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IOT based Heart Disease Prediction

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Abstract: ***In today's world cardiovascular disease is the leading cause of death. The disease strikes a person so quickly that they do not receive treatment. Properly diagnosing patients is therefore a daunting task for medical professionals. Misdiagnosis by a hospital leads to a bad reputation and a loss of dignity. At the same time the treatment of this disease is very high and not very expensive for patients especially in India.***

The purpose of this paper is to improve the cost-effective treatment using data mining technology to simplify the decision support system. Almost all hospitals use a certain hospital management system to manage the health care of patients. Unfortunately most programs do not usually use large clinical data where important information is hidden.

As these systems generate a large amount of data in various forms but this data is rarely visited and remains unused. Therefore, in this process much effort is required to make wise decisions.

Diagnosing the disease using a variety of features or symptoms is a daunting task. This paper uses various data mining techniques in an effort to help diagnose the disease in question.

Keywords: cardiovascular disease, data mining, intelligent decisions, symptoms

I. INTRODUCTION

Today, many hospitals manage health care data using a health information system; as the system contains a large amount of data, which is used to extract hidden information to make intelligent medical diagnoses. The value of machine learning in health care is its ability to process large data sets beyond human capacity, and to reliably translate that data into clinical data that assists physicians in planning and providing care, ultimately leading to better outcomes, lower cost of care. A system that provides a diagnosis of heart disease using a history heart database. To improve this program, medical terms such as sex, blood pressure, and cholesterol are used as 13 input signals. To get the right results, two other traits are used, namely obesity and smoking, as these traits are considered important symptoms of heart disease. Viz data separation techniques. Neural Networks, Tree Decisions. Random Forest, and the Naive Bayes are in use.

The healthcare industry collects a large amount of health care information that is, unfortunately, not "mine" to find hidden information for effective decision-making. Hidden patterns and relationships are often overused. Advanced data mining methods can help rectify this situation. The study developed an Intelligent Heart Disease Prediction System (IHDPS) using data mining techniques, namely Decision Trees, Naïve Bayes and Neural Network.

The results show that each process has its own unique capabilities in achieving the goals of the defined mining objectives. IHDPS can answer the complex questions of "what if" traditional decision-making systems cannot. Using medical profiles such as age, sex, blood pressure, and blood sugar can predict that patients may develop heart disease. Enables important information, e.g. patterns, relationships between medical aspects related to heart disease, which should be established. IHDPS is based, easy to use, awesome, reliable and flexible. Used on Java-Python platform via Random Forest Algo.

II. LITERATURE SURVEY

Very few programs use the available clinical information for predictive purposes and even if they do, they are limited by a large number of applicable organizational rules. Diagnosis of this condition is based solely on Doctors' intuitions and patient records. Finding is not possible in advance.

In the present system, the effective use of various data is time consuming. There are only a handful of decision-making programs available in the medical industry with very limited effectiveness. As mentioned earlier, medical decisions are made on the basis of a physician's intuition and not on rich material from a medical database. Improper treatment due to poor diagnosis poses a serious threat to the medical profession. To address these issues a data mining solution was assisted with medical information was introduced.

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The main cause of death and illness is heart disease

1) Ahmed M. Alaa [2] et.al proposed a machine learning strategy for the risk of heart disease. But they have achieved a very high accuracy of 77%. Since the database is unbalanced, there is a need to use sample techniques. Instead, they used direct learning models in the database. Stephen F. Weng [3] et.al studied the use of machine learning algorithms to improve predicting heart risk. They have shown that machine learning algorithms are effective in improving the accuracy of the cardiovascular prediction, but the required number of patient records should be higher to achieve better results. Rine Nakanishi [4] et.al examined ML methods for improving the predictable rate of heart disease (CHD). They used electronic learning methods in 6814 patient records and obtained a measure of accuracy. Senthilkumar Mohan [6] proposed a machine learning model that found key features to improve the predictive rate of heart disease. They have experimented with a combination of different factors and obtained 88.7% accuracy with a random hybrid forest.

III. PROPOSED SYSTEM

The proposed system has the advantage of detecting a heart attack with the help of monitoring the heartbeat based on the internet of the object. Our method uses a heartbeat sensor, Arduino board and Wi-Fi module. After setting the program, the heartbeat sensor will begin to hear the heartbeat readings and will display the human heartbeat on the LCD screen. Also, using a Wi-Fi module will transmit data over the Internet. The system allows a given point that can help determine if a person is healthy by checking his or her heart rate and comparing it to a set point. After setting these limits, the system will start monitoring the patient's heart rate and soon the heart rate will go above or below the specific limit and the system will send a warning message. As part of this project we are using an android app model that will track a patient's heart rate and monitor it and provide an urgent message about the risk of a heart attack.

