Smart COVID Kit

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Abstract: There are several activities and approaches being applied to help reduce the reproduction rate of COVID-19. These include self-isolation methods such as working from home, improved basic hygiene such as increased hand washing and the deployment of personal protective equipment (PPE) to reduce the prospect of infection.

Smart and connected health-care is of specific significance in the spectrum of applications enabled using the Internet of Things (IoT). Networked sensors, either embedded inside our living system or worn on the body, enable to gather rich information regarding our physical and mental health. In specific, the accessibility of information at previously unimagined scales and spatial longitudes combined with the new generation of smart processing algorithms can expedite an advancement in the medical field, from the current post-facto diagnosis and treatment of reactive framework, to an early-stage proactive paradigm for disease prognosis combined with prevention and cure as well as overall administration of well-being rather than ailment. This paper sheds some light on the current methods accessible in the IoT domain for health-care applications. The proposed objective is to design and create a health-care system centered on Mobile-IoT by collecting patient information from different sensors and alerting both the guardian and the doctor by sending emails and SMS in a timely manner. It remotely monitors the physiological parameters of the patient and diagnoses the illnesses swiftly. So that we are proposing a system which will work on the evaluation of such system which automatically evaluates whole data from sensors connected to body of patient and monitor if any risk occur, and show alerts to the doctors.

Keywords: Healthcare System, IoT, Internet of Things, Naïve Bayes Classification Algorithm, Node MCU, Android

Introduction

An essential part of the present world society is the aging population of the world. The average life expectancy has substantially increased as the mortality rate has considerably decreased significantly because of the global advancements in economy, society and health-care over the past few decades. As a direct outcome, the number of older people across the world has steadily increased. The average percentage of elderly people in the world today (person aged 65 or older) is 7 percent [1]. Furthermore, the percentage of adults over the age of 65 in many nations outpaces the global average, such as 18.5 percent in Finland, 18 percent in Sweden and 15 percent on average for nations in the Organization for Economic Co-operation and Development (OECD) group. This percentage is also expected to increase in the near future.

