

A Survey on Smart Health Predicting System with IoT

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Abstract— As the human life step towards the modern lifestyle all the sectors of life become more and more advanced, Health care is not spared from this. Internet of things actually plays vital role into this paradigm as it helps to collect and process the data from the wearable devices of patients. Many existing systems are there where these data is been monitored manually or by loosely coupled systems which yields less accurate results in prediction. The proposed system develops an application for the hospitals, users etc. to predict the health of users using ANN which is powered with K-means clustering along with the Random Forest Algorithm.

Keywords: K-means Clustering, ANN, Random Forest Algorithm

I. INTRODUCTION

One of the problems of Living in the Fast-paced world, peoples are so busy with their day to day life that they are unable to have a balance between their profession and health. Many times it might have happened that you or someone yours need doctors help immediately, but practically it is impossible for doctors to be available under some circumstances. Here we proposed a system that allows user to get instant guidance on their health issues through an Smart health predicting system. The proposed system uses IOT as the infrastructure to collect the data over the wireless paradigm and the whole processed is weaved using K-means and ANN techniques to provide accurate health predictions.

A. Motivation

A major Challenge facing healthcare organizations is the provision of Quality Services at affordable cost .Also Poor clinical decisions can lead to adverse consequences which are unacceptable. So the motivation behind the proposed system is to provide a regular vigilance on health parameters thereby alerting the user about his irregular health conditions.

B. Objectives

- 1) To predict the prone disease situation awareness.
- 2) To Strengthen health sector.
- 3) Accurate Evaluation of parameters collected through Random Data generation Engine.
- 4) Deep Scrutinization of health parameters.

II. LITERATURE SURVEY

[1] Proposed a combined IoT-based system for smart city development and urban planning using Big Data analytics. Complete system consisting of various types of sensors including smart home sensors, vehicular networking, weather and water sensors, smart parking sensors, and surveillance objects. A four-tier architecture is proposed that includes 1) Bottom tier-1, which is responsible for IoT sources, data generation and collection, 2) Intermediate tier-1, which is responsible for all types of communication between sensors, relays, base stations, and the Internet, 3) Intermediate tier 2,

which is responsible for data management and processing using a Hadoop framework, 4) Top tier, which is responsible for usage of the data analysis and the results generated. The implementation of system consists of various steps that begin with generation of data and move towards collection, aggregation, filtration, classification, preprocessing, computing and decision making.

[2] Proposed the methodology uses various data, ranging from demographic characteristics to clinical examination, auditory and vestibular tests, in order to provide an accurate diagnosis. The system aims to provide decision support for general practitioners (GP's) and experts in the diagnosis of balance disorders as well as to provide recommendations for the appropriate information and data to be requested at each phase of the diagnostic process. Detailed results are provided for the diagnosis of 12 disorders which are balanced, both for GPs and experts. Overall, the reported precision ranges from 59.3 to 89.8.

[3] Proposed a system in which on patient's body a coordinator node has attached to collect all the signals from the wireless sensors and send them to the base station. The sensors attached on patient's body form a wireless body sensor network (WBSN) and they are able to sense the heart rate, blood pressure and so on. This system can detect the conditions which are abnormal, issue an alarm to the patient and send a SMS/E-mail to the physician. Also, the proposed system consists of several wireless relay nodes which are responsible for relaying the data sent from the coordinator node and further forward them to the base station. The main advantage of this system over the existing systems is to reduce the energy consumption to prolong the network lifetime, speed up and extend the communication coverage to increase the freedom for enhancing patient's quality of life.

[4] Presented a novel SPN-based functional model for wearable multi-sensor health-monitoring systems that focuses on facilitating multi-parametric analysis and thus enabling embedded decision support. The proposed system model is independent of the actual hardware implementation, although ergonomic or power consumption restrictions may impose certain practical limitations on the system's performance considering the current state of sensor technology.

[5] Presents a survey of security measures and data communication security involved in health care systems in order to ensure information protection These issues were discussed in a particular health care system that helps the specialists in treatment and rehabilitation of patients with neurological diseases In order to ensure privacy of patients and the content authenticity of a health care information system, three principles are critical: all electronic medical records should be protected through ownership controlled encryption, enabling transmission, access, and secure storage; the maintenance of electronic information should preserve the content authenticity, patient privacy, and data integrity; the information sharing and access should provide

source verification through signatures and certification process against unauthorized access or change in EHR content.

[6] Including the health of the Thai people today, present Thai people attention turned to the subject of health. The emphasis is on food and more exercise, popular food is clean food due to clean food weight control and suitable for eating together go with exercise. Present exercise more popular in Thai people this is stark different from the past. In the past find more Thai people not exercising and working people has the lowest exercise rate. It is a problem that may cause disease easily, congenital disease or disease is very frequent include high blood pressure and Diabetes etc.

[7] Health is focus on the whole body mind and social that is must have physical health, mental health and social health all aspects, or can say that health is condition of preserve be alive it is perfect physically mind include live together in society well based on moral principle and the use of intelligence. In the current, health word does not implication specifically of physically health and mental health. It's also includes social health and spiritual health as well.

III. PROPOSED SYSTEM

The purpose of the System is to provide a regular vigilance on the health parameters and thereby alerting the user about irregular health where the proposed system helps the user or clients to keep a track on his regular health .The health parameters of users are collected through wearable devices or sensors and the collected parameters are gathered at server side through wireless paradigm. The gathered data is further processed at the server side to provide the accurate health predictions which is illustrated as per the architecture shown below.

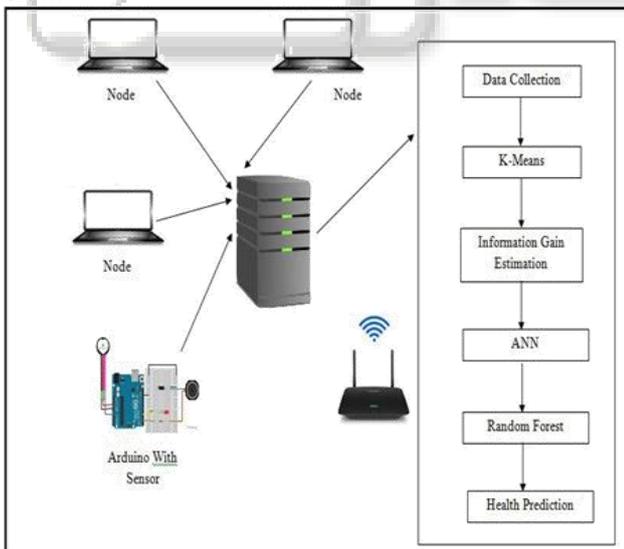


Fig. 1: Proposed System Architecture

IV. CONCLUSION

Proposed system develops an application panel for the users to predict their health condition using K-means which is powered with Information Gain Estimation model along with the ANN and Random Forest algorithm. The system do proper clustering of data based. And this process is

terminated using random forest Classification process to predict the health prone predictions.

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