

Next-Gen Biometric Technologies  
for **IDENTITY MANAGEMENT** in  
**HEALTHCARE**



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WHITEPAPER

# 1

Positive patient identification is the foundation stone of effective healthcare. FacelT is the leading patient and healthcare staff identification solution that improves patient safety and business outcomes through facial recognition, patient record matching, and workflow optimization.

## Why Facial Recognition is quickly becoming the preferred mode of Biometric Identification

The human face is the most prominent indicator of a person's identity, feelings, and emotions. Being able to recognise individual faces or read someone's emotional reaction is often crucial to any business operation. This recognition must be quick and accurate, regardless of whether it is to prevent unauthorised users from entering a restricted area or to determine a customer's feelings about the services being offered.

Technology-driven healthcare organisations are innovatively leveraging Facial Recognition to support smoother and safer patient and healthcare staff access, along with higher transparency when it comes to information sharing. Accurate and rapid patient identification is gaining momentum with facial recognition having the edge over other biometric solutions. An example of a place which can utilise this technology efficiently are hospitals, where 100% hygiene is essential.

# 2

## Face Recognition Use Cases for Healthcare

### Patient Management

All patients who go to a hospital are given a patient management ID card, and it must be presented every time they go to the hospital. However, these cards have two significant disadvantages:

- Patients forget or lose their cards
- A card's magnetic strip can malfunction easily

The requirement of ID cards is negated with face recognition, since the faces of patients and attendants are recorded in the system.

### Doctor and Healthcare Staff login through Facial Recognition

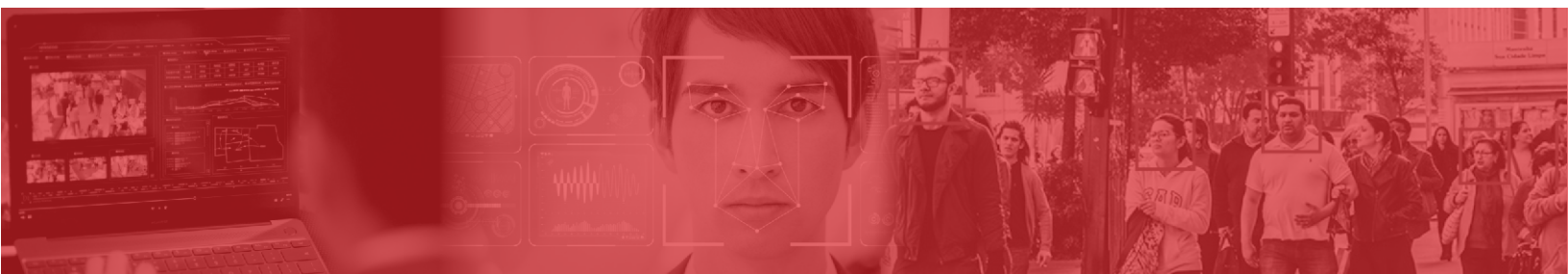
Doctors must keep their hands clean, but at the same time, they need to use a computer to check the patient's data. Face recognition allows doctors & other staff members to log in to the computer with their faces, making it easier to use it without compromising on hygiene.

### Access Control for Restricted Areas

Face recognition secures entrances to the surgery room, the doctor's room, the Intensive Care Unit (ICU) and other restricted areas of entry, and activates an alarm if there is an unauthorized attempt to enter, or if there is a patient who should not be there.

### Unwell or Down-Syndrome Patient Recognition

Face recognition is a must for differently abled patients. A simple look at the camera will help authenticate the patient with ease.



# 3

## FacelT - Patient Authentication Platform

Hitachi Systems Micro Clinic has a patient authentication platform called FacelT, which can be integrated into patient self-service kiosks and EHR, to help facilitate smooth biometric check-ins for patients, attendants, doctors & other healthcare staff members.

The way FacelT works is simple - the software takes a few pictures of your face for 'biometric enrollment'.

After enrollment, FacelT is ready to recognise you (Verification). To see if FacelT identifies you, simply press 'Verify' and take a selfie, just like the 'biometric enrollment'. Our patented Fake Defender prevents hackers who might pretend to be you by using your picture - this is a significant advantage over other face recognition software, which can easily be duped with something as simple as a photo. An optional challenge-response to protect against video attacks can also be enabled for your FacelT account.

