iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** V **Month of publication:** May 2020

DOI: http://doi.org/10.22214/ijraset.2020.5471

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

Covid-19 Visualizer

Mrs. M Shanmugam Shoba[1], P Nymisha[2], Shanmathi Kailasam[3], Bhawik Tanna[4]
[1]*Assistant Professor,* [2,3,4]*UG Student, Department of ISE, New Horizon College of Engineering , Bengaluru, Karnataka, India*

Abstract: ***Corona Virus Pandemic has to date spared India from a massive onslaught of death and destruction, similar to what we see in China, Europe, and the United States of America. As on date, India has reported COVID-19 74,925 cases and 2,436 deaths. The Government of India (GOI) has taken many proactive steps to control the epidemic, including the total lockdown of the nation to flatten the epidemic curve and reduce the case fatality rate. India has chosen a strategy of large-scale quarantine and limited testing and not extensive testing and limited quarantine. This is because we have a large population of 1.3 billion, and many states in India have the comparatively limited testing capacity to deal with a large-scale epidemic. The timeline that we get by flattening the curve should be urgently utilized to plan and implement interventions that help preventing further spread of the disease.***

The aim here is to understand **how visualization helps to derive informative insights of India Covid-19 cases through** ***Interactive visual map and in tabular form*** **from data sources.**

I. INTRODUCTION

Novel Coronavirus infection mediated pandemic started in China in December 2019 and is still killing 1000s of people throughout the world. The second most populous country, India too is fighting against this infectious disease. The country is taking effective measures to curb the pandemic by exerting extensive campaigning on sanitation and strict social distancing measures to quell the explosion of the infection rate.

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread. The tool would offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

COVID-19 India Visualizer helps to view the live update of cases of Corona virus outbreak across the country.

This project aims to visualize the rising case of corona virus in an Interactive visual map which makes it easier for the users to understand data which otherwise is in raw form and difficult to understand.

The Corona virus cases can be visualized in Tabular form and Interactive Visual Map .

It illustrates the state wise Corona virus cases with the help of Interactive India's Map.

It also shows the district wise cases of Corona virus outbreak.

It displays the current status of India in terms of confirmed , active and death toll interactive graphs.

It is a Dashboard for COVID-19 outbreak for India which is user friendly and highly interactive.

It also provides helpful links which has details about Pm care funds so that interested can you use it to donate.

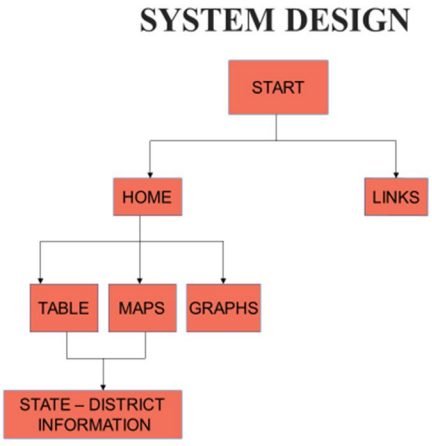


Fig. 1: System Design

©IJRASET: All Rights are Reserved

As on date, India has reported COVID-19 74,925 cases and 2,436 deaths. The Government of India (GOI) has taken many proactive steps to control the epidemic, including the total lockdown of the nation to flatten the epidemic curve and reduce the case fatality rate. India has chosen a strategy of large-scale quarantine and limited testing and not extensive testing and limited quarantine.

We get data from an Api and the Api source of data is from twitter and ICMR. Indian Council of Medical Research. Provides the Covid-19 cases in the form of pdf for state and district level which is converted to json format and used by the application to populate the data. The Api gets updated dynamically every hour.

We can view the Interactive Visual Map, Tabular form, Graphical representation in a single page so that you can compare and visualize in a better way. It even highlights which state has the highest number of Covid-19 cases with the help of a colour range.

