AN INTERNET OF WEARABLE THINGS (IOWT) BASED SYSTEM FOR SMART HEALTHCARE MONITORING

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Abstract

The world population recently has significantly increased. Hence, the healthcare system and services become a global concern to improve quality of life (QoL). However, the rapid increase of the global ageing population along with difficulty in accessing the healthcare facilities make it more difficult to adopt. Moreover, the location, price, and insufficient quantity of devices are other major concerns which can't be ignored. This gap can be filled by implementing smart technologies. Wireless Sensor Network (WSNs) is one of the smart technologies which can be utilised to enable an Internet of Wearable Things (IoWT) based healthcare monitoring system. In this paper, we developed an IoT healthcare monitoring system to detect important vital parameters such as Blood Pressure (BP), Heart Rate (HR) and Body Temperature. Then, all gathered caption data can be monitored so the practitioner can follow up with their patients remotely. Our proposed system has used a small microcontroller unit (i.e., lopy4). Lopy4 is a new and high-performance microcontroller unit that consists of four IoT technologies including Wi-Fi. Based on experimental results, the developed system works successfully, our proposed system can read and transmit all data (BP, HR and Body Temperature) to the microcontroller unit which forwards the data to the cloud using Wi-Fi with low time latency for future references.

1 Introduction

IoT technology makes certain physical events can have an impact on other things remotely. Using this technology can execute controlling or monitoring something somewhere in the world. Additionally, this technology provides a communication channel between human-to-human, human-to-smart devices, and smart devices-to-smart devices without human interaction. IoT applications have been increasing over time such as smart wearable devices, smart cities, home automation, remote control, and monitor systems [1, 2]. The gathered data could support evidence-based solutions to assist people in attaining active prevention, getting an early diagnosis, and achieving effective treatment for diseases, injuries, and safety hazards. Therefore, the future of IoT in healthcare field such as in prosthetic devices [3] and wheelchairs fields are most likely promising to guarantee efficient healthcare, enhanced and individualized treatment which improves outcomes of healthcare management [4, 5].

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