Artificial Intelligence – An Effective Technology in Prevention and Treatment of Pandemic Diseases Like COVID-19 In India

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ABSTRACT

AI and IoT play a vital role in the healthcare sector, while in the pandemic like situation it also creates a platform for monitoring, prevention, treatment, tracing, diagnosis, testing and teamwork. Here as mechanical instruments and research centers the world over offer information and all in all work to devise devices and fixes, comparative endeavors ought to be considered between keen city experts on how synergistic methodologies could consider the boost of open security on such and comparable situations. Kamel Boulos et al. underpin that information from different mechanical items can help advance wellbeing databases, give progressively exact, proficient, thorough, and constant data on flare-ups and their dispersal. In India, there are various measures taken in the form of an application "Aarogya Setu" and "COVID-19 tracker" that helped to face the challenge and threat posed by the growing pandemic of COVID-19 the Corona Virus. With active support of the people of India, we have been able to contain the spread of the Virus in our country.

Keywords: *AI, Covid-19, Pandemic, IoT*

INTRODUCTION

The tale of coronavirus flare-up (recently known as the 2019-nCoV and later renamed COVID-19) is prompting the conclusion of whole urban communities in China and stringent measures be taken in others. While in inaccessible various mainlands, a long way from China where the infection was first announced, places are being put on high alarm. In Wuhan, where the infection broke, schools, streets, and markets have been closed. The equivalent is valid in Hong Kong, Beijing, and Hubei Province among encompassing territories, as prudent steps are being stressed to guarantee that the spread of the infection is limited, and complete and exact data on the infection is being acquired. Be that as it may, the pace of spread of the infection and the vulnerabilities encompassing the whole circumstance have driven the World Health Organization (WHO) on 30 January 2020 to announce the Coronavirus flare-up a 'Worldwide Public Health Emergency'. WHO decided, notwithstanding, not to proclaim the episode a 'General Health Emergency of International Concern' (PHEIC) which is a more significant level of announcement. A PHEIC is characterized as "an unprecedented occasion which is resolved to comprise a general wellbeing danger to different States through the global spread of malady and to conceivably require a planned global reaction" whose extension may incorporate genuine, abrupt, surprising or startling; conveys suggestions for general wellbeing past the influenced State's national outskirt; and may require prompt universal activity.

With the world having encountered some eminent flu pandemics previously, a Global Initiative on Sharing All Influenza Data (GISAID) stage was built up and was instrumental in the fast sharing of data by the Chinese researchers regarding the development of the COVID-19 infection. Through this stage, researchers from different districts were seen to access data and are, therefore, ready to act in a lot quicker limit; like on account of researchers from the Virus Identification Laboratory based at Doherty Institute, Australia, who figured out how to grow a comparative infection in the laboratory in the wake of getting to the information shared by the Chinese researchers.

On January 30, India reported its first case of COVID-19 in Kerala, which rose to three cases by February 3; all were students who had returned from Wuhan, China. No significant rise in cases was seen in the rest of the February. On March 4, 22 new cases came to light, including those of an Italian tourist group with 14 infected members.

The transmission escalated during March, after several cases were reported all over the country, most of which were linked to people with a travel history to affected countries. On March 12, a 76-year-old man who had returned from Saudi Arabia became the first victim of the virus in the country.

Confirmed cases crossed 100 by March 15, 3,000 by April 4 and 3,09,405 by June 12 . The death toll crossed 100 on April 5 and 8890 on June 12. While recovered cases crossed 100 by March 30, and 1,54,131 till June 12.