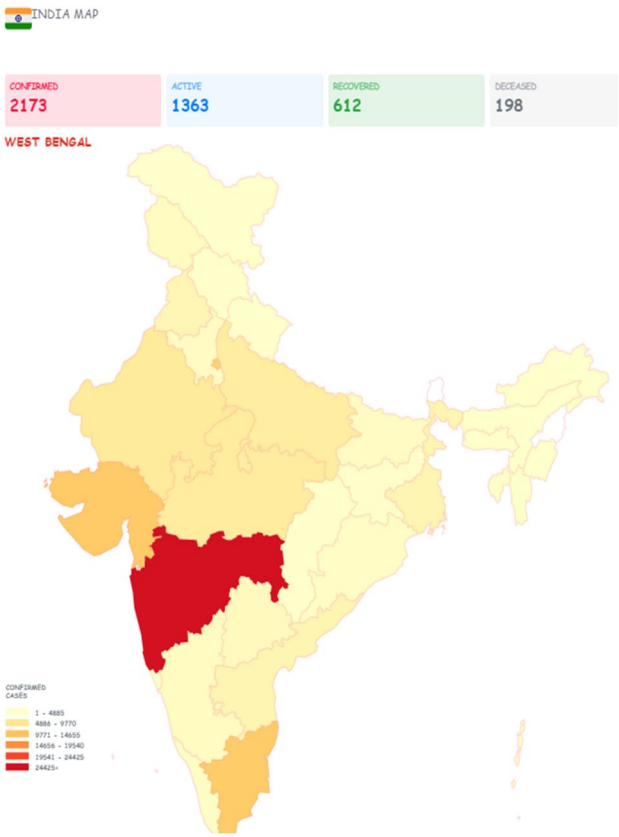


Figure 1 India Map

II. RELATED STUDY

React js, Api for State, Api for district ,Map Plotting using Geographical location are needed to plot the Covid-19 Positive cases State and district wise in Interactive Map, Tabular format and Graphical representation.

The whole application is developed in React js and deployed to our localhost. All the data is accessed with the help of an Api which has data in json format and hence easily plotted to our Map, Table, Graphs.

The Api's get data from Twitter tweets and Indian Council of Medical Research in a pdf form which is converted to Json format and then the data is utilized for representation of the Map, Tabular, Graphs.

We get the Confirmed, Active, Deceased Patients in the state and district level of our Country.

The information is updated faster compared to our traditional apps as they get updated every 24 hours .The Api here gets dynamically updated very one hour.

We have an Interactive India Map which is plotted with the help of the geographical location and the assigned with state names with the help of a json file which contains all the state and its associated district. The Map even highlights about the state with most to least number of positive cases with a colour range.

Graphical Representation which show the plot of cases against the months .This is helpful to understand the statistics in our country as whole.

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

III. LITERATURE SURVEY

There are several work has been done related to Covid-19 occurrence in India and visualization helps to derive informative insights of India Covid-19 cases .

A. COVID-19: Impact on health of people & wealth of nations, Prakash Tandon

This paper is a survey of the current research on COVID-19 pandemic ,the occurrence of it and to the delayed response to it.It also says about the impact of it on wealth of the nations.

B. Novel Coronavirus (COVID-19) in India, Noble K Kurian

In this paper, author has highlighted about the origin
of Covid-19 in Wuhan , how it came to India and the impact and situation of the country . He has also briefed the current status with the help of statistics.

C. Severe acute respiratory illness surveillance for coronavirus disease 2019, India, 2020 ICMR COVID Team

This paper addressed about the acute respiratory surveillance for coronavirus disease in India 2020.
It highlights about the rapid growth and measures to be taken to prevent it.

D. Healthcare impact of COVID-19 epidemic in India: A stochastic mathematical model,Chatterjee, Kaustuv; Chatterjee, Kaushik; Kumar, Arun; Shankar, Subramanian:

The goal of their research is to highlight about the impact of Covid-19 in India with the help of stochastic mathematical model.

