2023 International Conference on Artificial Intelligence and Smart Communication (AISC) | 979-8-3503-2230-9/23/$31.00 ©2023 IEEE | DOI: 10.1109/AISC56616.2023.10085526

A Hybrid technolgy using Machine learning and blockchain technology to prevent Covid

Dr. Arvind Kumar Pandey
Assistant Professor, Department of Computer Science, ARKA JAIN University, Jamshedpur, Jharkhand, India. Email id-dr.arvind@arkajainuniversity.ac.in

Dr. Vipul Vekariya
Professor, Department of CSE, PIET, Parul University, Vadodara, Gujarat, India. Email id-vipul.vekariya18435@paruluniveristy.ac.in

***Abstract*—Since the year 2020, there has been an outbreak of the respiratory infection that caused a high peak mortality rate, which has led to an increase in the prevalence of Covid. The unanticipated development of the COVID-19 sickness as well as its unchecked global spread show the limitations of the currently available healthcare systems in their ability to respond to emergencies that harm the general population's health. As a result of cutting-edge technology like AI and biological computing (BC) these issues treated promisingly for the covid pandemic. In particular, BC assist in early detection to aid in the fight against pandemics. With the protocols that have been put in place to avoid infections, including the use of masks, social isolation within a radius of 6 meters, routine testing, and two doses of vaccinations. This system comprises the detection of masks, people, and temperatures, as well as the monitoring of information, tracking of in-person contact, and the present state of a person's medical record. Diseases are now able to be traced, and their transmission can be stopped, thanks to advances in technology and the growing prevalence of smartphone use. Because of the reopening of more economic sectors and the continuous widespread distribution of Covid, it is even more important to ensure that you adhere to the provided instructions in order to avoid contracting an infection.**

Keywords—Block chain (BC), Face recognition (FR),Single Shot Detection,Deep learning (DL).

I. INTRODUCTION

The face recognition software uses an algorithm to search for items and then saves the data that it discovers about those items. Deep learning and facial recognition have both made significant strides forward. There are several possible applications for blockchain technology, including online BC recommendation systems to prevent information speculators in digital banking, marketing, and the storing of health record information congested locations [1-2].

As a direct result of the development of technology, information networks have been retained and made available for use by mobile applications. If infected persons employing only a smart phone and a mobile application may have their active mobility and health data checked. We can escape the consequences of Covid infection with BC and AI. This will allow us to avoid the repercussions of Covid infection with BC and AI. In the last ten years, a broad variety of cutting-edge new inventions have developed, such as the technology behind smartphones, machine learning, and computerized reasoning (AI), which makes use of deep learning and vast information processing.

These are just a few of the examples. Other examples of these developments include virtual reality headsets and smart watches. [Clarification needed] In the field of medicine, it's feasible that these breakthroughs will have important applications and implications in the future. The COVID-19 pandemic prevented access to international healthcare systems by imposing unprecedented lockdowns and forcible expulsion. has fast sped up the creation of these cutting-edge inventions to fit a variety of medical service requirements across the globe. For example, the pandemic prevented access to worldwide healthcare frameworks by removing them physically.

The coordination of numerous large-scale tasks, such as population- level mass screening, quick follow-up, production network the board for drugs and antibodies, telemedicine conversations, and web-based company growth, have all contributed to been a driving force behind the adoption of a variety of technological advancements. The Blockchain Connector (BC) is an important technological innovation that links a huge number of other related advancements. In the realm of medicine, client-waiter data sets are often utilized by typical distributed data set [3-4] management frameworks.

BC has the potential to take the place of these client-waiter data sets as a potential substitute. Traditional frameworks for the administration of the information base that is distributed have significant limits, despite the fact that these frameworks are a planned stage in medical care frameworks. Inability to facilitate remote information exchange, helplessness against external enemies, and lack of a permanent review trail are few examples of these problems. BC might actually[5] be able to solve these problems thanks to its one-of-a-kind characteristics, such as simplicity, clarity, non-disavowal disintermediation, and permanence. These characteristics would enable compared to traditional stage-allocated data set administration frameworks, it has a number of advantages, which would allow it to solve these problems.

