CARDIOTRACKER

INTRODUCTION

Cardiotracker an intelligent prediction system that lets users know if they have or are at a risk of developing cardiovascular diseases right at the comfort of your home!

We hope that our application will help people around the world understand the risk of leading an unhealthy lifestyle and help them lead healthier lives.

THE PROBLEM

The Coronavirus pandemic has led to mass lockdowns and overload on the healthcare system

Heart Patients , unless personally acquainted with a cardiologist wont receive the necessary consultations and reviews

CardioTracker is a one stop solution for all cardiovascular troubles

Why Cardiovascular diseases?

Cardiovascular diseases are highly preventable, yet they remain the most common cause of death in the world. The epidemic is receding in industrialized countries, however, many low-income and middle-income countries like India have experienced an increase in cardiovascular diseases and 80% of all cardiovascular diseases' deaths occur there.

In the last 20 years, the epidemiology and surveillance of cardiovascular diseases have laid the foundations for public health interventions that may reduce the burden of disease. Relevant population-specific local data are therefore needed to describe the trends and pattern of risk for cardiovascular diseases.

The existence of effective preventive interventions justifies the assertion that coronary heart disease and stroke could be virtually prevented and controlled.

Our goal in developing this web application is to predict if a user is at risk of developing a heart disease without expensive ECG/EKG tests , focusing on risk factors that can be modified or controlled like tobacco smoking, stress, alcohol, obesity and lack of physical activity, so that he/she can take the recommend steps in order to reduce these risks and live a healthy life.

Features

- The novel features of our application are:

Predict the risk of having or developing cardio vascular diseases with a high accuracy based on user's health information.

- Personalized risk monitoring system that tracks user's health progress
- Chatbot to answer Frequently answered questions
- Curated newsfeed on cardiovascular diseases and breakthroughs

USER FLOW

1. Home screen – Get an idea how the website works and the features in it
2. Filling up the form
3. Sign in or sign up
4. FAQs
5. Newsfeed

How AI and ML builds the foundation of our application

- Current approaches to predict cardiovascular risk fail to identify many people who would benefit from preventive treatment, while others receive unnecessary intervention. Risk prediction based on machine learning models offers a unique opportunity to improve accuracy by exploiting complex interactions between risk factors.

- Models currently recommended by clinical guidelines are typically based on a limited number of predictors with sub optimal performance. We focused mainly on risk factors that can be controlled or removed entirely, and by doing so help people realize the cost of leading unhealthy lifestyles and hopefully provide them the motivation to change their habits and lead healthier lives.

Why use Machine Learning?

- Machine Learning deals with big data and statistics which helps us in terms of giving us smart alternatives to analyzing huge chunks of data.
- Accurate results by developing fast and efficient algorithms.
- A key machine learning benefit concerns this technology's ability to review large volumes of data and identify patterns and trends that might not be apparent to a human.
- The ability to quickly and accurately identify trends or patterns is one of the key advantages of machine learning.

About the prediction model

- The random Forrest classification algorithm was used in predicting the risk of users having cardiovascular diseases.

- From an already existing dataset of people who have been surveyed, the model was trained to give accurate results.

About Cardiobot

- Cardiobot is a smart chat bot that can conversationally answer frequently asked questions.
- It gives users more clarity about our website and what to do in an interactive way.
- It can simulate human conversation and provide users with relevant information at anytime anywhere.
- Cardiobot is built using the nltk library for data pre-processing, keras for the deep learning model, numpy for numerical python and pickle for saving python objects.

LANGUAGES AND FRAMEWORKS USED

- Flask, Bootstrap 4, Python, HTML , CSS, JavaScript, jinja, SQLAlchemy
- Numpy, pandas, skcit-learn, keras, nltk, Tensorflow

FUTURE PLAN

- Implementation of premium membership model
- Tie up with cardiologists for chat consultation service
- Personalized risk tracking system with visual data