### FacelT Key Features

- Auto-corrects for pose and optimises images with a low-light environment
- No need to recapture the image each additional time the face shows up
- Algorithmically gauges a user's face and adapts to each user's unique features and expressions

Traditional face recognition can be very inconvenient in hospitals since medical masks or any other medical apparel can hide a part of one's face. However, with FacelT Eye (Periocular) Recognition, even if a part of the face is visible, it will recognise the user. Thus, the system is applicable in a larger number of use cases and for an enhanced range of user groups. Additionally, eye recognition is even less sensitive to lighting and changes in appearance, which makes the recognition process even more accurate and reliable. By directly looking into the camera, doctors or nurses can unlock patient data, get access to special medication, enter restricted areas, or activate medical machinery.



Strong Multi-Factor Authentication, akin to taking a Selfie. An Auto Shutter that takes a picture as soon as the patient's face comes in front.



Periocular eye recognition for partially visible faces (helps give access to doctors and nurses with masks on).



Liveness Detection Engine prevents Photo and Video fraud. Human presence ensured by analysing movements and the environment.



Picture Visibility Enhancement by using various angles for face recognition.

# 4

## Taking Care of Security and Speed Concerns

### **(a) Sharing Personally Identifiable Information with a 3rd Party**

The tokenisation and encryption used in our algorithms ensure that we only store a mathematical representation of the user's unique features, which cannot be exported, re-engineered or reverse-engineered to its original format. This enables the highest level of privacy protection possible through full anonymity. When carrying out our services, we keep biometric data anonymous with no personal-identifying information stored.

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### **(b) Using the Cloud**

HSMC FaceIT is built and hosted on Amazon Web Services (AWS), and undergoes regular SOC audits. With SSL Encryption, our endpoint ensures that all data passed between the web server and browsers remain private and integral.

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### **(c) Processing Large Volumes of Images or Videos**

We can process millions of images each month, and experience no crashes due to traffic volume. At times, we process tens-of-thousands of images per hour with little to no disruption of your service. Get the peace of mind with SLAs, 24/7 technical support, and dedicated integration services. Our strategic offices cover all time zones and are spread across varied geographies.

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### **(d) Anti-Spoofing and Liveness Detection Engines**

FaceIT Anti-Spoofing and Liveness Detection engines are powerful security mechanisms that prevent any data from being compromised. Our AI algorithms and security architecture considers not only the system's anonymous data handling and cloud technology's security requirements but also ensures safety against attacks.





# 5

## Healthcare Benefits

Facial Biometric Patient Identification Systems are increasingly being adopted by hospitals, given their obvious benefits. As more healthcare systems seek to cut administrative costs to cope with the upcoming demographic changes, many more will likely turn to solutions like these. This will allow them to enjoy the following benefits:

- Ability to discriminate among millions of people
- Negating the requirement of patients to remember several surrogate identifiers
- Safeguards against intentional misidentification
- The Technology cannot be changed, impersonated, and will remain with the patient for years

Facial recognition is widely preferred over other biometric technologies – Voice Recognition, Iris Recognition, and Fingerprint Scanning – due to its non-contact process and easy deployment.

### Find faces

Identify, recognize or verify people

### Analyze faces

Identify features and demographics

### Understand faces

Identify emotions



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## **Hitachi Systems Micro Clinic**

Hitachi Systems Micro Clinic is an IT services company established in New Delhi in 1991; it became a group company of Hitachi Systems, Ltd. in 2014. The Company is uniquely positioned as a cable-to- cloud service provider and an end-to- end IT services and solutions provider that helps businesses meet today's challenging and complex IT requirements. The Company delivers innovative technology solutions to enable enterprises and governments to re-align and integrate IT processes to be more responsive to Customers' needs.

Email ID: [marketing.mc@hitachi-systems.com](mailto:marketing.mc@hitachi-systems.com) | Website: [www.hitachi-systems-mc.com](http://www.hitachi-systems-mc.com)

