



Facial Recognition Automated Visitor Management System (FRAVMS)

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Introduction

Inpatient Visitor Management is currently regulated by Automated Visitor Management System (AVMS) and visitors are required to scan the barcode on their identity card to enter the gantries. FRAVMS is a pilot project at SingHealth Tower that leverages on SingPass Face Verification under the National Digital Identity (NDI) Programme by Smart Nation and Digital Government Office (SNDGO) and GovTech, marking the **1st implementation in a healthcare setting**.

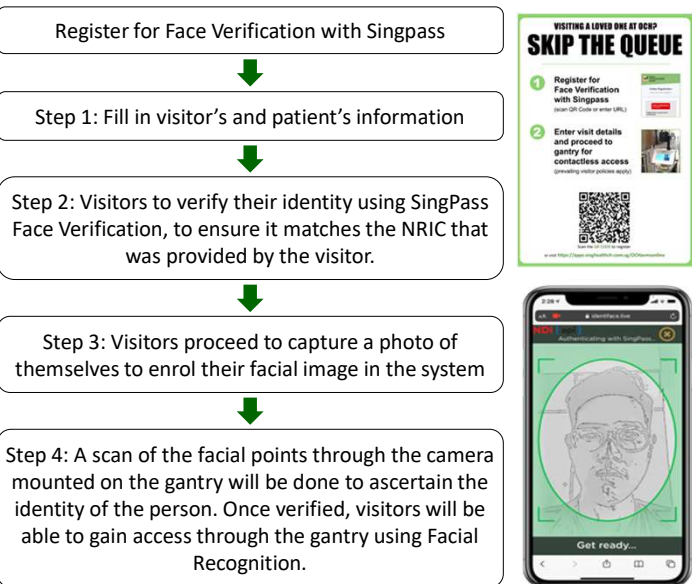
FRAVMS reshapes and provides a seamless visitor experience by:

1. Introducing a contactless mode of entry and eliminating the need to present and scan identity card at the gantries, hence improving infection prevention and control
2. Having an inbuilt thermal scanning capability and denying visitors who are having a fever from entering the ward, hence protecting our patients and staff

Methodology

Smartphones have permeated nearly every aspect of our daily lives, enhancing convenience and connectivity. To ensure that the project was well scoped and addressed the needs, requirement gathering was conducted and a list of technical specifications was developed. Together with IHIS and the external vendor, user acceptance testing was performed to validate the results based on various scenarios, and FRAVMS was rolled out in September 2022.

FRAVMS allows visitors to register online **any time, any where** prior to their visit using 4 simple steps:



Key features:

1. **Camera**
Depth sensor capabilities to ensure that the person is physically present and unable to use a photograph to enter. Visitors with masks are able to enter too.
2. **Registered Visitor's Name**
3. **Verification Message (e.g. Please enter)**
4. **Temperature**
Visitors will be denied entry if their temperature is more than 37.5°C. This function can be calibrated to operational needs



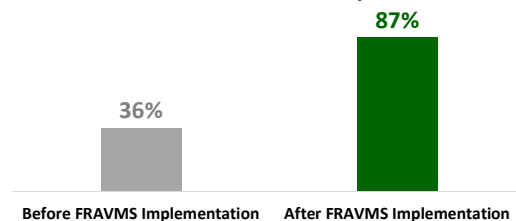
Observations

1. High percentage of FR users are the **younger and senior citizens**
 - Senior Citizens are willing to try out new technology but require assistance with registrations on their mobile phones and some are limited by the requirement of needing a Singpass account
 - Younger visitors take the initiative to register by scanning their QR code found on our posters
2. Staff have observed that **more visitors are using FR** instead of their NRIC to enter our gantries
 - Some visitors commented that their NRICs are cracked/broken, making it difficult to scan.



Results

- Visitor satisfaction rate **increased by 51%**



*Online Visitor Satisfaction Survey conducted before and after implementation over a period of 1 month in July 2022 and April 2023

- The take up rate for FR registrations is **9%**
- Reduce time savings from troubleshoot assistance by **32%** (16 to 11 incidents per day)

Conclusion

Facial Recognition works, but hospital visitors need more time to familiarise themselves with it in the healthcare settings and move away from conventional methods of using their physical/digital NRICs for registration & entry to our hospitals.