**PANDEMIC : DETECTION AND TRACKER**

**BE Project Abstract**

**Problem Statement**

**The application we wish to present is Detection and Tracking Application which can be used by the Health Ministry of the Nation and Citizens of the Nation to control the Pandemic on a National level and on a Personal Level.**

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**Abstract:**

**Problem Definition:**

**Corona virus pandemic is spreading in large numbers. Experts suggest that social distancing has been used for a long time as one of the methods to curb or reduce the spike in diseases and infectious illnesses. By identifying "hotspots", necessary mapping can help deal with the problem of community transmission, i.e., when cases start spreading within the population in such a way that people don't know how they were exposed to the contagion. It is necessary to track the root for the disease at the earliest of its origin and thus also create a mapping and tracing methodology to track the others who have come in contact with the origin and thus act as origin themselves. This is mainly done by the members of the Health Ministry of the nation using medical volunteers and staff by visiting the people in their homes individually.**

**Proposed Solution**

**To Create an Application that substitutes the Role of Volunteer Mapping and Tracing using Deep Learning Technology to Detect, Trace and Alert. The application we wish to present is a 3- fold Detection, Tracking Application and Alerting Mechanism which can be used to keep the users safe on a personal level and alert the government on the spread of the Virus during the time of pandemic.**

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**Challenges**

* **Using Deep Learning and Appropriate credible Database from official sources, to create an efficient Symptomatic Quiz that predicts the possibility of Corona with the highest possible accuracy**
* **Creating the perfect Backtracking System to Replace the Manual Procedure done by Medical Volunteers under the Ministry of Health and Family Welfare in the country**
* **Provide Possible Support to the people who have tested themselves positive and on the basis of the information collected from them, try to predict with more accuracy and upgrade the prevalent efficiency of the application**
* **Provide all the possible information and health recommendations to the people using the application to maintain guidelines of personal and public hygiene**
* **Create the perfect Admin panel for the Health Ministry of the Nation through which they can keep a track of all the people having a good chance at contracting the disease and using their personal information can help them to get themselves tested based on the severity of the case according to the level of danger he is predicted for.**

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**Objectives**

* **On the basis of Data Collected from Positive & Negative Corona Tested Patients there is a Symptomatic Analysis Quiz Carried out by the User to find out the probability based on the data of Being Corona Positive.**
* **The result of this Model in Percentage will helps users self-identify their risk and monitor their health assessment.**
* **Tracking Geo-Fencing uses Basic inbuilt functions on a phone like Bluetooth or GPS, the user creates a geo-fence around himself and also broadcasts himself to the other users around him.**
* **The people that come in close contact of the user by infiltrating this fence we create around him with their associated Danger Percentage labelled earlier will be stored in the database and if they are Corona Positive with respect to the application, then an alert will be signalled to the user.**
* **If a user is identified positive after getting a proper hospitalized check-up then they can alert the people in the application and using different means of messaging who they came in contact in the past few days.**
* **The Health Ministry of the Nation which through the application can keep a track of all the people having a good chance at contracting the disease and using their personal information can notify to get them tested based on the severity of the case according to the level of danger he is predicted.**

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**Technology:**

* **Deep Learning Algorithm : LONG SHORT-TERM MEMORY**

**Since the data for the quiz will be updated regularly so the model has to be trained dynamically. LONG SHORT-TERM MEMORY is an artificial recurrent neural network architecture used in the field of deep learning. Unlike standard feed-forward neural networks, LSTM has feedback connections. It can not only process single data points, but also entire sequences of data. LSTM has given better results in this type of dataset from the research papers or application seen for research purposes**

* **Geo-fencing**

**Geo-fencing combines awareness of the user's current location with awareness of the user's proximity to locations that may be of interest. To adjust the proximity for the location, you add a radius. The latitude, longitude, and radius define a geo-fence, creating a circular area, or fence, around the location of interest. For each geo-fence, you can ask Location Services to start the geo-fence area before triggering an event of storing details in the database**

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**References**

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