

Prediction of Diseases Using Symptoms for Areas Lacking in Healthcare

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ABSTRACT

Nearly 600 million people in India, mostly in the rural areas have very little or no access to health care. The country is short of nearly 5 hundred thousand doctors. Rapid proliferation of net technology and hand-held devices has detached up new avenues for on-line healthcare system. These are instances where online medical help or healthcare advice is easier or faster to grasp than real world help. People often feel reluctant to go to hospital or physician for minor symptoms. However, in several cases, these minor symptoms might trigger major health hazards. As online health advice is easily reachable, it can be great head start for users. However, existing online health care systems suffer from lack of connectivity. Herein, we propose an automated disease prediction system that relies on guided user input. The system provides a list of probable symptoms and takes input from the user.

This paper addresses the problem of prediction of diseases based on specific symptoms in order to improve medical attention given to the patients.

Keywords: *Healthcare System, minor symptoms, disease prediction.*

I. INTRODUCTION

Lack of infrastructure, non-availability of qualified personnel and lack of commitment of the government paint a dismal picture of rural health care in India. Viral signs and symptoms derive its significance from the fact that they can be considered as an indication to a person's health. There are lack of doctors and specialists. Most people in rural areas do not care about the symptoms they have. Most of them take homemade remedies to cure the disease by themselves. The primary objective here is that to let the patient use the proposed project/system with ease and gets to know the probable disease he's having with respect to his symptoms. The patient can check his real time health condition and also see the tests to be conducted on the LCD to know about the tests he has to undergo to diagnose his disease.

Number of web users is growing exponentially over the years. In a national survey conducted by the Pew Internet Project [1] found that 62% of Internet users in India have gone online in search of health information. People post their health connected queries (such as concerning about what kind of illness that they may be suffering from) on numerous healthcare forums. There are other groups of people who leave their responses to those posts with prediction of possible diseases. However, these predictions might not be perpetually correct, and also there is no assurance that users will always get a reply on their post. Moreover some posts are fabricated or created up which may drive the patient in an exceedingly direction. It is value noting that an enormous range of users on these forums hold pretend identities. According to an analysis conducted by CNN [2], it is found that twenty five percent users lie on social networking sites. Therefore, reliability is a big issue here.

Substantial quantity of research work on disease prediction is going on in recent years. It can be classified in 2 major categories: One is disease prediction based on supported specialized/clinical text supply and another is disease prediction supported general text supply. Bulk of the analysis work centered on predicting diseases automatically from specialized text sources like clinical reports [3].

However, predicting disease supported user(patient) input could be a complete different ball game ([4], [5] and [6]). Generally, people express their symptoms in non-technical or natural terms which add complexity in predicting diseases. In this work, the motive is to build up a novel architecture consisting of techniques that will let on disease prediction with greater accuracy based on user input.

II.RELATED WORK

The work conferred in [3] focuses on disease prediction from clinical information provided by New York – Presbyterian Hospital. As these are clinical information, automated disease prediction is comparatively different and easier than predicting from user text input.

It is ascertained that input from common user contains less variety of clinical terms. That means, matching the symptom names from user text input with system information has rather more complexity.

[4] Emphasizes on prediction of potential communicable disease outbreaks from on-line text sources. This is also a specialized source where explicit medical terms are used.

A lot of efforts have been placed on to predict specific diseases [7], [8]. For instance, authors in [7] target on predicting coronary heart diseases by mining text. There are quite variety of analysis works that have been done in recent years on aid forums. [9] Is such a work where natural language processing is used to rate and analyze user comments in order to predict diseases and extract rare side effects of drugs. This accuracy of disease prediction can deviate significantly, ultimately leading to incorrect prediction.

