Privacy and Security issues due to excessive usage of data during COVID-19

Md Mushabber Hussain K

School of Electronics and Communication Engineering REVA University, Bangalore 560064, India

R Manu

School of Electronics and Communication Engineering REVA University, Bangalore 560064, India

Venkata Prashanth B

School of Electronics and Communication Engineering REVA University, Bangalore 560064, India

Manjunath R Kounte

School of Electronics and Communication Engineering REVA University, Bangalore 560064, India

Nayana D.K

School of Electronics and Communication Engineering REVA University, Bangalore 560064, India

Abstract—**The new pandemic COVID-19 that humans are undergoing right now has caused a global catastrophe, while the humans are suffering for even the basic needs like food and money another concern has risen upon and that is data privacy issues. To overcome the situation of COVID-19 the government has chosen to utilize the technology to try and reach out to everyone and regulate this pandemic. This crisis has made the government to jump over the legal laws and acts of public's data and created concern on ways of how these data is being utilized. In this paper the authors talk about the various platforms like online education, technologies, corporate places, where data collection is being collected and its issues on privacy.**

Index Terms—**COVID-19, Data, Online Education, Pandemic, Security, Privacy, Technological Innovation**

I. INTRODUCTION

An outbreak of disease which spreads in a form of chain reaction among the humans threatening their life throughout the country or globally is known to be as pandemic, one such catastrophic experience that humans are facing right now is the commonly known disease COVID-19. It was first reported in a place called Wuhan in China stating that several people who had been shopping in a seafood marketplace in Wuhan have been suffering from fever and respiratory problems and have been dying in a very short period of time [1]. This information about this disease was shared with the outside world during December of 2019 and soon was declared as epidemic, and what started as epidemic soon turned to be a global pandemic which now has spread to more than 120 countries. Coronavirus is a form of illness that affects the respiratory system of any human from mild to severe sickness and to death. These viruses circulate among animals such as bats, cats and pigs and sometimes humps over to a human which is called as a spillover event which spreads to cause disease.

For past few decades we have seen many such coronaviruses like severe acute respiratory syndrome (SARS) coronavirus (SARS-CoV)-November 2002, Middle East respiratory syndrome (MERS) coronavirus (MERS-CoV)-September 2012, and the globally affected coronavirus yet which is SARS-CoV-2-December 2019 [2]. The modern technological communication that we have today has not only helped us in understanding about do's and don'ts during this time but also has increased the fear inside us when we see and look at the way other humans are suffering from this dangerous disease. The spread of COVID-19 happens through human to human interaction it maybe through air or standing close by or through physical interactions. So to prevent this widespread the WHO (World Health Organization) has given certain regulations to follow and stay safe, such as:

1.) Wear mask
2.) Maintain social distance 3.)
Wash your hands regularly
4.) Stay home if you feel unwell

The government of many countries who have witnessed cases in large numbers have declared lockdowns and asked people to stay home, and humans who have to now stay home have suffered in large financially and also mentally, business, corporate jobs and education are the majorly affected platforms. This problematic issue of human survival also faces with a new challenge at the side of technology and that is the consumer data privacy. The government-initiated plans to monitor and regulate this outbreak is through large collections of user's sensitive data information like location data, health, and many consumers have been forced to use online activities over offline activities. Use of public data has allowed the government to regulate and prevent contagion and enforce strict regulations over areas [3]. Legal laws and

regulations are hardly of any important of public's privacy during these times and the misuse of governmental and corporate can be seen. In this paper we will be discussing about the security and privacy issues in technology usage, online education, corporate business and also the impact of government acts and laws on public's data.

II.   LITERATURE SURVEY

Chetty et al [4], have built a database of economic activities from collecting data from private companies, they have collected daily statistics of consumer spending, revenue of business, and more and by creating the database they have been able to study how COVID-19 has affected their company's economy.

In [5], it talks about how the UK government have been fighting COVID-19 by using personal data. They talk about how they see an increase in wide scale of data has been processing by the public as well as private sectors, and they talk about how the newly added Coronavirus Act has given the way to new data processing and this has been raised as a concern about the impact of privacy concern on citizens. They also talk about how various ways of collecting private data like location of user, health, contact tracing, volunteering in sharing data in collaboration with private sector organizations. They also discuss about how individuals being careless with their personal data has allowed the eyes of cybercrime and has risen significantly during this crisis.

