



# Major Project Synopsis – 20MCA41

**“Contact Tracing using GPS Data and Machine Learning”**

Tracking, screening, and forecasting existing and future infected cases, early detection and diagnosis of infection, medicine and vaccine research, and lowering the burden of healthcare professionals are all essential uses of artificial intelligence (AI) in the battle against the COVID-19 pandemic. COVID-19's propagation may potentially be handled as a data science problem. Non-traditional strategies for processing COVID-19 data, such as data collection and interpretation, modelling, prediction, and data visualization and communication, are required to manipulate COVID-19 infection dynamics.

If a person is diagnosed with Covid-19 and the diagnosis is confirmed, the next critical step is contact tracing to prevent the disease from spreading further. So how exactly can one achieve it, Firstly, all the GPS data of the infected person is being collected; Secondly; one need to choose an appropriate algorithm to render data such as Density-based Clustering, Hierarchal-based Clustering, Partitioning-based Clustering using the KNN technique etc; Thirdly, the data is passed through the chosen Machine Learning algorithm where its being processed; Fourthly; depict the rendered data in graphical format, Lastly, Test the trained algorithm with test data to check it’s performance. The software technologies used for the above-mentioned steps are Python and Python libraries such as NumPy, Pandas and matplotlib; Machine Learning algorithms, and Jupyter notebook to compile our code/algorithm; else than that the hardware requirements are; Desktop or a laptop with minimum of 4-8 Gb RAM. The above steps are designed to collect individual personal data, which will be analyzed by ML and AI tools to track down someone vulnerable to the new virus due to their recent chain of contacts.

If used thoroughly, this process can break the chain of transmission of the current novel coronavirus and suppress the epidemic by providing greater opportunities for adequate controls and helping to reduce the extent of the recent pandemic. The digital contact tracing process can be done virtually in real time and much faster than the non-digital system which reduces manual effort and increases accuracy.

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