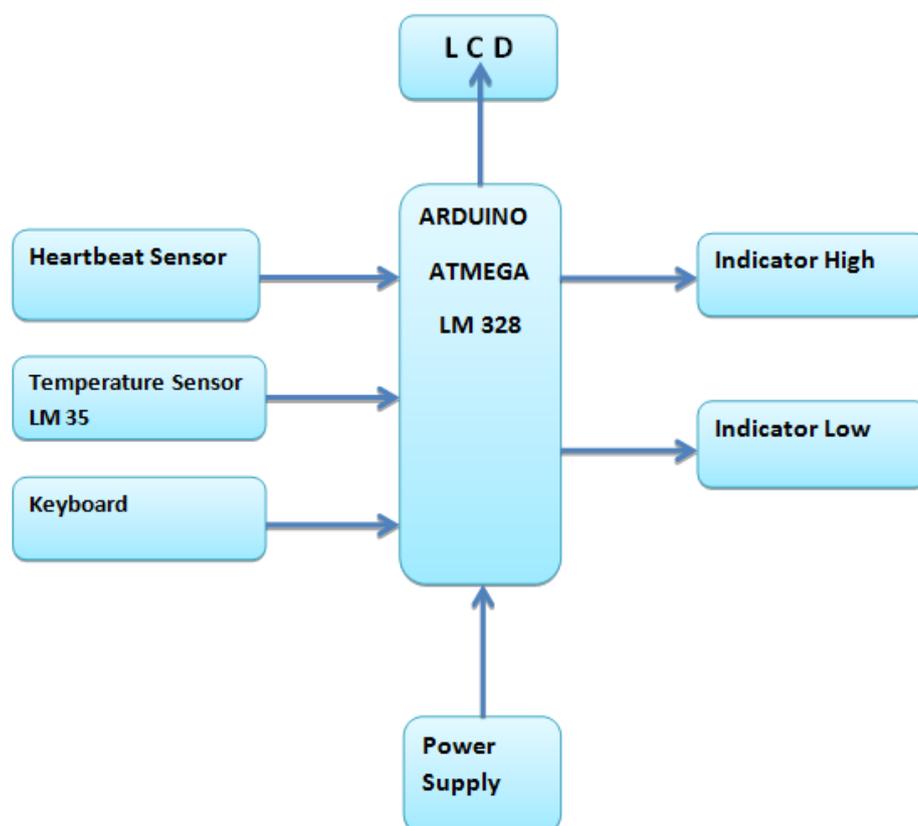


Figure 1.1 Block Diagram representation of proposed system

III. PROPOSED WORK

The temperature sensor and heartbeat sensors are interfaced with the Arduino. After the temperature and heartbeat is sensed the LCD will display the symptoms. Through the keyboard the symptom/symptoms will be selected. The user has to press enter key to select the next set of symptoms. Three set of symptoms are provided based on which the prediction can be done. The system will predict the probable disease/diseases based on the symptoms and the temperature and heartbeat of the patient. On the LCD this will be displayed along with the tests to be conducted/specialist doctor to be consulted.

The block diagram representation of the above system is as shown in figure 1.1

IV. HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENT	SOFTWARE REQUIREMENT
<ol style="list-style-type: none">1. ARDUINO LM 3282. LCD SCREEN (16 x 2)3. HEARTBEAT SENSOR4. TEMPERATURE SENSOR (LM 75)5. KEYBOARD6. POWER SUPPLY7. LED INDICATORS	<ol style="list-style-type: none">1. ARDUINO IDE2. EMBEDDED C

V RESULT: A test case was considered. The temperature sensor was connected to the middle finger. The LCD display as shown in figure 1.2



Figure 1.2

V. CONCLUSION

There is shortage of doctors and specialists in India and mostly in rural areas. The proposed project/system will help the patient to use it with ease, as it is simple to understand and check his/her real time body temperature as well as heartbeat. Moreover, the patient can also select the symptoms on the keyboard that he might have and see the tests that could be taken by the patient to diagnose his/her disease. It is simple in construction.

In this effort, we show that "Disease Prediction System" can benefit people, who are facing trouble, better accept their physical condition by predicting potential diseases. We additionally show that our framework permits the

system to perform considerably higher than existing ones. Having said that, our system accuracy may be enhanced further as there is space left for improvement.

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