These qualities are non-disavowal, disintermediation, and simplicity. Permanence is another quality. It is possible that information regarding decentralized medical services might be made available within the board framework if BC innovation was merged with on-chain and off-chain occurrences.

II. METHODOLOGY

According to this paradigm, FR and the identification of objects are both considered to be integral parts of the overarching idea [6]of object recognition shown in Figure 1. This [7-8]method makes use of a classifier to decide whether or not an object is a person. It does this by first detecting the object itself, then calculating the Object scaling is followed by identification of the face. The picture [9] that was used as input is used first. The test train data is then put into practice. The classifier wills conclude saves the image with the help of the test data. During this process, the size of the image will be

decreased so that it will have a greater impact when it is displayed.

After The video streaming is then used as the input for the entire framework after a low-cost camera or CCTV with a higher resolution has been employed for detection and then attached in the highest position for better capture. This happens after an attachment has been made in the highest position for better capture. After the video streaming service has been utilized, this occurrence will take place. In addition, the distance that exists between two people is measured in order to locate the most advantageous vantage point for the purposes of detection [10] and scanning. Within the confines of this architecture, the image snapshots are produced by drawing their inspiration from the video stream. In this particular scenario, we opt to take a single shot at solving the problem.

A. The handling of any incoming information

To begin, a camera or CCTV system that is more affordable but has a higher resolution is used for the detecting process. After then, this camera is positioned as high up as it can go in order to get the best possible shots. In addition, the distance that exists between two people is measured in order to find the most beneficial vantage [11-13] point for the purposes of scanning and detection in order to get the best possible results. In conclusion, the input for the entire system is made up of live video streaming. Within the confines of this architecture, the image snapshots are produced by drawing their inspiration from the video stream. In this particular scenario, we opt to take a single shot at solving the problem.

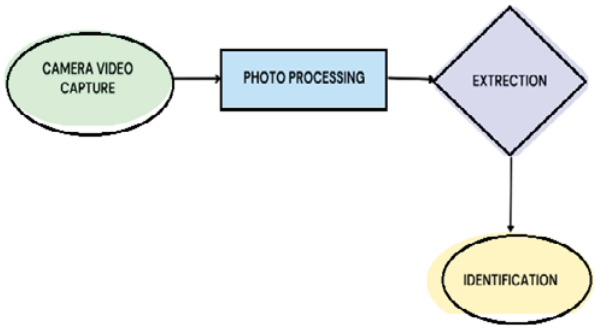

Fig.I.Block Diagram of system.

B. The preliminary processing of still images that were cut from the live video feed.

Instead of utilizing a complex embedded system and method of object proposal like CNN does, this SSD makes use of feature extraction boxes. The image has been partitioned into a number of distinct boxes, all of which are of the same height, width, and classifier dimensions. This technique for mapping features makes use of boxes that are more condensed, and the matrix that is employed to represent the single input snapshot image has a reduced M-by-N dimension. It takes into account a range of ratios and dimensions, and it comes with two sets: the train set boxes and the test set boxes. This method is built entirely on the utilization of specified boxes and detecting techniques. It makes use of a detector, and the results of the comparison matching it carries out consist of positive and negative set boxes.

This strategy makes use of a detector that is not only faster but also more accurate than those utilized in previous methods. Additionally, it makes use of a prediction train model that has a larger range of ratios. It can immediately identify the object in the video stream that is being fed from the camera shown in Figure 2. This ability allows it to work very quickly.