In [6] the authors talk about how public data collection in India is not meeting even bare minimum legal requirements in governments technology. They talk about how the state is making a significant response by utilizing publics personal health data but also creating a concern to human rights and privacy. The government-initiated plan in technology by creating a digital contact-tracing smartphone app called AarogyaSetu has made them to collect user's health and location data.

In [7] we can find how transparency and by sharing data it provides visibility to understand clearly on face to fight against this problem. In this we can see how the benefits of sharing data has only helped humans to overcome this situation. They also talk about how facial recognition and big data has manged to identify people who are infected by the disease and finding about people who break the government rules and step out of the mandatory quarantine.

III.   PRIVACY AND SECURITY OF DATA IN DIFFERENT AREAS

A.   Online Education

The move called social distancing has proved to be an efficient way of overcoming the COVID-19. Because of which nationwide lockdowns have been called out and made everybody to stay home and stay safe, while everyone is affected the impact of education system has changed from offline classes to online classes. According to World

Economic Forum, currently around 1.2 billion children in 186 countries are not able to attend classes [8]. The shift of education towards E-learning through internet and thanks to technology it has been easy used and are able to reach across the globe. In May 2020 UNESCO IITE and Tsinghua University launched a handbook of guidance called "Personal Data Security Technical Guide for Education Platforms" which promotes data security in online learning, it guides about several issues and how to protect privacy in online learning Fig1.
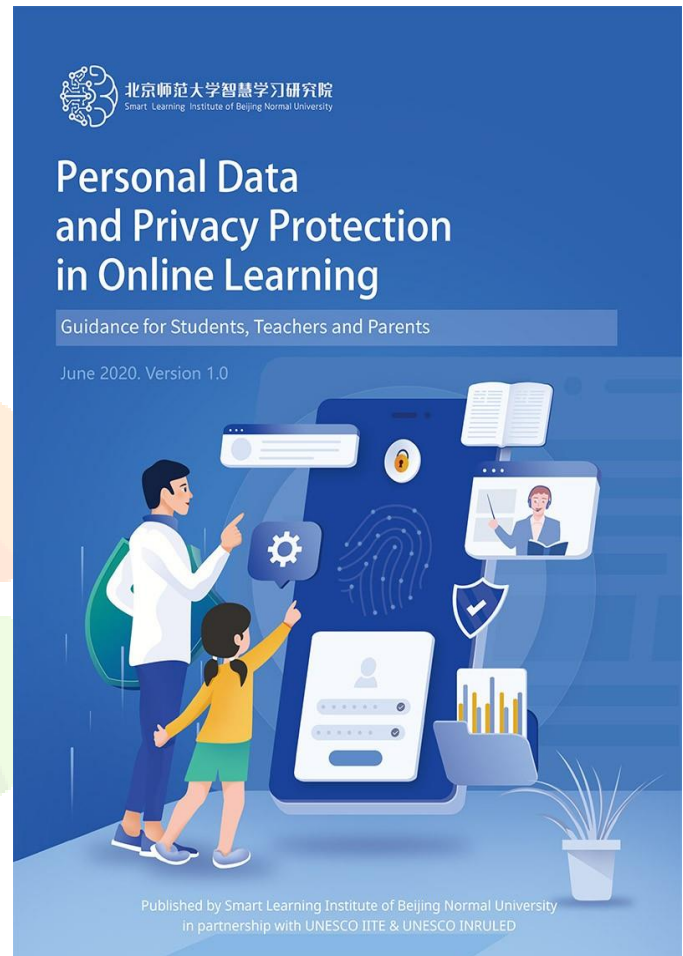

Fig. 1. Handbook released by UNESCO about data privacy in online education [9].

When it comes to online education the managing burden of privacy of teachers and students falls under the burden of the institution. Teachers and students expect their data to be safe and not be shared and be misused of it. The privacy problems that could come up with it is use of students personal information and using those data to commercial platforms. The pandemic situation has worsened the privacy factor because such a sudden shift from offline to online has made the schools to choose platforms and technologies which are less privacy friendly [10]. Such platforms and softwares which had never

been known and heard of have been gaining attention quickly, the effects of privacy concerns through these platforms will not be known for a while. Such companies handling these softwares must come up with transparency and policies in safeguarding students data.