IV. CONCLUSION

In this study we attempted to raise a comprehensive paper on the diagnosis of heart disease by monitoring a person's heartbeat. The heartbeat connected to the microcontroller is a human heartbeat sensor and transmits via the Internet using a Wi-Fi module. The system allows you to set the limits of your heartbeat. After setting these limits a person can begin to monitor the heartbeat and whenever a person's heart rate exceeds a certain level they can get a warning of high heart rate and the risk of heart attack. And warnings for a low heart rate.

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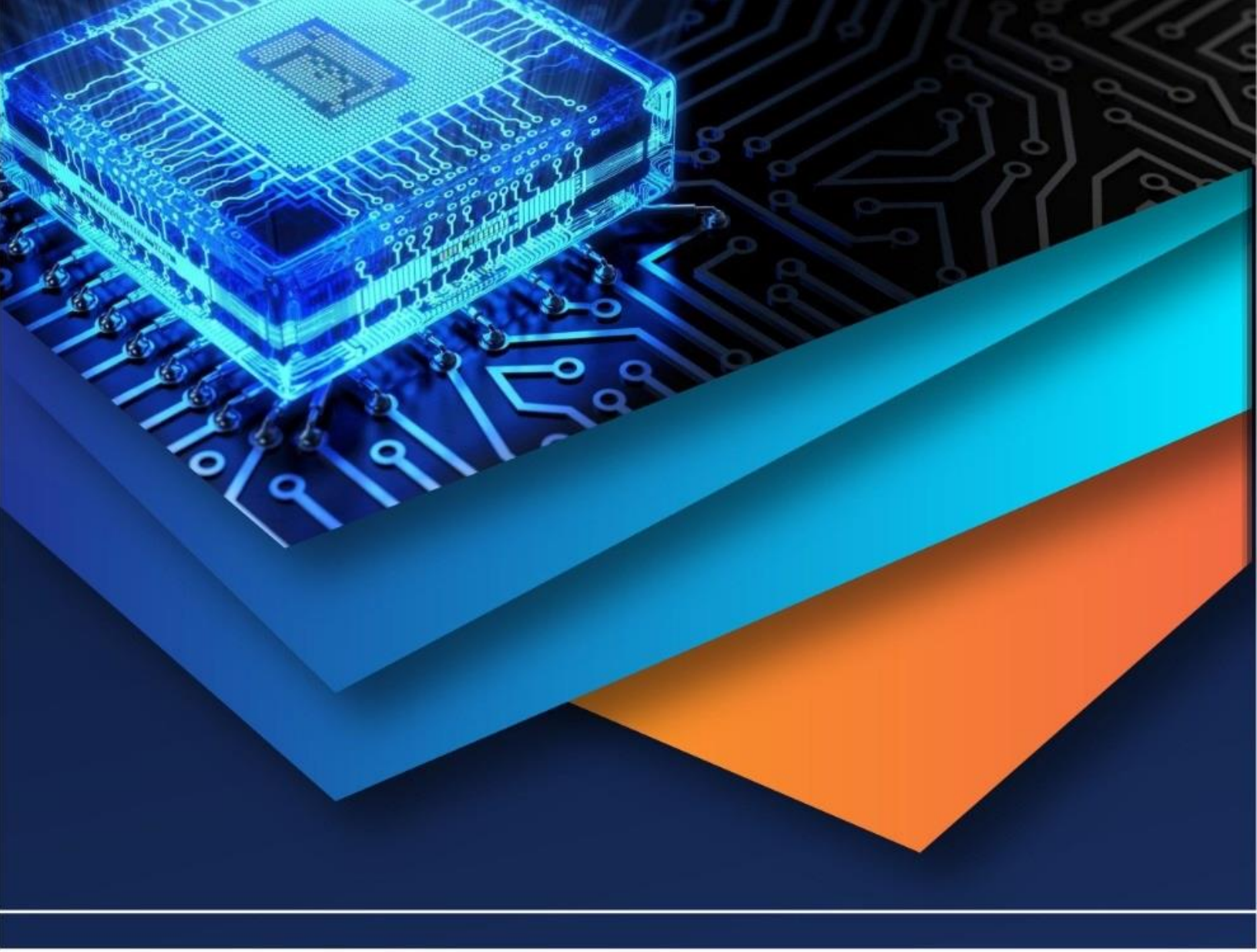
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