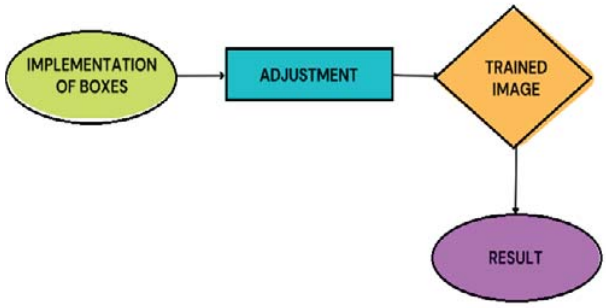

Fig.2. Object detection.

C. Classifier

In this strategy, we make use of the box approach method, which is comprised of four points, each of which encompasses the entire object that needs to be identified. Each of these points is described below. It accomplishes this by utilizing the capabilities of its detectors and mapping the data into boxes that have the ratio that is needed. We are able to efficiently filter extra boxes by making use of SSD train data, and after that, we utilize a classifier that makes use of coordinates in order to determine which objects are the primary ones. The problem of the box overlapping was remedied by getting rid of the bounding overlap as well as the prediction. We are able to identify the definitive detection border by merging the boxes that have been trained and those that have been predicted.

After the last photo boundary, the classifier will do a comparison between the training data and the test data to determine whether or not it correctly classified an object as being of a certain species, such as a human, a dog, or some other species. The trained model makes detection of categorization far simpler, and the SSD detects with single spot detection utilizing only one layer of neutral networks.

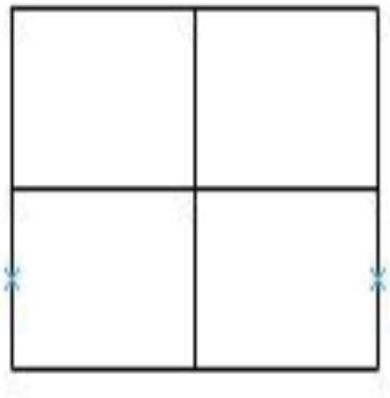

Fig.3. Boundary identification of 4*4 Dimension

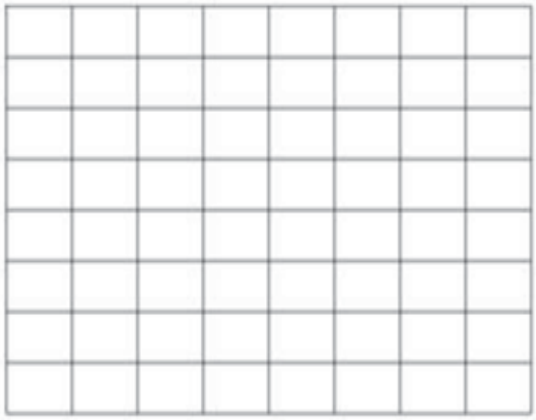

Fig.4. Bboundary identification8*8 Dimension for image

D. Calculation of distance.

By utilizingIt is able to identify items, count the number of people present, calculate the distances between border boxes, and assess walking lengths and speeds using deep learning and the SSD algorithm. It is necessary to use color-coding for safer distances, color-tagging for risky lengths, and green for safe distance when calculating distances using boundary boxes, averaging them out, and then comparing the findings to the distance that had been kept in the past shown in Figure3 and Figure 4. The two colors are then used to signify with green and red bands that represent a safe or unsafe indication distance. This distance is shown by the color green.

The colors green and red represent this distance between the two points shown in Figure 5. estimating the top view in relation to the distance at which the photo was shot, estimating the top view in relation to the rectangle's alignment value, and doing parallel calculation while making use of the scaling factor are all methods that can be utilized. It is advised that a distance of six feet be maintained between individuals as a safety measure.