B. Corporate companies

Pandemic situation has affected every business and companies, corporate jobs have been made to go home and by made to go home is the new work from home kind of   jobs. Online management of companies data requires secure network and misuse of these companies sensitive data could lead to a problem for the company.
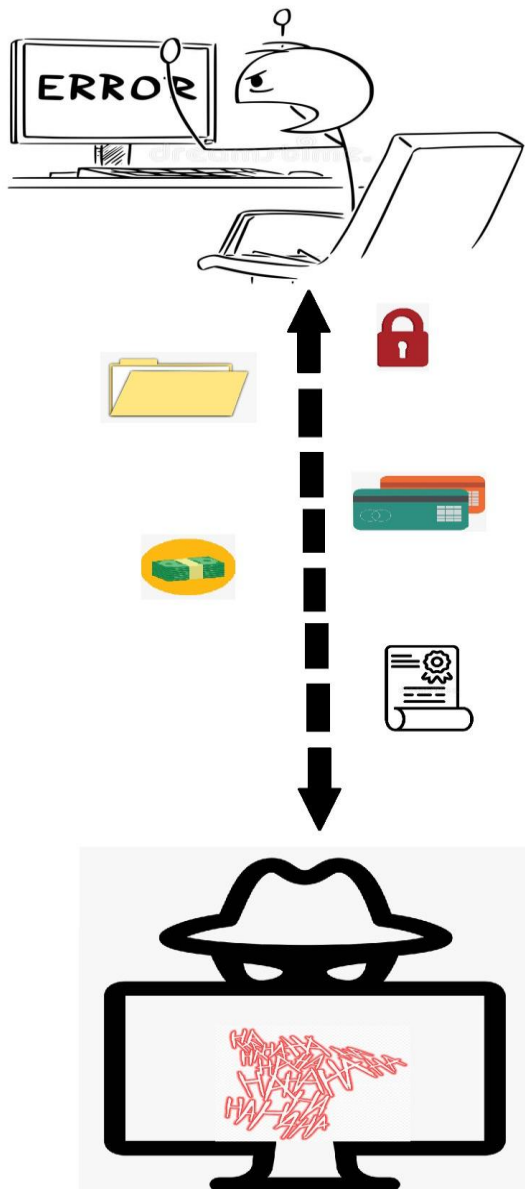

Fig. 2. Cybercrime activity

The remote working of millions of employees has created   a risk of data management and has increased cybercriminal activities during these times.

The shift of remote working for millions of workers has been challenging to the organization, and when it comes to data the investments in cybersecurity has payed off, the cybercriminals have been switching activities and tactics and forming a new gateway in data theft. If the infrastructure of cyber and data security is poor this puts a risk to business in fact many IT company employees have seen an increase amount of fraud emails, phishing attempts to spam their companies corporate email ever since the COVID-19 crisis began [11]. And so, to reduce the risk of cyberattack companies have been prepared to take following measures:

1)   Train and prepare the employees: Companies share their knowledge and prepare them on how to fight data crime and manage the companies sensitive data.
2)   Staying updated: To ensure and have effective security IT protect their data using cloud-based solutions, and they regularly monitor themselves by being aware of any activities in the companies data servers.
3)   To verify the security of the security service that the company receives from, as the weakness in the cyberse- curity of the company may cause major data breaches.
4)   If in any situation the company did face a cyber security problem like a ransomware attack, the IT infrastructure of the company must be able to back up and recover as fast as possible.

Due to the risk of cyberattack the companies have also asked employees to make a copy of the companies valuable data in case of cyber theft, cyber criminals are finding the company business whose IT security is in remote places and exploit their weaknesses.

C. Location Data

The top two sectors in which the public care more about their data privacy is financial sector and the health sector. At a crisis situation that we are in right now has made it look   like to do things whatever that is necessary to overcome this situation, with no doubt these times has made the government to regulate and reduce the public activities using technologies.