Past the part of pandemic readiness and reaction, the instance of COVID-19 infection and its spread gives an entrancing contextual analysis to the matics of urban wellbeing. Here, as mechanical instruments and research centers the world over offer information and all in all work to devise devices and fixes, comparative endeavors ought to be considered between keen city experts on how synergistic methodologies could consider the boost of open security on such and comparable situations. This is substantial as keen urban communities have a rich cluster of mechanical items that can aid early recognition of flare-ups; either through warm cameras or Internet of Things (IoT) sensors, and early conversations could render endeavors toward better administration of comparable circumstances in the event of future potential flare-ups, and to improve the wellbeing texture of urban communities for the most part. While warm cameras are insufficient all alone for the recognition of pandemics—like the instance of the COVID-19, the coordination of such items with manmade brainpower [Artificial Intelligence (AI)] can give included advantages. The way that underlying screenings of temperature is being sought after for the instance of the COVID-19 at air terminals and in regions of mass union is a demonstration of its potential in a mechanized manner. Kamel Boulos et al. underpin that information from different mechanical items can help advance wellbeing databases, give progressively exact, proficient, thorough, and constant data on flare-ups and their dispersal, accordingly, supporting in the arrangement of better urban texture hazard the board choices.

DISCUSSION:

Coronavirus infections are a huge group of infections which may cause sickness in creatures or people. In people, a few coronaviruses are known to cause respiratory contaminations going from the normal virus to progressively serious maladies, for example, Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most as of late found coronavirus causes coronavirus infection COVID-19.

COVID-19 is the irresistible illness brought about by the most as of late found crown infection. This new infection and sickness was obscure before the episode started in Wuhan, China, in December 2019.

The most widely recognized indications of COVID-19 are fever, tiredness, and dry hack. A few patients may have a throbbing painfulness, nasal clog, runny nose, sore throat or loose bowels. These side effects are normally mellow and start continuously. A few people become contaminated however do not build up any manifestations and do not feel unwell. Many people (about 80%) recuperate from the infection without requiring unique treatment. Around 1 out of each 5 individuals who gets COVID-19 turns out to be genuinely sick and creates difficulty in breathing. More established individuals, and those with hidden clinical issues like hypertension, heart issues or diabetes, are bound to create genuine disease. Individuals with fever, hack and trouble breathing should look for clinical consideration.

Individuals can get COVID-19 from other people who have the infection. The illness can spread from individual to individual through little beads from the nose or mouth which are spread when an individual with COVID-19 hacks or breathes out. These beads land on items and surfaces around the individual. Others at that point get COVID-19 by contacting these articles or surfaces, at that point contacting their eyes, nose or mouth. Individuals can likewise get COVID-19 if they take in beads from an individual with COVID-19 who hacks out or breathes out drops. Along these lines, it is critical to remain more than 1 meter (3 feet) away from an individual who is wiped out.

WHO enrolled these 8 mainstays of general wellbeing reaction in the Operational Planning Guidelines and COVID-19 Partners Platform to help nation readiness and reaction these 8 columns can deal with the premise of innovation.