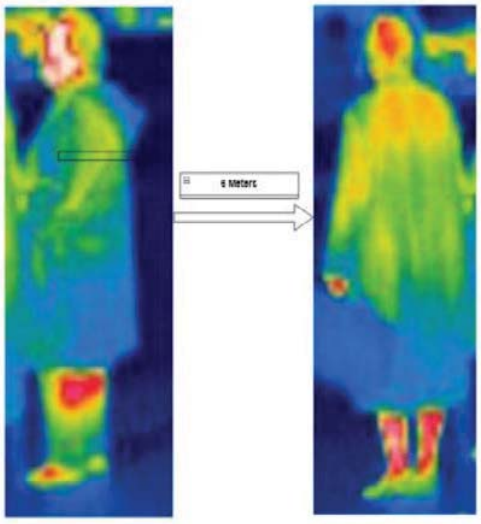

Fig.5.Social distancing Implementation 6 meters.

E Finding the Face Detector

These pictures were extracted from a video stream; in them, classifiers were used to recognize objects, and four points were utilized to recognize faces. After the image has been loaded into the classifier for the purpose of being compared with the index, the following step is for the classifier to extract a variety of attributes of interest from the subject's face. Additionally, the classifier will make use of photos that have been trained with data in order to determine whether or not the subject is wearing a mask.

As a consequence of this, we take into account two distinct scenarios: one with a mask and one without. Two distinct data sets are used as the foundation for the training model dataset. One of these data sets contains a mask, while the other does not. The framework comes with its own built-in face detector, which causes the class to be divided into three distinct parts.

F. Thermal scanner that measures temperature and has the model number

Because FLIR cameras are able to detect higher temperatures with screening of the body, we may use them in place of thermal scanners to monitor an individual's temperature in a manner that is analogous to how a thermal scanner works. The screening temperature is recorded, and if the individual's temperature is higher than the predefined setting, it is forwarded to the administrator so that additional processing can take place.

G. Protection against COVID by utilizing the capabilities of BC technology.

By using a network mechanism in this way, we are able to keep track of information, and the types of data that we record include hospital health profiles, temperature measures, and information regarding Covid vaccines.

Data is collected from hospitals and other healthcare facilities, both public and private, and is then connected any formal document that pertains to a person who has a government identity card. This network connection contributes to the monitoring of infectious patients by enabling the surveillance of individuals who are in contact with the patient and the creation of active movement profiles of locations shown in Figure 6. These measures are taken in an effort to prevent the further transmission of disease.

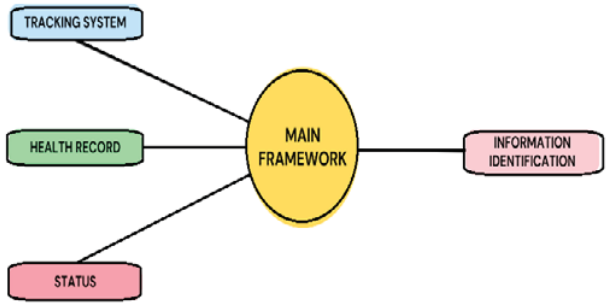

Fig.6 Block chain networking

IV. CONCLUSION

A face detection, identification protocol and face mask detection system are utilized in this methodology to take an automated method approach to the process of determining social distance. This allows for the methodology to be carried out in an efficient and accurate manner. The application of the rules for this state for the use of masks, the maintenance of

social distances, the authorization of action against individuals who break automated application of the regulations and database archiving of the recognized picture are all aspects that are included. Because of this, it is possible to implement a solution during the COVID phase that has a low cost and eliminates the need for human labor all while doing so. It is also more successful than the automatic system that CNN uses, produces A bigger population would benefit from more precise results, which are amplified by live online video streaming and a larger database storage allow for faster, more accurate identification in busy locations. Additionally, it is more successful than the system that CNN uses to automatically identify people, and it produces more accurate findings. When compared to the other preventative measures, the automated system offers the maximum level of protection possible as a result of its utilization of thermal scanning. In this method, the patient's movements are tracked using BC technology, and the patient's health status is also monitored. This tracking includes the patient's current COVID status, the contacts they are maintaining, the precautions they are taking, the distances they are maintaining, the patient's history of being quarantined, and their vaccination status. It is probable that such a structure will result in a significant amount of difficulty when attempting to carry out the scope of the project. The requirement that all participants own and make use of a mobile phone is one of the most significant restrictions imposed by the structure. All participants are required to do so. It's possible that the ability of a member to always carry a cell phone while travelling around may not be sufficient in some demographics, despite the recent significant entry of cell phones into the market. However, this possibility exists despite the fact that cell phones have only recently made a significant entry into the market. Additionally, prior to undertaking a project of this magnitude, it is recommended that a comprehensive investigation on the ethical and charitable aspects of the proposed action be carried out. A limited amount of pilot testing may be carried out in order to help and assist in identifying member issues in relation to the implementation of the innovation.

