Faculty of Engineering and Applied Science

SOFE 3490U: Software Project Management

Lab #2: Smart Health Detection System

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Project Proposal

Smart Health Detection System

1.0 Project Description

The current health system that is implemented in our society is becoming outdated. People often go to the internet when seeking medical advice before seeking licensed medical practitioners. In a study conducted by Figueiredo de Oliveira, “85.3% of physicians reported that their patients accessed the Internet and that 92% used that information in a following visit.” [1]. There are some potential risks that come with self diagnosing health issues online including unreliable information, self-treatment and self diagnosis [2]. Creating a Smart Health Detection System would greatly benefit the health industry as well as the welfare of the community. This would entail creating an online consultation system for users.

As a lot of people already use the web to seek healthcare, we feel that this has incredible future potential that it presents for medicine and software as a whole. We also felt that the topic is unique in contrast to the others listed and that it hasn’t really been investigated to the extent that the others have been, which presents a mental challenge to us.

The problems that the Smart Health Detection System will tackle are developing better diagnoses for doctors, giving patients some visualization, providing information of practitioners that will assist users and allowing for potential breakthroughs in medicine. This project is being developed to hopefully accomplish an application that will assist in preventing terminal diseases or medical issues as well as identifying them.

2.0 Project's Objectives

Project Authorities
The Project Authority for the Smart Health prediction system includes: the **director of Health Canada.**
Stakeholders
Stakeholders include: **Customers** (eg. Hospitals, Pharmacies, Private Practices…), **Investors** and **Health Canada**
Objectives
1. Make an application/online system that utilizes health care data and turns it into predictive models to offer health care guidance

2. Gives users instant diagnoses of current health issues by taking in the users medical problems/symptoms and using the database to match the most accurate diagnoses.
3. Predict potential future diseases or illnesses that clients may carry using the clients past health history as well as familial history and data mining from the database.
4. Improve the healthcare system as well as public health in Canada by giving instant health care advice or guidance online
5. Provide contact information of Licensed medical practitioners best suited for the specified illness
6. Provide preventative measures for potential risk of illness or diseases

3.0 Measures of Success

1. Inputting symptoms and having the expected result return.
2. The System contains a database containing values of symptoms to be accessed later.
3. The program is responsive and updates in real-time

4.0 Infrastructure

To achieve the project's objectives, a robust pipeline needs to be developed.
The back end infrastructure includes:

- Graph database to store patient's information and the relationship with symptoms and diseases
- Document-based database to store patient's documents such as X-ray, previous consultations and diagnosis and others
- Cloud server to host the API to retrieve patient's data
- GPU cloud servers to train machine learning models based on the current stored data

Work Cited

[1] E. Anderson, “International Journal of Health and Economic Development,” *Do Internet Searches Prior to a Doctor Visit Improve Quality and Reduce Costs?*, pp. 1–6, Jan. 2018.

[2] M. D. Naveed Saleh, “The risks of using the internet to self-diagnose,” *Verywell Health*, 06-Apr-2022. [Online]. Available: https://www.verywellhealth.com/perils-of-using-the-internet-to-self-diagnose-4117449#:~:text=Most%20people%20look%20for%20health,insurance%20and%20access%20to%20care. [Accessed: 09-Feb-2023].