data of the human body for further usage. Researchers from multiple disciplines have presented different wearable sensor systems for the WBAN applications. Another heartbeat sensor is presented which is designed with the polymer-based flexible strain-gauge sensor [1]. A wearable sensor prototype capable of measuring heart rate, blood oxygen saturation, temperature and humidity during a magnetic resonance imaging (MRI) experiment is presented. The wearable sensor system of WBAN, which is based on the smartphone application. The need for electronic devices that helps the human being in every day, now a day’s increasing features and possibility of modern mobile technology terminal devices. One last limitation is the demand for power supplies that allow unlimited operating and stand-by times [3]. A variety of renewable energy sources are readily available such as sun, wind, tides, and geothermal activity. An initial cost and maintenance cost of renewable energy is high but has no fluctuation in prices when in use as compared to the prices of electricity and gas.

Energy harvesting is the key technology to enable self-sustained wearable devices for the Internet of Things and medical applications. Among various types of harvesting sources such as light, vibration and radio frequency, thermoelectric generators (TEG) are a promising option due to their independence of light conditions or the activity of the

II. PROPOSED SCHEMA

In this paper, propose wearable sensor using by human body heat. It generated power in 5–0.5 mW range at ambient temperatures of 15°C–27°C, respectively. The thermoelectric shirt with such an energy harvester produces more energy during nine months of use (if worn 10 h/day) than the energy stored in alkaline batteries of the same thickness and weight. They must be tiny, unobtrusive, completely hidden, reliable, and should function for the entire service life of a piece of garment with neither technical service nor battery replacement or recharging. As has already been reported, a thermoelectric energy harvester (TEH) of human body heat is a strong competitor to the battery in such applications. The main advantage of using sensing sensor using human body heat is low cost and energy harvester. When using other energy resources for sensing the wearable body sensor, it is costly and very time consuming. And the energy resources are not available in every time that was the main disadvantage of energy resources using in the sensor. The proposed schema is human body heat for sensor working. The range of body temperature is 15 to 27 degree celcius.

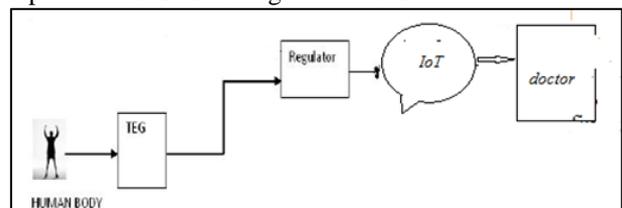


Fig. 1: Block Diagram

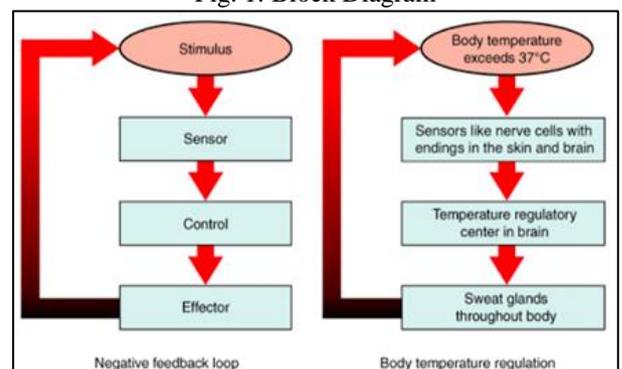


Fig. 2

In this paper also propose the security provide for IoT system. Many user in the IoT system, provide password security for the different user for accessing the medical data. he first thing that comes to mind for most people when they think of IoT security is encryption. Provide security for the transferring of signal that must be secure. In the Iot system different user are there so the attacking of the system is very so we provide password security for every users. If you are one of those people, then don't worry, you are not totally incorrect. Encryption is an important component of security, but it is just one part of the whole story. However, by itself, encryption does not provide security in the way that most people tend to think. Security, like most things, has a curve of diminishing returns versus cost. What IoT requires is a good balance of reasonably strong security measures that are economical and massively scalable. With all this in mind, we need to layer three basic components into the design of IoT devices to provide robust security:

A. Authentication

Verify whom you are communicating with.

B. Secure Storage

Ensure that no one can impersonate or spoof your IoT device by stealing its key

III. CONCLUSION

In this paper propose wearable sensor node by using human body heat. Human body heat using for sensor is low cost and energy harvesting. And the security provide for the IoT is efficient method. Provide security for the transferring of signal that must be secure. In the Iot system different user are there so the attacking of the system is very so we provide password security for every users.

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