E. Data visualizer allows user to track Covid-19 spread, Jessica Kent

The main aim of Covid-19 Visualizer could provide an important tool for avoiding exposure and tracking the virus' spread. The tool could offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

F. Novel Coronavirus in India:Current Situation, Varsha Kachroo

It generalizes about how Covid-19, was foreign to our country and now spreading its routes well in India. Starting with one case and now with 74000+ confirmed cases, the virus is trending right now in almost every part of the country. The irony is not much is known about this novel virus, hence mortality and morbidity across the globe is on a peak. The Ministry of Health and Family Welfare, Government of India and ICMR (Indian Council of Medical Research) has formulated guidelines and even provides the state and district level data in the pdf form which is utilized in our project to fetch data.

IV. SCOPE

Covid-19, was foreign to our country and now spreading its routes well in India. Starting with one case and now with 74000+ confirmed cases, the virus is trending right now in almost every part of the country. So,it is necessary to create awareness about the wide-spread of the disease .

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread. The tool will offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots. Those regions can be under strict lockdown so as to reduce the effect of it in the district of the state. We have Tabular, Interactive Map, Graphs in a single page which help in better visualization of the pandemic. It also has another tab which has all the helpful links. We can donate money to Pm Care funds with the provided link in helpful links tabs. It even gives all the helpline numbers associated to states .

V. PROBLEM DEFINITION

The outbreak of the COVID-19 in India has created chaos among the citizens. The current status of the outbreak was accessed either through news channels or newspaper or other media.

There is no proper dashboard designed by anyone to understand and be aware of the situation at every place.

Hence, we proposed an application to design an interactive dashboard for citizens of India.

This application also displays helpful links for users to access for more information along with awareness messages.

©IJRASET: All Rights are Reserved

The Covid-19 Visualizer would provide an important tool for avoiding exposure and tracking the virus' spread.
The tool would offer public health officials the ability to see how COVID-19 progresses over time locally and regionally, and enable leaders to identify areas as potential hot spots.

VI. MODULE DESCRIPTION

This COVID-19 Visualizer consists of two parts:

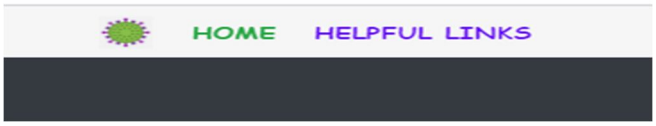


Figure 1 Two Tabs

A. Home

This Module contains following components:

1) *Map:* A Visual representation of Covid-19 cases in each state and district.
2) *Table:* A tabular representation of Covid-19 cases.
3) *Graph:* A graphical representation of Covid-19 cases which is used to compare the number of confirmed cases vs number of recovered cases vs number of deaths.

