

Verifying Vaccination Status using Facial Recognition Based on Embedded AI

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Abstract: Over the years, the world has undergone various pandemic situations. But the most critical and huge pandemic among them our country is facing is in the form of COVID-19. So it is essential for every individual to get vaccinated and make themselves prone form this pandemic. Almost every country is making it mandatory for the individuals to get vaccination and they are providing it free of cost to improve the overall health of the nation. In this Paper we focus on identifying the Vaccination status of the person. The Vaccination certificate is a piece of validation that the government gives on your vaccines. It is like a receipt for a service provided. Vaccine receipt is one of the most important in fields like education. Suppose if a person forget the vaccination certificate during exam times, it might lead to deny their entry in exam hall sometimes which may be a major drawback for their career. This technology is used to avoid situations such as these when students are nervous or when they try to enter using a fake vaccine certificate.

Keywords: Vaccination verification, Face recognition, Face detection

Introduction

Artificial Intelligence is one of the emerging technologies. This technology has been developed for human use and is used in various ways. Currently being developed vehicles, mobile application, smart home appliance and etc.. are being integrated with Artificial Intelligence. Artificial intelligence is divided into different types. They are

- 1.Reactive Machines
- 2.Limited Memory Machines
- 3.Theory Of Mind
- 4.Self-Aware AI.

In the last two years all the countries have faced a difficult situation and it has become one of the worst cases of corona virus causing a huge impact on the lives of the people. The nations of the world were forced to control the impact of the disease.

Total doses administered across the country as of May 9, 2022

Dose	Vaccination (Percentage of eligible population vaccinated)
Partially Vaccinated	1,004,346,430 (92.64)
Fully Vaccinated	869,474,660 (80.2)
Precautionary(Booster) Dose	29,669,306

Bharat Biotech has successfully developed COVAXIN, India's first vaccine candidate for COVID-19, as the World Health Organization has urged all countries to adopt various regulations to cope with the situation. In integrate with the Medical Research Council of India (ICMR) - National Institute of Virology (NIV). The SARS-CoV-2 strain was isolated at NIV in Pune and transferred to Bharat Biotech. The Domestic inactivated vaccine developed and manufactured on Bharat Biotech's BSL-3 (Bio-Safety) (Level 3) High control facility located in Genome Valley, Hyderabad, India Contributed by the Comptroller General of Drugs of India - CDSCO, Ministry of Health and Family Welfare Permission to begin Phase I & II human clinical trials after submission of results developed by the company Pre-clinical trials demonstrate safety and immunity. Are human clinical trials.

It is planned to be launched across India in July 2020. If you have received the COVID-19 vaccine, you can see the vaccination certificate to know which COVID-19 vaccine you received and when you received it again and when to receive the next instalment of the vaccine. The government issued immunization vouchers to identify those who had been vaccinated. Public life began to return to normal. Following this, the government announced that students in college and government exams would be allowed to bring a vaccination receipt, but students who failed to bring one could get a run through their mobile but in this system one would have to get a receipt. In view of such problems we will use artificial technology to diagnose students coming to college and examination centres as having been vaccinated and verification through facial recognition to see who has been vaccinated. This will compare the facial data of the vaccinated person with the non-vaccinated person.

I. BLOCK DESCRIPTION

Admin panel

The admin panel is responsible for administering the user's data and the user's permission. The admin user has the sole right to manage, modify and delete the user's information, and no user other than the admin user can be allowed to use it without the admin user's permission. The primary user in this system is the admin.

Beneficiary

User's vaccination details, next vaccination information and user's contact number are the registration module. Only the admin user can add, change or delete the user's details in this module.

Verify

This module will be used to check the facial features of the user and checks the vaccination status of the user by comparing it with the data available.

View

In This Module, the admin can only view the Beneficiaries Details And Generating Certificate Usable Reports. The admin can either decide to download the printable certificate and just view it to check the details and not download them.

II. TECHNOLOGY

A variety of intelligences are being used in the technology of artificial intelligence. In this we are experimenting with the face design of the user. Some facial recognition algorithms identify faces by extracting landmarks, or features, from an image of the subject's face. These features are then used to search for other images with matching features. Other algorithms normalize a gallery of face images and then compress the face data, only saving the data in the image that is useful for face detection. A probe image is then compared with the face data. One of the earliest successful systems is based on template matching techniques applied to a set of salient facial features, providing a sort of compressed face representation. Recognition algorithms can be divided into two main approaches, geometric, which looks at distinguishing features, or photometric, which is a statistical approach that distil an image into values and comparing the values with templates to eliminate variances. A newly emerging trend, claimed to achieve previously unseen accuracies, is three-dimensional face recognition. This technique uses 3-D sensors to capture information about the shape of a face. This information is then used to identify distinctive features on the surface of a face, such as the contour of the eye sockets, nose, and chin. One advantage of 3-D facial recognition is that it is not affected by changes in lighting like other techniques. It can also identify a face from a range of viewing angles, including a profile view. Even a perfect 3D matching technique could be sensitive to expressions.

III. RESULTS





IV. CONCLUSION AND FUTURE WORK

This system is beneficial to users who have been on rush and forget to get their vaccination proof and tried to enter to the place when it is mandatory. This system can be implemented on a large level on any sectors which thinks the vaccination details are necessary. This system is a great alternate where the user does not have their mobile at hand and still wants to prove their vaccination status; it will be of greater help in those situations.

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