Many different companies have come in their own ways   on how to asses data of public and utilize it to regulate [12], the government of China has developed a mobile application which collects the health data of user and even warn them when there are in anyways have come close contact to an infected COVID-19 person. The app is called "Close Contact" released in 2020, this app uses the users location data through the WIFI connections or mobile networks. Even in India the government based app called AarogyaSetu has seen a huge success and gained confidence of the public and convinced them to share their data with them, from these app they are able to notify the users about the situation they currently are in and notify them regularly to stay safe and maintain

social distancing. In US the government is trying to tie up with large tech corps like Google and Facebook on how to overcome this pandemic and tracking people to check if they are socially distancing.

The human rights or the constituencies however are very well aware of such crisis, International Covenant on Civil and Political Rights (ICCPR) and on the European level the European Convention on Human Rights (ECHR) are ready to face such situations. However, the protection of data and privacy acts during such crisis can be diminished, because of national and international emergency calls the strict legal orders can become a loophole. The situation only gets worsened when the use of these data is being allowed to the corporate companies. Just because emergency call has been made by this COVID-19, the location data shouldn't be taken advantage off. To overcome the problem of location data, in US on 28 Feb the Federal Communications Commission (FCC) proposed a fine of 200 million dollars for reselling of location data. Ensuring the situation the government is following the authorities are bringing in lawful acts and policies to stop the data misuse.

IV. CONCLUSION

The COVID situation which we are undergoing is a tem-porary problem, in the coming future this situation will be forgotten soon but the negligence in data and privacy could be a fatal one for the upcoming future. Although the internet data sharing activities is a concern, the media has been effective by making people understand the situation and constantly making them aware on how face this challenge and overcome it, this pandemic will be soon over if everyone is vaccinated and follow this governments basic rules like social distancing, wear mask etc and we all can soon go back to our normal day to day life.

REFERENCES

[1] Ziyad R. Alashhab, Mohammed Anbar, Manmeet Mahinderjit Singh, Yu-Beng Leau, Zaher Ali Al-Sai, Sami Abu Alhayja'a, "Impact of coronavirus pandemic crisis on technologies and cloud computing applications," Journal of Electronic Science and Technology, Volume 19, Issue 1,100059, ISSN 1674-862X, https://doi.org/10.1016/j.jnlest.2020.100059, 2021.

[2] National Institute of Allergy and Infectious Diseases, "Coronaviruses", https://www.niaid.nih.gov/diseases-conditions/coronaviruses

[3] Aaron R. Brough, Kelly D. Martin, "Consumer Privacy During (and After) the COVID-19 Pandemic", https://doi.org/10.1177/0743915620929999 , May 2020.

[4] Raj Chetty,John N. Friedman, Nathaniel Hendren, Michael Stepner. "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data", Doi: 10.3386/w27431, 2020.

[5] "COVID-19: PEOPLE: HOW GOVERNMENTS ARE USING PERSONAL DATA TO FIGHT COVID-19 (UK)", 08 April 2020, https://www.herbertsmithfreehills.com/latest-thinking/covid-19-people- how-governments-are-using-personal-data-to-fight-covid-19-uk.

[6] Suhrith Parthasarathy, Gautam Bhatia, Apar Gupta, "Privacy concerns during a pandemic", 2020.

[7] Manjunath B S, Covid-19: 8 ways in which technology helps pandemic management, 2020.

[8] Chelsea Toczauer, "Privacy Concerns in the Age of Expanding Online Education".

[9] Huang, R.H., Liu, D.J., Zhu, L.X., Chen, H.Y., Yang, J.F., Tlili, A., Fang, H.G., Wang, S.F. (2020). "Personal Data and Privacy Protection in Online Learning: Guidance for Students", Teachers and Parents. Beijing: Smart Learning Institute of Beijing Normal University.

[10] Joseph Duball, "Shift to online learning ignites student privacy concerns", 2020.

[11] "Cyber crime – the risks of working from home" https://www2.deloitte.com/ch/en/pages/risk/articles/covid-19-cyber- crime-working-from-home.html.

[12] Andrej Zwitter, Oskar J. Gstrein, "Big data, privacy and COVID-19 – learning from humanitarian expertise in data protection" Int J Humanitarian Action 5, 4 (2020). https://doi.org/10.1186/s41018-020- 00072-6.