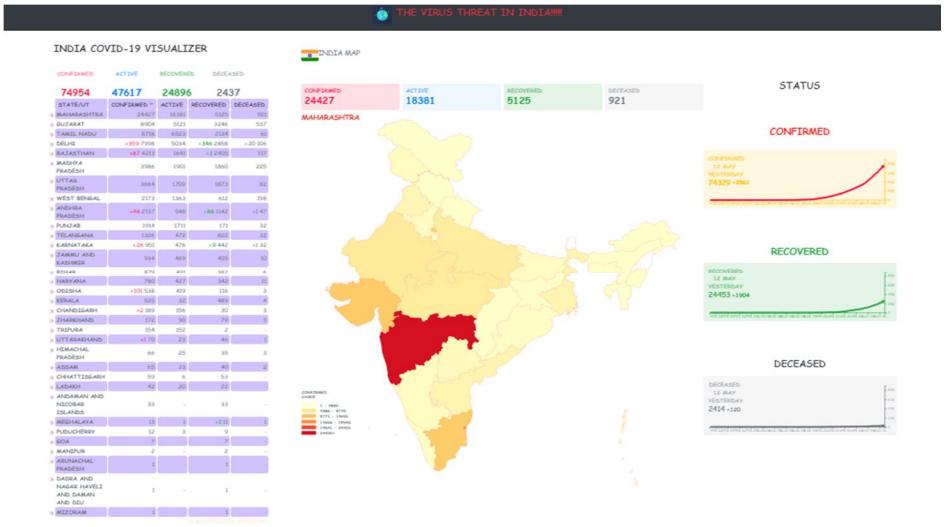


Figure 2 Home Page

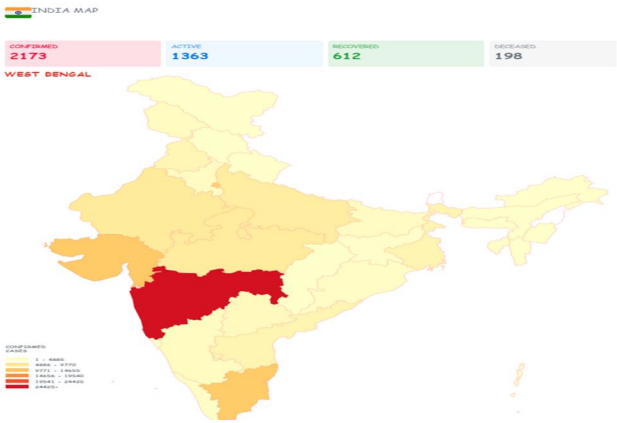


Figure 3 India Map

This the interactive Map which highlights each state and the most to least cases using a colour range.

©IJRASET: All Rights are Reserved

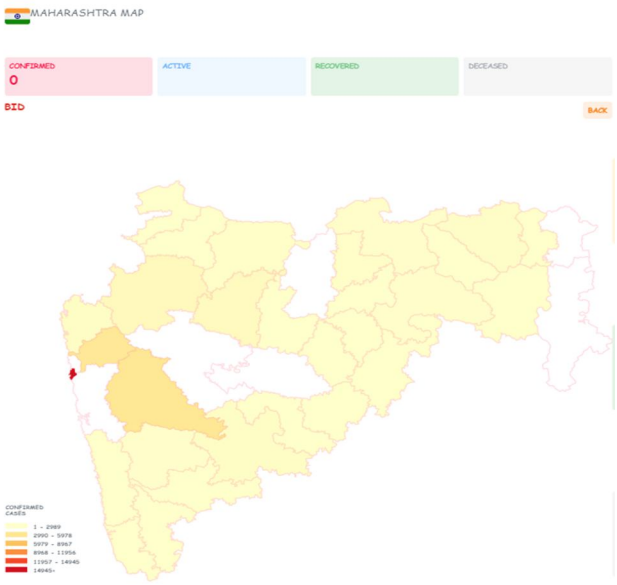


Figure 4 District Map



Figure 5 Graphs

Graphical representation of months against cases in India. It has Confirmed , Recovered , Deceased cases.

©IJRASET: All Rights are Reserved

INDIA COVID-19 VISUALIZER

CONFIRMED	ACTIVE	RECOVERED	DECEASED
74954	47617	24896	2437

STATE/UT	CONFIRMED	ACTIVE	RECOVERED	DECEASED
MAHARASHTRA	24427	18381	5125	921
GUJARAT	8904	5121	3246	537
TAMIL NADU	8718	6523	2134	61
DELHI	↑359 7998	5034	↑346 2858	↑20 106
RAJASTHAN	↑87 4213	1641	↑1 2455	117
MADHYA PRADESH	3986	1901	1860	225
UTTAR PRADESH	3664	1709	1873	82
WEST BENGAL	2173	1363	612	198
ANDHRA PRADESH	↑48 2137	948	↑86 1142	↑1 47
PUNJAB	1914	1711	171	32
TELANGANA	1326	472	822	32
KARNATAKA	↑26 951	476	↑9 442	↑1 32
JAMMU AND KASHMIR	934	469	455	10
BIHAR	879	491	382	6
HARYANA	780	427	342	11
ODISHA	↑101 538	419	116	3
KERALA	525	32	489	4
CHANDIGARH	↑2 189	156	30	3
JHARKHAND	172	90	79	3
TRIPURA	154	152	2	-
UTTARAKHAND	↑1 70	23	46	1
HIMACHAL PRADESH	66	25	35	3
ASSAM	65	23	40	2
CHHATTISGARH	59	6	53	-
LADAKH	42	20	22	-
ANDAMAN AND NICOBAR ISLANDS	33	-	33	-
MEGHALAYA	13	1	↑1 11	1
PUDUCHERRY	12	3	9	-
GOA	7	-	7	-

Figure 6 Tabular Data

The above figure shows the graphical representation of data extracted from Api .

