

C!EAN!

Presenting Team TRI000



Bringing you a lovelier pre-flight experience.

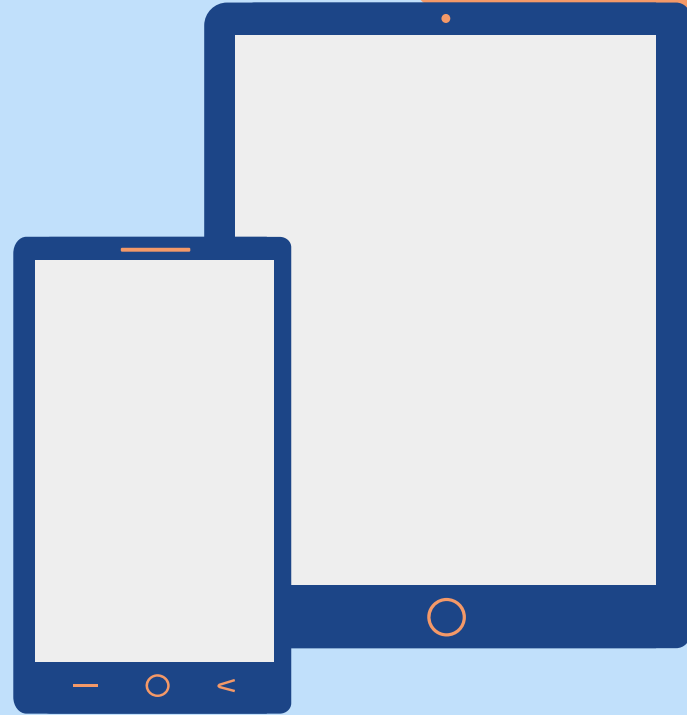
PROBLEM: CHALLENGE 2



1. **Manual tracking** of occupancy levels in SilverKris Lounge
2. **Unsure** of time and location for **cleaning schedules**
3. COVID measures for **safety and hygiene**

CROWD-MONITORING SYSTEM

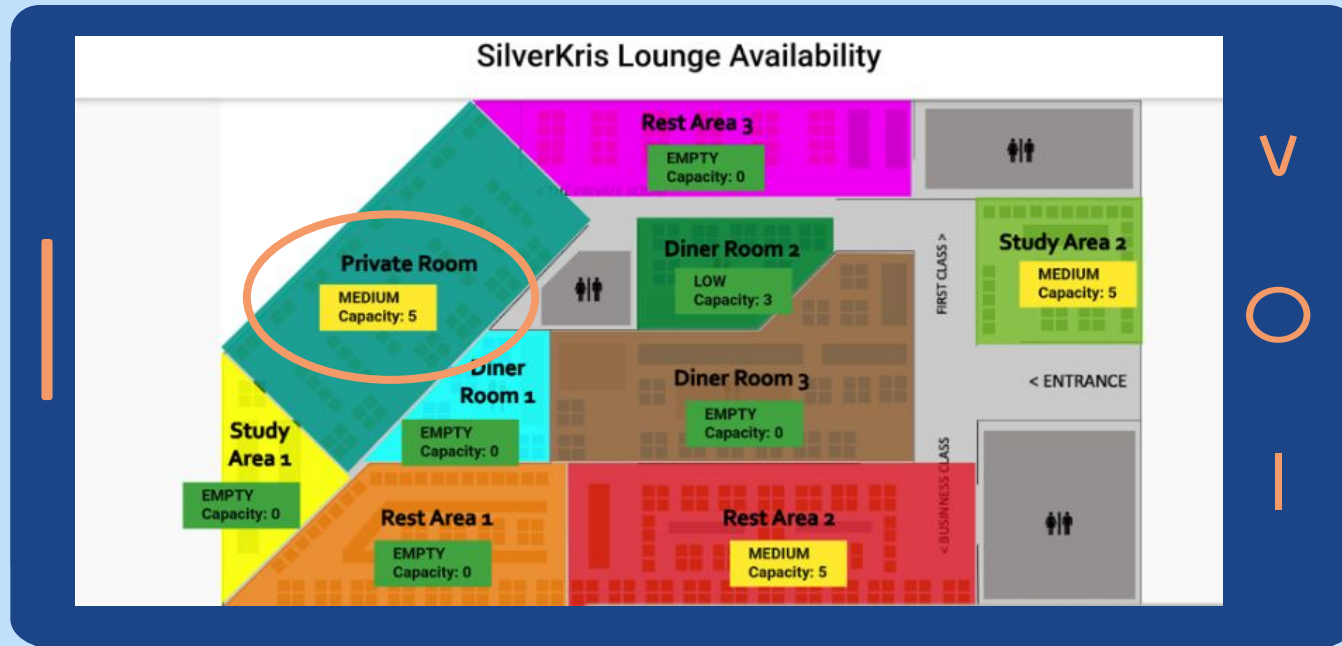
A lightweight and easy-to-use app that tracks human traffic in SilverKris Lounge.