REFERENCES

[1] Bonell C, Michie S, Reicher S, West R, Bear L, Yardley L, et al. Harnessing behavioural science in public health campaigns to maintain “social distancing” in response to the COVID-19 pandemic: key principles. *J. Epidemiol. Community Health* 2020.

[2] Petersen E, Wasserman S, Lee S-S, Go U, Holmes AH, Abri SA, et al. COVID-19-We urgently need to start developing an exit strategy. Int. J. Infect. Dis. IJID Off. Publ. Int. Soc. Infect. Dis. 2020.

[3] Pallathadka, Harikumar, et al. "An investigation of various applications and related challenges in cloud computing." Materials Today: Proceedings 51 (2022): 2245-2248.

[4] Prem, K., et al.: The effect of control strategies to reduce social mixing on outcomes of the covid19 epidemic in Wuhan, China: a modeling study. The Lancet Public Health, (2020)

[5] Petersen E, Wasserman S, Lee S-S, Go U, Holmes AH, Abri SA, et al. COVID-19-We urgently need to start developing an exit strategy. Int. J. Infect. Dis. IJID Off. Publ. Int. Soc. Infect. Dis. 2020.

[6] COVID-19: Prolonged Social Distancing Implementation Strategy Using Blockchain-Based Movement Passes Chandan Garg1 & Agam Bansal2 & Rana Prathap Padappayil..

[7] Ajantha Devi, V., Naved, M., Gangadevi, E., & Nayyar, A. (2022). Genetic Algorithm-Based Vaccine Optimization Technique to Control COVID-19. In Proceedings of International Conference on Computational Intelligence and Data Engineering (pp. 1-15). Springer, Singapore.

[8] Kumar K, Khan AA , Fast Face Recogniation using Back Propogation Neural- Network, National conference on Green Technology: Smart and efficient Management, pp.GT21-1-GT25-5, 2012.

[9] Kumar K, Saurabh, Devendra, Nisha Gaur. A Review on Image Processing. National Conference on Emerging Trends in Electrical, Instrumentation & Communication Engineering. pp. 47-55, Vol.4, No.7, 2013.

[10] Kumar K. Enhancement of image contrast using histogram Equalization. National conference on *Emerging Trends in Engineering & Technology (ETEAT)*. VIT Dadri , UP; pp. 1-4, 2013.

[11] Kumar K, Anand S, Gurjar S, Saxena V. Image denoising based on wavelet transformation. International Conference on Recent Trends of Computer Technology in Academic (ICRTCTA). Janardan Rai Nagar Rajasthan Vidyapeeth University; pp. 1-7, April 21 to 23, 2012.

[12] K. Kumar, L. Varshney, A. Ambikapathy, “Soft computing based Solar Follower using Raspberry Pi 4B”, accepted in International Conference on Advance Computing and Ingenious Technology in Engineering Science (SCOPUS).

[13] P. S. Pandey, S. K. Raghuwanshi, A. Shadab, M. T. I. Ansari, U. K. Tiwari and S. Kumar, "SPR Based Biosensing Chip for COVID-19 Diagnosis—A Review," in IEEE Sensors Journal, vol. 22, no. 14, pp. 13800-13810, 15 July15, 2022, doi: 10.1109/JSEN.2022.3181423.