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue V May 2020- Available at www.ijraset.com

74954	47617	24896	2437

STATE/UT	CONFIRMED	ACTIVE	RECOVERED	DECEASED
MAHARASHTRA	24427	18381	5125	921

DISTRICT	CONFIRMED
GADCHIROLI	0
MUMBAI SUBURBAN	0
BEED	1
BHANDARA	1
GONDIA	1
WARDHA	1
PARBHANI	2
WASHIM	2
CHANDRAPUR	4
OSMANABAD	4
SINDHUDURG	6
JALNA	16
KOLHAPUR	19
NANDURBAR	22
BULDHANA	25
LATUR	31
SANGLI	38
OTHER STATE	41
NANDED	46
RATNAGIRI	55
HINGOLI	61
DHULE	63
AHMEDNAGAR	64
AMRAVATI	89
YAVATMAL	98
SATARA	123
AKOLA	169
JALGAON	192
NAGPUR	268
RAIGAD	275
PALGHAR	301
SOLAPUR	317
AURANGABAD	653
NASHIK	741
THANE	2814
PUNE	2937
MUMBAI	14947

Figure 7 District Level Tabular Data

It give the district level data of the state in tabular form.

©IJRASET: All Rights are Reserved

B. Helpul Links

1) This module consists of links which can be useful for an individual visiting the website.

2) This module also consists of Images or Posters which creates awareness amongst the visitors.



Figure 8 Helpful links.



Figure 9 Links available in helpful links tabs

VII. CONCLUSION AND FUTURE ENHANCEMENT

This paper tried to highlight the following:

The project aimed to provide a user-friendly dashboard which gives real time Information about COVID-19 outbreak in India.

This Project provides information in Tabular format and Visual Interactive Map and current status information in the form of interactive graphs.

This Project also provides information about Important links which could be useful to the visitor.

The awareness is also created amongst the visitors using the messages displayed in the web page.

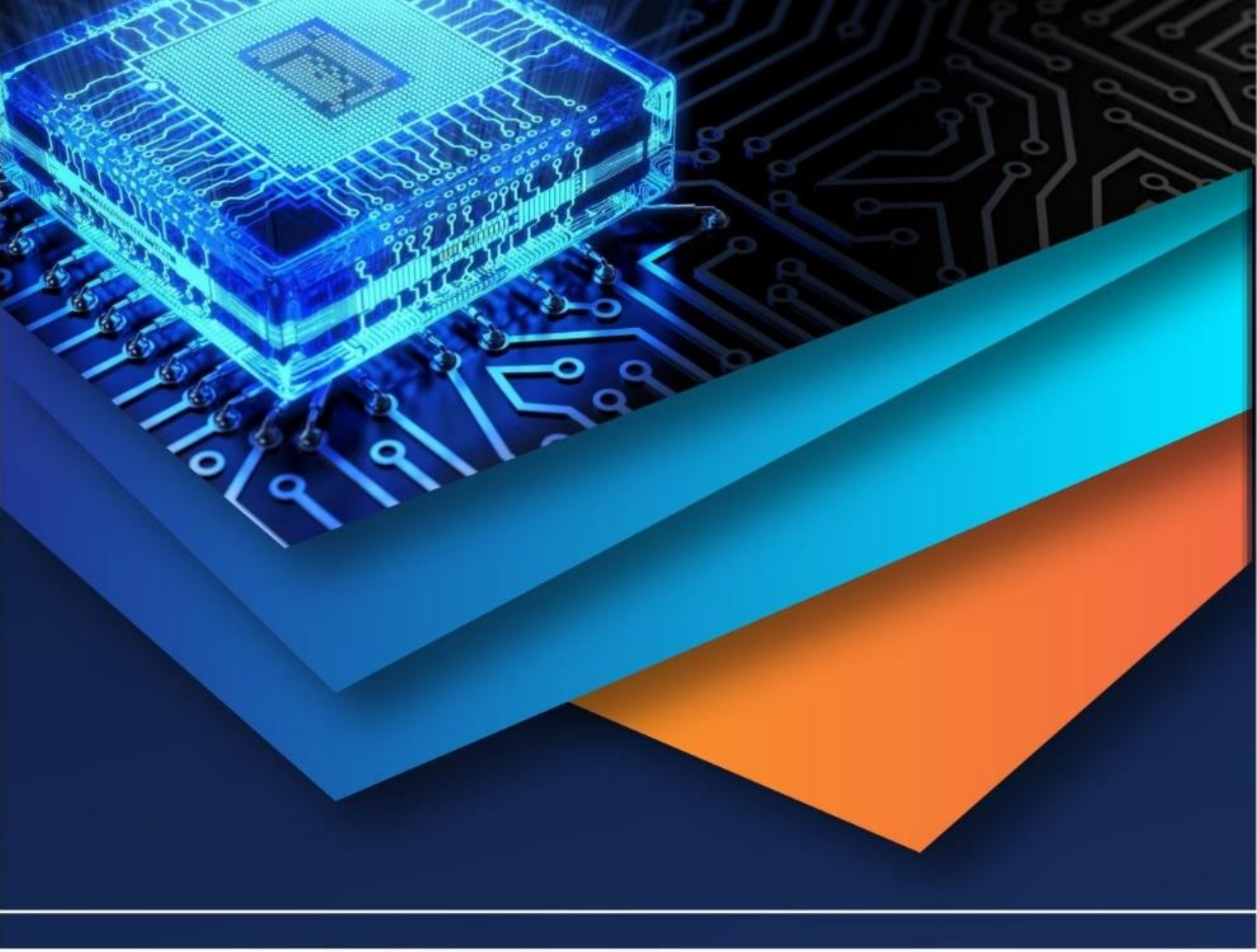
We can in future implement with location feature to identify which zone we lie and to find the nearest positive case.