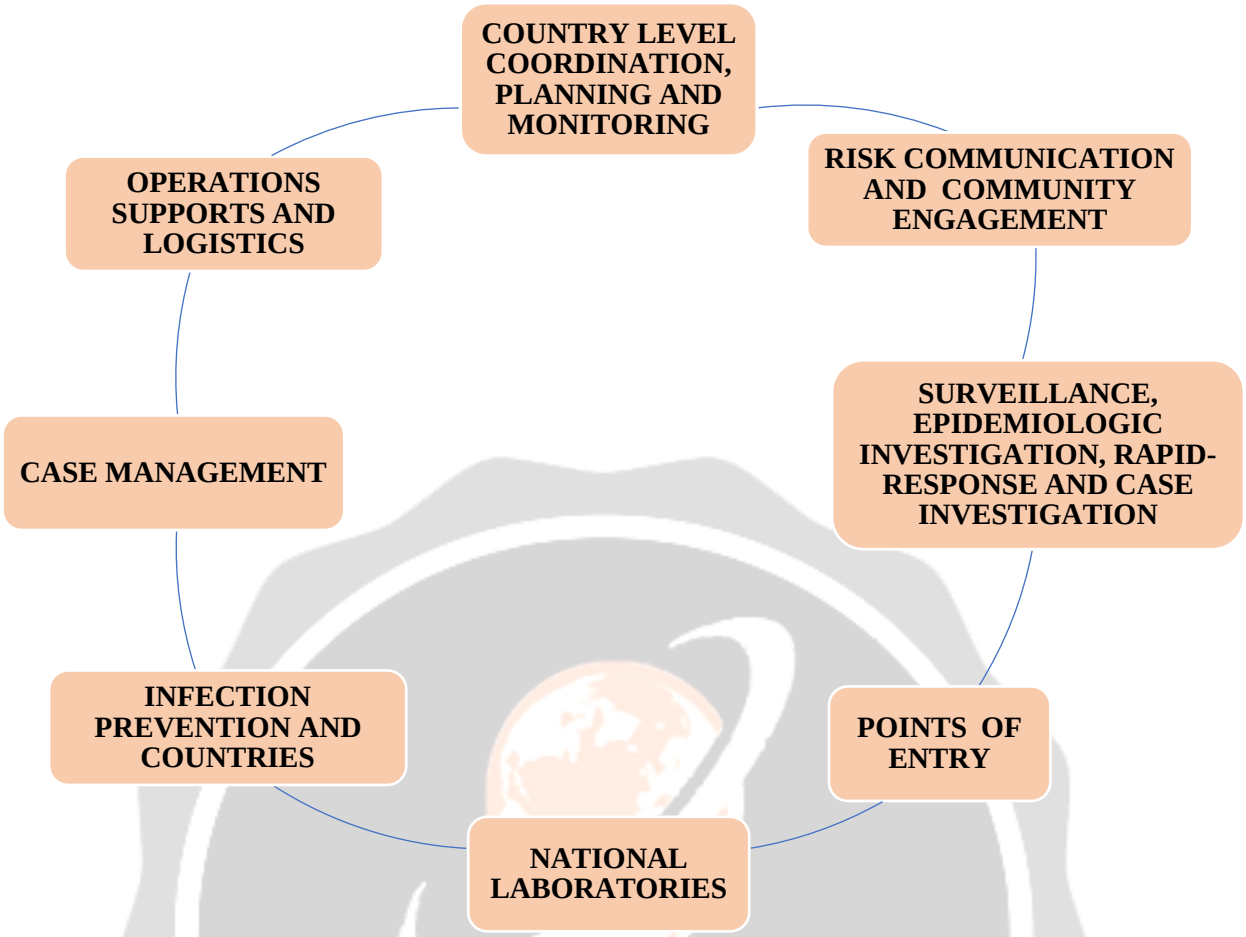

Fig 1 8 pillars of general wellbeing reaction

In the first place, the IoT gives a stage that permits general wellbeing offices access to information for observing the COVID-19 pandemic. For instance, the 'World meter' gives a constant update on the genuine number of individuals known to have COVID-19 around the world, including day by day new instances of the malady, illness conveyance by nations and seriousness of ailment (recuperated, basic condition or passing). Johns Hopkins University's Center for Systems Science and Engineering has additionally built up a continuous following guide for following instances of COVID-19 over the world, utilizing the information gathered from US Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), the European Center for Disease Prevention and Control, the Chinese Center for Disease Control and Prevention (China CDC), which totals information from China's National Health Commission and the China CDC and in India a tracker site made for the dynamic and recouped cases alongside the locale areas.

Secondly, huge information additionally gives chances to performing displaying investigations of viral movement and for managing singular nation medicinal services policymakers to improve groundwork for the flare-up. Utilizing three worldwide databases—the Official Aviation Guide, the area-based administrations of the Tencent (Shenzhen, China), and the Wuhan Municipal Transportation Management Bureau—Wu et al. played out a displayed investigation of 'nowcasting' and anticipating COVID-19 sickness movement inside and outside China that could be utilized by the wellbeing experts for general wellbeing arranging and control around the world. Additionally, utilizing the WHO International Health Regulations, the State Parties Self-Assessment Annual Reporting Tool, Joint External Evaluation reports, and the Infectious Disease Vulnerability Index, Gilbert et al. surveyed the readiness and defenselessness of African nations in engaging against COVID-19; this would help bring issues to light of the separate wellbeing experts in Africa to more readily get ready for the viral flare-up.

