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Covid-19 Boosts Prospects of Touchless Biometric Systems

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ABSTRACT: The entire World has been changed entirely after the COVID pandemic. The human society has changed its vision towards all the aspects of life.

KEYWORDS: biometrics, authentication, authorization, faceprint, fingerprint, touchless

I. INTRODUCTION

In our daily life, we need to verify our identities or someone else's identity. To lead our life smoothly a reliable identification is needed. This makes financial and business dealings safer and more efficient. The automated authentication process brings greater security, efficiency and convenience to our lives

Automated authentication involves two factors: Authentication, Authorization. Authentication verifies the identity and authorization is tied with the appropriate actions to the person's identity. Authentication mechanisms are built with the three principles:

- Something you know -Passwords and pins
- Something you have - Cards and tokens
- Something you are – Biometrics (measurement of physical characteristics or personal traits)

What is Biometrics?

Biometric authentication relies on any automatically measurable physical characteristic or personal trait that is distinctive to an individual. Common biometric techniques try to match measurements from an individual's fingerprint, hand, eye, face or voice that were previously collected from him/her.

Advantages of Biometric Security

Biometrics require unique features like faceprint, fingerprint for authentication. This provides a high degree of security. For this reason, business organizations, industries even individuals prefer biometrics as their choice. The hacking process is too complicated and time consuming when compared to other authentication methods which involve combination of characters, numbers and symbols . They need the exact copy/ replica of the user's faceprint or fingerprint. Liveness test and 3D facial recognition have been added in the biometrics technology for verification and identification. Above methods can be used to keep our database, device and application to be safe and secured from hacking.

Another benefit to biometric security is its ease of use. When we use passwords for authentication it is recommended to use high complicated one. At regular time interval, they should be updated. For the average user, keeping the passwords in mind for each application and updating them at intervals is not easier. Biometric authentication systems eliminate the amount of passwords the user must remember. It also decreases the time needed to access to even milliseconds.

Offices are hotbeds for viruses

According to an Epidemiologist at the University of North Carolina, corona virus can stay active on an infected surface for a "few hours to a few days". Another research states that corona virus can stay upto 5 days on any metal, ceramic and plastic surface.

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“Switch off” Contact only Biometric Attendance

On March 5th 2020 Delhi government announced the suspension of biometric attendance in its offices via letter written to principal secretaries, secretaries, autonomous bodies and municipal corporations for the suspension of biometric attendance to contain the spread of corona virus. As a precautionary step, on Feb 17th 2020 Maharishi Valmiki Hospital suspended biometric attendance. Government of India also decided to suspend biometric attendance in all offices. Many state governments like Goa, Maharashtra, Punjab, The Sports Authority of India and The National Green Tribunal also switched off biometric attendance systems. “Turn off Biometric attendance” was the instruction given by Hyderabad Police Commissioner to the heads of 180 to 200 IT companies.

The search of human contactless attendance system

Sudden suspension of Biometric attendance system is a great hit in the entire biometric industry. But it was accepted that biometric attendance is the main source of spread of bacteria and viruses infecting entire offices. This panic regarding the virus spread among organizations lead to search alternatives to the biometric attendance.

II. GOING TOUCHLESS

Touch points like fingerprint scanners became the major source the virus spreading. High traffic areas like offices, ATMs and railway stations contain many points of contact. It is impossible to maintain cleanliness and hygiene at all times. A fingerprint scanner obtains fingerprint from the user at the time of enrollment. This touch point is touched by even thousands of people per day. If an infected person uses this touch point the chain cannot be broken. The only solution is “Going Touchless”. It is expected that in this year biometrics market revenue may drop by \$ 2 billion. But in the same time, touchless biometrics like facial recognition, iris recognition revenue and investment may increase in a good number.

To apply touchless biometric attendance it is recommended to use facial recognition. Instead touching the touch points users can stand in front of a facial scanner and the scanner begins to capture the faceprint. Once the faceprint has been obtained feature extraction begins and a sample is created. This sample can be used for future comparison.

Social distancing and wearing face covers / masks are the important safety measures to be followed by every individual. This is also possible in face recognition. With sophisticated technology, a person who doesn't wears a face mask and with temperature greater than the normal case can be easily identified.

What is Touchless technology?

This technology involved with a sensor to capture the biometric data like faceprint, fingerprint or voice print. A popular application using voice recognition is Google Home and Amazon's Alexa. Facial recognition also converts the gestures as input. In this, without touching the user can access or control the device. Special algorithms are used for converting gestures into templates.

The future of security

Before COVID -19, facial recognition was not widely used. We depend on finger prints. Hereafter touchless technology like face recognition and voice recognition will be the future of biometrics world.

The post COVID -19 period offices will start to say Good bye to the contact – only biometric attendance system. This results a down in the investment of contact – only attendance systems.

Sectors implemented with Touchless technology

Uber uses a technology to detect drivers without masks. Before starting a ride, the driver should take a selfie and send it to the application. This ensures the safety of driver and also the passenger. Contactless dining has been launched by Zomato, the popular and leading food delivery app in India. This includes digital menu by scanning QR code, ordering through app and contactless payments.

In North American airlines, touchless baggage management was launched by Infosys.



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Challenges

No technology is free from challenges. The major challenge is the cost of the sensor. Since the touchless sensing products are very expensive it is not possible to implement them in all aspects.

Another major challenge is privacy of individuals. Governments should issue a clear declaration regarding the mode and usage of data. There is a need for stronger regulation before it is adopted widely.

III. CONCLUSION

Post COVID world invites better approaches in the field of biometrics, artificial intelligence and machine learning. It is clear that these technologies altogether may help the entire world to fight against the pandemic like COVID-19 in future. These technologies can be useful in early detection, patient screening and public safety monitoring, in an effort to contain the spread of Covid-19. This pandemic taught many lessons like social distancing, self hygiene and risk management in businesses to the human society. The real fact is that the World should be ready to learn from the nature and accepting changes. COVID – 19 creates a new vision in the field of biometrics.

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