©IJRASET: All Rights are Reserved

REFERENCES

[1] K Kurian, Noble. (2020). Novel Coronavirus (COVID-19) in India. 10.20944/preprints202003.0436.v1.
[2] COVID-19: Impact on health of people & wealth of nations Tandon, P. N. (2020) The Indian journal of medical research .
[3] Healthcare impact of COVID-19 epidemic in India: A stochastic mathematical model Chatterjee, Kaustuv; Chatterjee, Kaushik; Kumar, Arun; Shankar, Subramanian (2020) Medical Journal Armed Forces India..
[4] https://economictimes.indiatimes.com/news/science/live-interactive-maps-track-global-covid-19-cases-in-real-time/articleshow/74812742.cms?from=mdr
[5] https://www.researchgate.net/publication/340291694_Novel_Coronavirus_COVID-19_in_India.
[6] Aaron Miller, Mac Josh Reandelar, Kimberly Fasciglione, Violeta Roumenova, Yan Li, and Gonzalo H. Otazu. Correlation between universal BCG vaccination policy and reduced morbidity and mortality for COVID-19: anepidemiologicalstudy. https://doi.org/10.1101/2020.03.24.20042937
[7] Mandal S, Bhatnagar T, Arinaminpathy N, et al. Prudent public health intervention strategies to control the coronavirus disease 2019 transmission in India: A mathematical model-based approach [published online ahead of print, 2020 23rd March]. Indian J Med Res. 2020;10.4103/ijmr.IJMR_504_20. doi:10.4103/ijmr.IJMR_504_20
[8] Wilder-Smith A, Freedman DO. Isolation, quarantine, social distancing and community containment: pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. J Travel Med. 2020;27(2):taaa020. doi:10.1093/jtm
[9] Choi SC, Ki M. Estimating the reproductive number and the outbreak size of Novel Coronavirus disease (COVID-19) using mathematical model in Republic of Korea [published online ahead of print, 2020 12th March]. Epidemiol Health. 2020;e2020011. doi:10.4178/epih.e2020011
[10] https://www.thecrimson.com/article/2020/3/31/coronavirus-intermittent-distancing-study/
[11] https://healthweather.us/?mode=Atypical
[12] Email Communication from CMAAO IMA HCFI CORONA MYTH BUSTER 29, Dr K K Aggarwal President CMAAO, HCFI and Past National President CMAAO dated 1st April 2020
[13] Many civil society organizations in the filed such as Aajeevika Bureau, Shram Sarathi, Basic Health Services, Prayas, INAAF, Saath, Yuva, CRH, and Prabasi Shramik Sahayata Manch have started collaborating on several areas to handle the emerging situation (communication from Pavitra Mohan and Rajiv Khandelwal
[14] National AIDS Control Organization (NACO), MOHFW, GOI, (2010): Policy, Strategy and Operational Plan – HIV Intervention for Migrants
[15] Rao, ASRS, Krantz S.G., Kurien T, Bhat, R, Sudhakar K (2020). Model-Based Retrospective Estimates for COVID-19 or Coronavirus in India: Continued Efforts Required to Contain the Virus Spread, Current Science.
