

How advances in Computer Science have helped India fight COVID-19 pandemic

Sarthak Sharma , Roshni Balasubramanian

1 SIES Graduate School of Technology, Nerul, India

2 SIES Graduate School of Technology, Nerul, India

ABSTRACT

The COVID-19 pandemic has brought the world to a complete standstill. 100+ countries observed lockdowns at State or National levels. This has been the first of its kind pandemic in the 21st century and has brought multiple challenges with it. Various groups of people are tackling new circumstances, be it multinational corporates, students, or even at personal day-to-day lives. In this paper, we try to understand how advancement in Computer Engineering and Technology has helped us overcome the various challenges that are being faced during the COVID-19 pandemic. The paper analyses and summaries how technology has helped people bridge the gap that has been caused due to the COVID-19 pandemic at various levels. The paper also briefly compares the change that technology has brought which was not possible during the 1918 Spanish Flu.

Keywords - COVID-19, Everyday Technology, Digitization, Computer Science, Pandemic

1. INTRODUCTION

Over the years, digital technology has come a long way. The influence of technology in our lives has been a debatable topic, but the true power of technology became known to people during the COVID-19 pandemic across the globe. The COVID-19 pandemic started in December 2019 and spread throughout the globe within a few months. India recorded its first case on 30th January 2020 and the country was put on lockdown on 22nd March 2020 [1]. During the time of lockdown, various activities came to a halt. People were unable to move out of their homes and there were issues the world had never ever seen before. Putting a country in a lockdown had huge impacts on the economy and other aspects of the government. Many lost their jobs and a lot of daily wage workers chose to move back to their villages. As the situation was completely new and with little or no past knowledge of what to do during such times, people started altering their lives. In this paper, we try to understand how these changes were influenced by innovations in the field of Computer Science. The paper is organized as follows. The paper discusses the various areas and aspects where the COVID-19 pandemic caused problems and how technology has helped in each of these aspects. A brief comparison of COVID-19 with the 1918 Spanish Flu is then presented followed by the conclusion.

2. THE STUDY

2.1 Business

As most countries were under lockdown, it caused offices to shut down. Closing down offices was a big issue as work was indefinitely postponed. Companies realized that a lot of work could be performed remotely. The concept of 'work from home' became a common thing. To tackle this problem multiple technological advances came to the rescue. Most meetings were conducted online through video conferencing apps. The demand for online working platforms increased. Work was being conducted through online collaboration platforms. People started sharing work through cloud-based services. The process of recruitment moved online with the help of aptitude tests and video conference based interviews. The entertainment industry was greatly affected but a huge surge was seen in OTT services like Netflix, Prime Videos, etc. A lot of movies that were not released in theatres due to the lockdown were released on these platforms and losses were minimised. Online food delivery services were expected to take a hit but the challenges were met in a very innovative way. Zomato started home delivering groceries during these times.

At non-corporate levels, local businesses and even cottage industries started migrating online. Shops started creating their own websites and delivering the products through courier services. Even those who could not afford to maintain a website started collaborating with other web-based services like Amazon and JioMart etc. Further, those who could not even pay for such services opted for other basic uses of technology like sending WhatsApp messages and taking orders from people. Service centers/ infotech shops started sorting issues of people with the help of remote PC control wherever possible.

Banking services played a pivotal role during this time. Due to the launch of 'Digital India' campaign, the general awareness of digital payments such as UPI, internet banking, etc. increased amongst common people but during the lockdown period, cashless payment modes were considered as safer alternatives to cash exchange which had a risk of transfer of the virus. Not just banking, but people also started investing money in shares through websites or mobile applications.

2.2 Education

Due to safety concerns, schools and colleges were shut down. To ensure that students don't lag academically, institutions started conducting online lectures. Submissions of assignments were done online. Even for school students, lectures were conducted according to the normal schedule. Certain institutions also took online tests/examinations to evaluate their students. This helped students in coping up with their syllabus and continuing the process of learning. Lockdown period also provided students with plenty of time to enhance their skills and take up extra courses on online platforms like Coursera, Udemy, etc. Some platforms even provided free courses during the lockdown period. This not only benefited students but also prevented a lot of teaching staff from losing their jobs.

2.3 Awareness

One of the most important aspects of the prevention of this disease was to educate people about the symptoms. It was important for people to understand the symptoms and precautions to be taken to safeguard themselves. Moreover, during the lockdown phase, a lot of rules were imposed. It was essential for this information to reach



people. WHO has its website which circulates information. WHO also provided a number for Whatsapp where people could read FAQ, get answers to various queries related to the pandemic [2]. The Prime Minister also took video conference meetings with various Chief Ministers to plan the various stages of lockdowns and issue guidelines. The use of mobile applications increased during this period with the launch of multiple awareness apps. 'Aarogya Setu' app was launched in India for its citizens to track the number of cases and read about the guidelines. The app also helped people ensure their safety based on a quiz and their Geolocation and Bluetooth information. Various organizations were posting updates on social media accounts for their viewers which helped them reach out to a far wider audience.

2.4 Everyday life

As a lot of people predicted, the way of life definitely changed during the COVID-19 pandemic due to which people had to embrace changes. Though the changes were not something previously seen, the transition was smoother due to the presence of various technologies. As local shops and other businesses shut down, people were highly reliant on online delivery systems for groceries, basic needs, etc. This was beneficial as it ensured lesser people would have to leave their homes. Earlier people would be skeptical about ordering online food but it proved to be a boon for people living alone or unable to cook food for themselves. Patients started consulting doctors using online platforms.

The period of lockdown proved to be a psychological challenge as well because staying at homes made lives monotonous. To cope up with boredom, people relied on online modes of entertainment. E-gaming, OTT platforms to watch movies, and other forms of social media helped people maintain their lifestyles. People who were stuck in other cities away from their families could stay in contact with them through chatting or video calling applications. Although the distance between people increased, technology tried to bring people closer or at least kept people connected.

2.5 Disadvantages

Although technology has helped us immensely in fighting against this pandemic, there have been certain downsides to it as well. During the COVID-19 pandemic, one of the biggest causes of concern was the spread of misinformation. 'Misinformation spreads faster than Corona' [3]. Due to the spread of misinformation, there were various rumours related to the disease. This led to widespread panic among people. Multiple false claims surfaced on social media platforms and Whatsapp groups which lead to people believing in them. Certain claims which were even disregarded by the WHO were believed by people. The spread of this rumour was fatal too. Some people started believing that drinking bleach was a helpful way of preventing the virus [4]. This can lead to liver failure, death, and various other issues. There was also widespread fear amongst communities because of too much information. The media and people on the internet hyped the issue more than it actually was, which caused anxiety among people.

2.6 Comparison with 1918 Spanish Flu

The biggest pandemic before COVID-19 that occurred was the 1918 Spanish Flu. The norms of social distancing and closing down of public places had also been applied then. Due to this entertainment and service industries faced a huge loss during that period [5]. On the contrary to this, in the COVID-19 pandemic, such losses have been reduced due to the presence of various technological advancements. Today we also have better methods of communicating information to the general public which did not exist during that time. As compared to

3. CONCLUSION

No doubt technology has been beneficial in our day to day lives, but it rose to its prime during the time of such a calamity. A lot of problems caused by the COVID-19 pandemic and its consequences were abated due to the presence of innovations and advances in computer science. A noteworthy point is that a lot of these technologies have existed for about a decade but they became prominent during this period. Although the presence of these technologies may have caused misinformation spread, apart from that it is needless to say that it has been beneficial in helping the world cope up with the pandemic.

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