ROLE OF TECHNOLOGY IN COVID-19 PANDEMIC

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Abstract:

The world's health systems are facing an unprecedented predicament due to a pandemic induced by a novel coronavirus (COVID-19). The COVID-19 pandemic has a negative impact on public health, local communities, and government. Technology has ushered in huge improvements in many facets of our life, including improved information interchange, data presentation, and medical resource management through telemedicine. Internet of Medical Things, drones, robots, UVs, Global Positioning System, and Bluetooth are examples of cutting-edge technologies that can help mitigate the impact of the COVID-19 outbreak. In this paper, Internet of Medical Things

Key words: *COVID-19, Pandemic, Technology, Iomt, Robots, Drones, UVs, GPS, Bluetooth, Tele-Medicine*

Introduction: : The Novel Corona Virus is a recent pandemic, which has hit around 222 countries and territories all over the world, placing states in a vulnerable position. Covid-19, an infectious disease causing severe acute respiratory syndrome with high transmissibility, a case fatality rate is greater than 1%, and no effective antiviral therapy or vaccine is available. Digital health technology can facilitate pandemic strategy and response in a way that is different to achieve manually. Although Covid-19 is the newest of its kind but related to the past pandemics and how people used technology at that time, it can be a best guide in the current scenario.

Examining the technology and related systems that are helpful in disease identification, limiting disease spread, and disease prevention is of supreme importance. At both the organisational and industry levels, digital adaptation has advanced dramatically.

Useful Technologies During Pandemic: During the pandemic, consumers have moved dramatically toward online channels, and companies and industries have responded in turn. Technologies that can be helpful during a pandemic are the Internet of Things (IoT), Internet of Medical Things (IoMT), and other smart emerging technologies like Drones, Robots, Autonomous Vehicles (AVs), Bluetooth, and Global Positioning System(GPS). IoT works on interconnected computing devices, transmitting data over the network without any human intervention. In recent advancement comes the IoMT, which has captured major attention in the field of healthcare. It is a combination of medical devices and software applications connected to healthcare IT systems via wireless connectivity. Drones, Robots and AVs technology not only ensure minimal human interaction but also can be beneficial to access contagious COVID-19 patients. Wearables, Bluetooth and GPS technology are another efficient way to monitor individuals' health and their day-to-day stress level in isolation. A computer tomography machine was widely used in the early detection and diagnosis due to unique symptoms of the coronavirus chest computerized tomography had higher sensitivity for

the diagnosis of COVID-19 as compared to initial reverse-transcription polymerase chain reaction (RT-PCR). By using chest computerized tomography machines and deep learning technology, the coronavirus disease can be detected and distinguished from community-acquired pneumonia and non-pneumonic lung diseases.

Here, we focus mainly on Internal of Things (IoT), Internet of Medical Things (IoMT).

Internet of Medical Things: IoMT is a smart platform that uses smart sensors, smart devices, and revolutionary communication protocols to analyse biological signals and, as a result, diagnose disease in patients without the need for human intervention.

IoMT can find its application in Remote Monitoring of Patients, order tracking for medications, transmitting the medical information monitored by the wearables to the concerned health-care professionals. Few devices that fall in the category IoMT are: -

a) **Fitness wearables** These devices are equipped with sensors, that collect data and send it to their smartphone application. Examples of such are wristbands, smart shoes, and smartwatches.

b) **Clinical Wearables:** Clinical Wearables are being certified and approved by regulatory and are also advised by physicians. They more of focus on improving chronic health conditions and illness in various types of diseases. Examples of such are smart belts used by elderly patients to provide hip protection, chest straps which support ECG, respiratory rate sensors.

c) **Remote Patient Monitoring Devices:** These devices help doctors to continuously observe a discharged patient which helps to keep a track of the recovery time and prevent patients from readmitting into the hospital. RPM can collect data from patients in one location such a patients' house and then transmit the information electronically to healthcare providers who can be at different location, they can assess and provide recommendation.

d) **Smart Pills:** Smart pills are drugs with investible electronic sensors. The sensor in the pill gets activated when it comes in contact with stomach fluids, sensor than transmits the data to some wearable, usually attached to the patients' arm, which can further send data to the smartphone application. Smart pills can be used in many healthcare cases, where medical observation of patients is crucial such as Alzheimer's for example.

Internet of Things:

IoT devices is an advanced technology that can link all smart objects together within a network with no human interaction. Novel coronavirus also known as COVID-19 posed major global challenges in efficient mechanisms of disease diagnosis and management. A healthcare system capitalized on the IoT that can help achieve the utmost goal. Devices that fall under this category are Smart Thermometer, that record the body temperature. These are medical thermometer that can transmit their readings which are collected, stored and analysed. They are deployed in public areas to screen people with high fever. They are mostly linked to some mobile applications; it allows them to be immediately transmit their analysis to connected establishments. On receiving the data, the establishment assimilates the data and produces maps on daily basis presenting regions facing an upsurge in high fevers in order to allow the authorities to locate potential.

Another device of such kind is Smart Helmet with thermal camera. When a high temperature is detected by the thermal camera, the location and the image of the person's face are taken by the optical camera, they are sent to the assigned mobile device with an alarm, so that a health officer can distinguish the infected person, and authorities can act. Also, Google location can be incorporated with the smart helmet to find the places visited by the suspected after detection.