[16] Corona Updates – Ministry of Health and Family Welfare, Government of India https://www.mohfw.gov.in/
[17] Dhama, K.; Sharun, K.; Tiwari, R.; Sircar, S.; Bhat, S.; Malik, Y.S.; Singh, K.P.; Chaicumpa, W.; Bonilla-Aldana, D.K.; Rodriguez-Morales, A.J. Coronavirus Disease 2019 – COVID19. Preprints 2020, 2020030001 (doi: 10.20944/preprints202003.0001.v1).
[18] Drosten, C., Günther, S., Preiser, W., Van Der Werf, S., Brodt, H. R., Becker, S., ... & Berger, A. (2003). Identification of a novel coronavirus in patients with severe acute respiratory syndrome. New England journal of medicine, 348(20), 1967-1976.
[19] Fehr, A. R., & Perlman, S. (2015). Coronaviruses: an overview of their replication and pathogenesis. In Coronaviruses (pp. 1-23). Humana Press, New York, NY.
[20] Graham, R. L., Donaldson, E. F., & Baric, R. S. (2013). A decade after SARS: strategies for controlling emerging coronaviruses. Nature Reviews Microbiology, 11(12), 836-848.
[21] Kahn, J. S., & McIntosh, K. (2005). History and recent advances in coronavirus discovery. The Pediatric infectious disease journal, 24(11), S223-S227.
[22] Ksiazek, T. G., Erdman, D., Goldsmith, C. S., Zaki, S. R., Peret, T., Emery, S., ... & Rollin, P. E. (2003). A novel coronavirus associated with severe acute respiratory syndrome. New England journal of medicine, 348(20), 1953-1966
[23] Liu, J., Cao, R., Xu, M., Wang, X., Zhang, H., Hu, H., ... & Wang, M. (2020). Hydroxychloroquine, a less toxic derivative of chloroquine, is effective in inhibiting SARS-CoV-2 infection in vitro. Cell Discovery, 6(1), 1-4
[24] Malik, Y. S., Sircar, S., Bhat, S., Sharun, K., Dhama, K., Dadar, M., ... & Chaicumpa, W. (2020). Emerging novel Coronavirus (2019-nCoV)-Current scenario, evolutionary perspective based on genome analysis and recent developments. Veterinary Quarterly, (just-accepted), 1-12.
[25] Novel Coronavirus (2019-nCoV) situation reports – World Health Organization (WHO) https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/ Novel
[26] C. P. E. R. E. (2020). The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. Zhonghua liu xing bing xue za zhi= Zhonghua liuxingbingxue zazhi, 41(2), 145.
[27] Peiris, J. S. M., Lai, S. T., Poon, L. L. M., Guan, Y., Yam, L. Y. C., Lim, W., ... & Cheng, V. C. C. (2003). Coronavirus as a possible cause of severe acute respiratory syndrome. The Lancet.
[28] Zaki, A. M., Van Boheemen, S., Bestebroer, T. M., Osterhaus, A. D., & Fouchier, R. A. (2012). Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. New England Journal of Medicine.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)