**Chapter 2**

**System Requirement**

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2.1 Previous Work

Min Chen et. al [11] proposed an urban healthcare big data system named UH-BigDataSys introducing a method of integrating multi-source air quality data for the data preparation of artificial-intelligence-based smart urban services. The goal of UH-BigDataSys is to provide a healthier lifes for urban residents.

Min Chen et. al [12] suggested a new convolutional neural network (CNN) based on  disease risk prediction algorithm for the  utilizing structured and unstructured hospital data to address incomplete data complexity using the missing data restoration technique.

Abdellatif et. al [13] presented Multi-access Edge Computing (MEC) for smart health applications envisioning a MEC-based architecture to provide efficient data delivery, multimodal data compression and edge-based feature extraction for event detection and the benefits can bring to realize in-network and context-aware processing.

Pramanik [14] offers the Big Data Framework  for the Intra- and Inter-organized Healthcare Business, which provides five suggestions to make efficient use of framework in the healthcare industry.

HealthGear [15] is a real-time wearable system for monitoring, visualizing and analysing physiological signals. HealthGear comprises of a series of non-invasive biomedical sensors, connected via Bluetooth to a cellular phone, which stores, transmits, analyzes and intelligibly shows the physiological knowledge to the consumer. In this paper, they emphasize the use of a blood oximeter to check the level and pulse of the blood oxygen while sleeping.

CodeBlue [16] project proposed a network infrastructure that incorporates low power, vital sign monitors, PDAs and PC-class systems for emergency medical use. CodeBlue tried to improve the ability of first responders to evaluate on-scene patients to ensure fast and efficient data transfer between caregivers and facilitate the effective management of hospital resources.

MobiHealth [17] established a highly customized monitoring system for crucial signals using  Body Area Network (BAN) and a mobile  device using wireless networks. The built framework makes it possible, using wireless connections, to integrate different medical sensors and to send the calculated critical signals directly to healthcare providers through wireless networks.

Chen [18] has developed a web interface to monitor physiological signals from humans. Furthermore, this study offers a data analysis strategy, based on an adapted cosine similitude measure, to effectively treat abnormal pulses for chronic disease exploration. The proposed system also offers benefits to the advancement of medical treatment for long-distance travelers, discovery of developments in potential chronic diseases and the emergency of sudden illness.

In this paper [19] the ECG monitoring system focused on IoT (Internet-of-Things) technologies The ECG data is collected by a wearable device and sent directly via Wi-Fi to the IoT cloud. The IoT platform utilizes both HTTP and MQTT protocols to provide users visibly and in good time ECG results. Virtually any intelligent internet browser interface can easily collect data thus significantly mitigating the cross-platform issue. In this paper [20] Meta Fog-Redirection and grouping and choosing architecture are used to store and process the data and Mapreduce is used as a prediction-based model. Authors in [21] describes a proposes a system by the creation of a basic test bed architecture for an intelligent health monitoring system. The network is an IoT device utilizing Long Range in fog computing. Authors in [22] label a "Telemedicine" improvement in patient health care. The usability of the interface, knowledge and some degree of networking can extend the information that is integrated in a computer and the communication technology. Adame et al. [23] introduced CUIDATS as a method of RFIDWSN monitoring system for health care that is an IoT-hybrid monitoring system that combines RFID and WSN technologies to control health properties using passive and active RFID tags, position and safety. The locating systems is tested with the device incorporating relevant technology. The system is addressed and practically implemented, which includes nodes through to back-end servers. Tests in a specific hospital environment offer quantitative and qualitative guidance and measurement. Pagan et al. [24] are focusing on problems in data acquisition and distribution in ambulatory settings. The energetically-efficient widespread use of an outpatient body zone network, which will forecast migraine in patients. They demonstrate how successful the strategies such as on-knot signal processing and radio policies are to improve autonomy and energy efficiency of sensor Nodes while recommending policies to account for workload to reduce device load and energy consumption in health data centres. Consumer health monitoring devices have proliferated in recent years. For sports fitness and the weight management field a large number of these devices were produced. Currently, sophisticated watches offer real-time heart rate details and allow users to save and monitor their data on their home PCs.

2.2 Requirement of the proposed System

All the previous work done based on the health monitoring systems mainly focus on the data collection, while processing and analysing of the data is performed offline. This is the major problems of the existence systems. In some cases, the portability of monitoring device is also a problem.

In HealthGear project, cell phone is used for storing and processing of the physiological data which provides lack of storage capacity and data processing. The Codeblue project comes with the solution of real time response. In Chen’s system data was processed in the server which solves the problem of HealthGear project.

In the recent years, almost every person has an Android Smart Phone. Android is the most popular operating system for smartphones. We have designed a system for the health monitoring system using Android Smart Phone. Using this phone can easily upload the patient current health status to the server and can communicate with doctors.

A number of research works try to develop a system which is basically focus on the collection of data and processing those data using the usual analysis tools. With using Big Data analytical tools they proposed a system to analyse the data. But No one shows how to analyse, Which Big data tool is best for which condition. They didn’t use the mapreduce, pig, hive, spark analytical tools with Hadoop framework. What are commands to apply the health data to extract useful information from unstructured health big data. In my research try to find the answer of the above question.