Thirdly, advanced innovation can upgrade general wellbeing training and correspondence. In Singapore, the legislature has joined forces with WhatsApp (claimed by Facebook) to permit people in general to get precise data about COVID-19 and government activities. Multiple online networking stages (e.g., Facebook and Twitter) are at present utilized by social insurance offices to give 'constant' refreshes and explain vulnerabilities

with the general population. Furthermore, some facial-acknowledgment organizations (e.g., SenseTime and Sunell) have received the warm imaging–empowered facial acknowledgment to recognize individuals with a raised temperature at different screening focuses in China and in India too warm filtering will be acted in emergency clinics laborers and in large broad stores like Dmart.

Lastly, AI and profound learning can improve the recognition and conclusion of COVID-19. The need to give access to exact and ease tests for the determination of COVID-19 is a test. Numerous fringe clinics in China and other creating nations in Asia, the Middle East, and Africa do not have the tests or assets to precisely recognize COVID-19 from the 'basic influenza'. Albeit most patients have gentle instances of COVID-19, doctors must apply a similar degree of serious techniques to segregate, treat, and screen all patients. Manmade intelligence calculations could be created to help doctors triage patients with COVID-19 into conceivably three gatherings: the 80% who have gentle ailment; the 15% who have moderate ailment; and the 5% who have serious infection, including those at high danger of mortality. At last, AI can likewise encourage the revelation of novel medications with which to treat COVID-19.

Prevention

By IOT and AI we can prevent from the COVID-19 as we can create some IEC material on digital platform so it creates awareness among population of the country. We can also track those individuals who are infected previously by the disease through an application named “Aarogya Setu” which is governed by the Government of India. This application alarms you and buzzes out if any infected individual is nearby you so that you get aware of the infectious people and maintain a safe distance from them. This application is available on both android and iOS mode.

Monitoring/Surveillance

Monitoring of the people who are infected throughout the country is by the website or some other tracker devices like in India a dashboard is made called “COVID-19 tracker” in which all the state-wise cases of India are recorded and updated in every 4 hours. In this dashboard, we can also add one thing which is missing right now, that is, adding all the paneled hospitals which recently treated coronavirus patients so that they can add the patient details in the local city, since the city-wise data is not available in this tracker. These all are based on IOT and IoMT.

Diagnosis and Treatment

The diagnosis of COVID-19 is done by PCR (Polymerase chain reaction). PCR tests are used to directly detect the presence of an antigen, rather than the presence of the body’s immune response, or antibodies. By detecting viral RNA, which will be present in the body before antibodies form or symptoms of the disease are present, the tests can tell whether someone has the virus very early on. PCR gives us a good indication of who is infected. Bosch developed a new test called as SWAB test for COVID-19 .
Till now, there is no vaccine of COVID-19, various R&Ds are working on vaccine but till now there is no cure. All the R&Ds are working by the AI and Deep learning or IoT. They identified the strain of the virus by some technological measures and created the structure of the drug which binds to RNA of the virus and inhibits and kills the virus, although it is difficult to create but it is possible by AI.

The Chief Minister of Delhi, Arvind Kejriwal, proposed a 5T proposal, i.e., **Testing, Tracing, Treatment, Team work, and Tracking and Monitoring.**
In these Ts, AI and IOT play a role like in testing they will do the random testing of 1000 individuals of those areas where the cases are in ample number so they can detect easily the cases which are not known yet, sampling can be performed by a renowned researcher and testing will be performed. Tracing of the infected person by the chips which is an application of IOT, Treatment will be given to infected patients by putting them in isolation ward and fourth T which is Team work, health workers doctors, nurses and all the hygiene workers work as a team which can be coordinated by wearable devices and some other methods and monitoring of the events which can be done easily by AI to create a platform where all the events will be recorded and are easily traceable.

CONCLUSION:

There is a high scope of AI and IOT in monitoring, surveillance, diagnosis, and prevention of COVID-19. In India, there are various measures taken in the form of an application "Aarogya Setu" and "COVID-19 tracker" that helped to face the challenge and threat posed by the growing pandemic of COVID-19 the Corona Virus. With active support of the people of India, we have been able to contain the spread of the Virus in our country. The most important factor in preventing the spread of the Virus locally is to empower the citizens with the right information and taking precautions as per the advisories being issued by Ministry of Health & Family Welfare.

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