IoT based technology can deliver a substantial amount of information regarding human, appliances, medical devices, and others. The combination of modern internet technological advancements and IoT provides a great deal of innovative products and services based on wireless communication using low-cost sensors [3]. It offers more collection and processing of data and other services. Any object connecting to IoT demands a unique IP address or mode of identification that can be attained using IPv6.
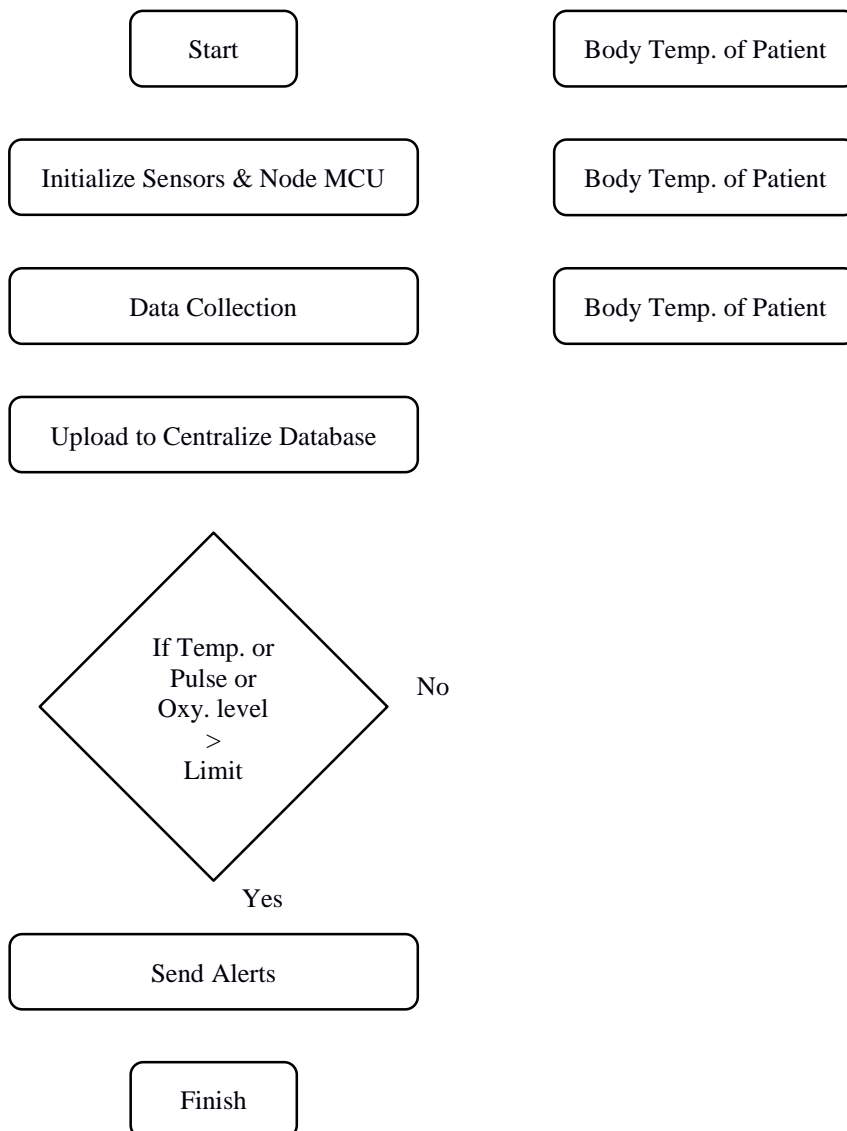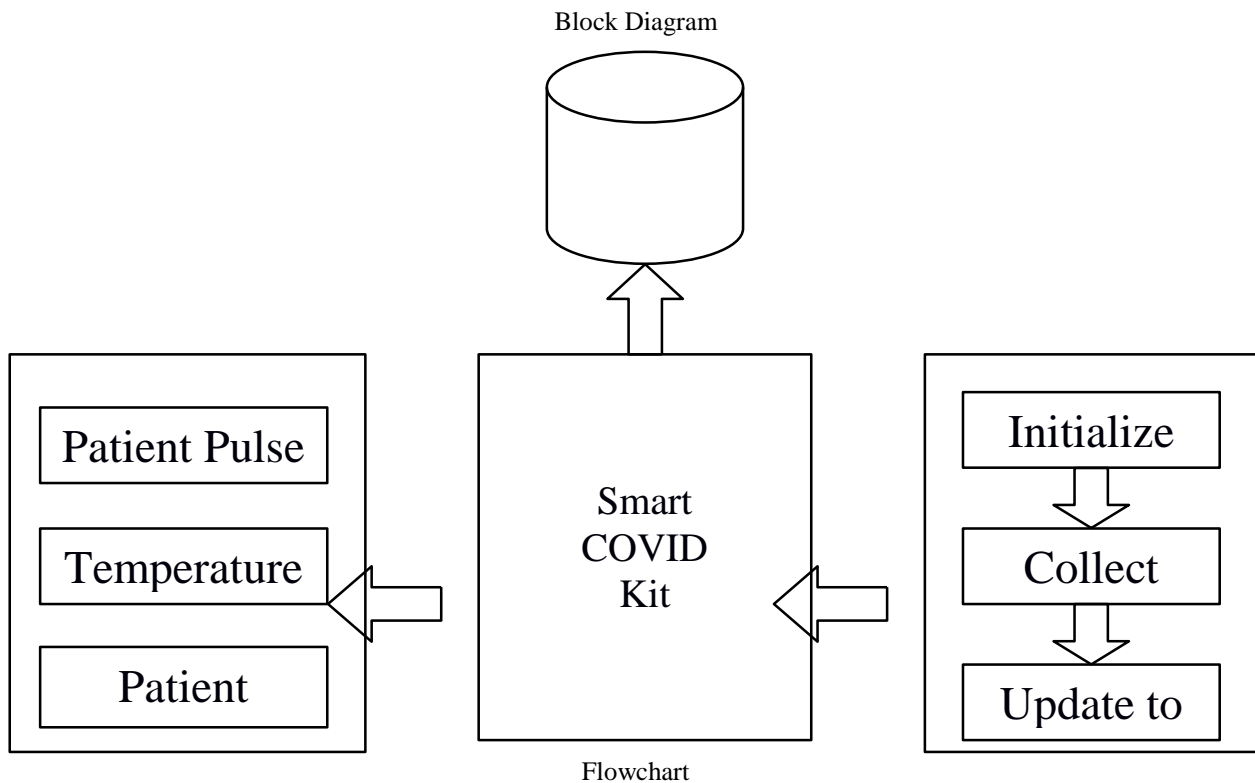
There exists still several people around the globe whose health is affected by the lack of adequate access to hospitals. Wireless alternatives connected to Internet of things can enable remote monitoring of patients rather than visiting the hospital due to the latest wearable technology. A wide range of sensors that are attached to a patient's body could be used to securely obtain patient data, and the data collected can be examined and sent to the main server using various modes of transmission (3G/4G or Wi-Fi) [4]. All doctors have access to the data and can view the data, and decide accordingly on the type of treatment to provide. People acknowledge that health and well-being is the fundamental condition for promoting the economic development with the passing of time and the development of the society. Most people claim that in terms of time, the current public healthcare system and its support were challenged considerably. Globally, government and the private sector are continuing to invest billions for the development of IoT devices, some of which include the Ministry of Industry and IT's National IoT Plan for China, the European Research Cluster on IoT (IERC), Japan's u-Strategy, UK's Future Internet Initiatives, and Netergit's National Italian Project [5]. Medical and health care IoT applications will benefit the patients significantly by using the finest medical assistance, the fastest treatment time, the most satisfactory service and the lowest medical costs.

S/W Requirements	H/W requirement
Android Studio	Node MCU
JDK 8.0	DHT11
	Pulse Sensor
	Oxygen Meter

Block Diagram

Patient Pulse

Temperature

Patient

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Initialize

Collect

Update to

Flowchart

Start

Body Temp. of Patient

Initialize Sensors & Node MCU

Body Temp. of Patient

Data Collection

Body Temp. of Patient

Upload to Centralize Database

If Temp. or Pulse or Oxy. level > Limit

No

Yes

Send Alerts

Finish

Advantages
1. Proposed system will help to monitor the patients from anywhere, anytime.
2. Intelligence system will help to monitor the complete health of the patient using single device.
3. Doctors can track every patient with single click/tap.
4. Serious patient can be identify easily.

Disadvantages
The proposed system always need internet connectivity if the connectivity is lost then system will be unable to send the data.

Conclusion
Implementation of present work will contribute in research in the area of health-care which will form basis for recommendations and draft guidelines on how and to what extent exposures to extreme environments can be tolerated in a safe way with minimized health risks considering short, medium as well as long term effects.

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