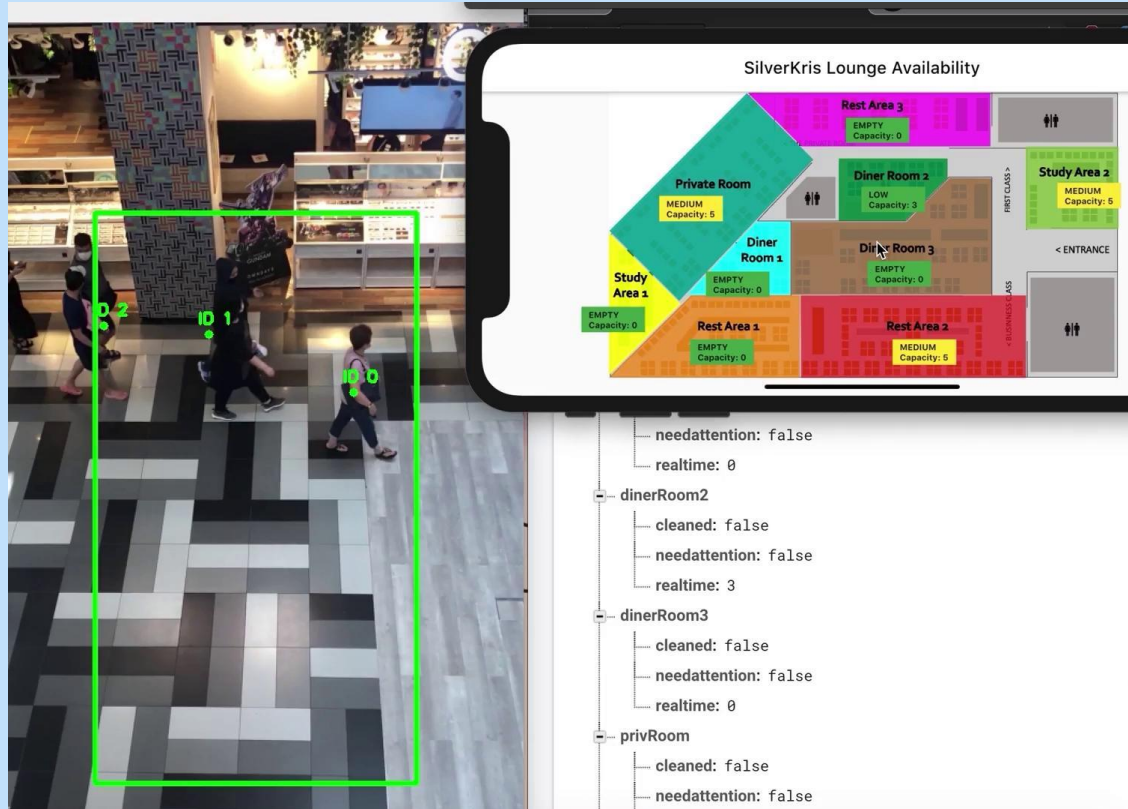
USER JOURNEY: PASSENGERS



USER JOURNEY4: PASSENGERS



OUR PROTOTYPE: PASSENGER APP



CROWD-MONITORING SYSTEM



01

PASSENGERS

Be informed on **real-time crowdedness**, to facilitate effective pre-planning.



02

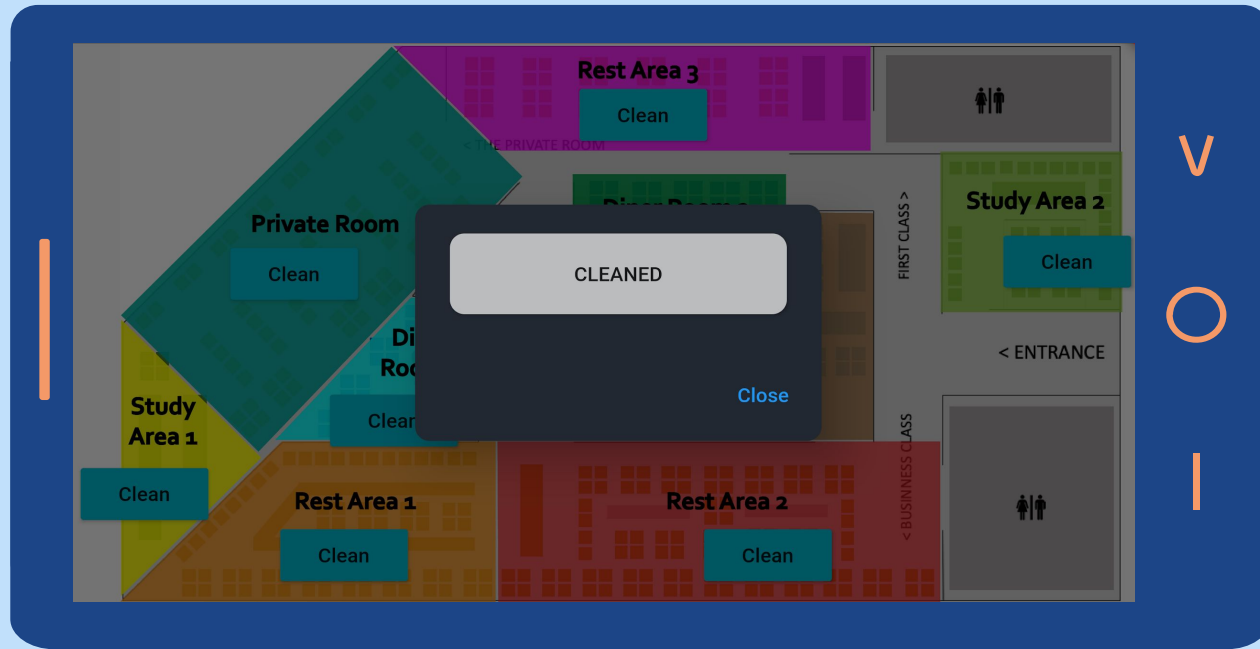
CLEANING STAFF

Bring **life updates** on the time and areas to clean to direct manpower to where is needed

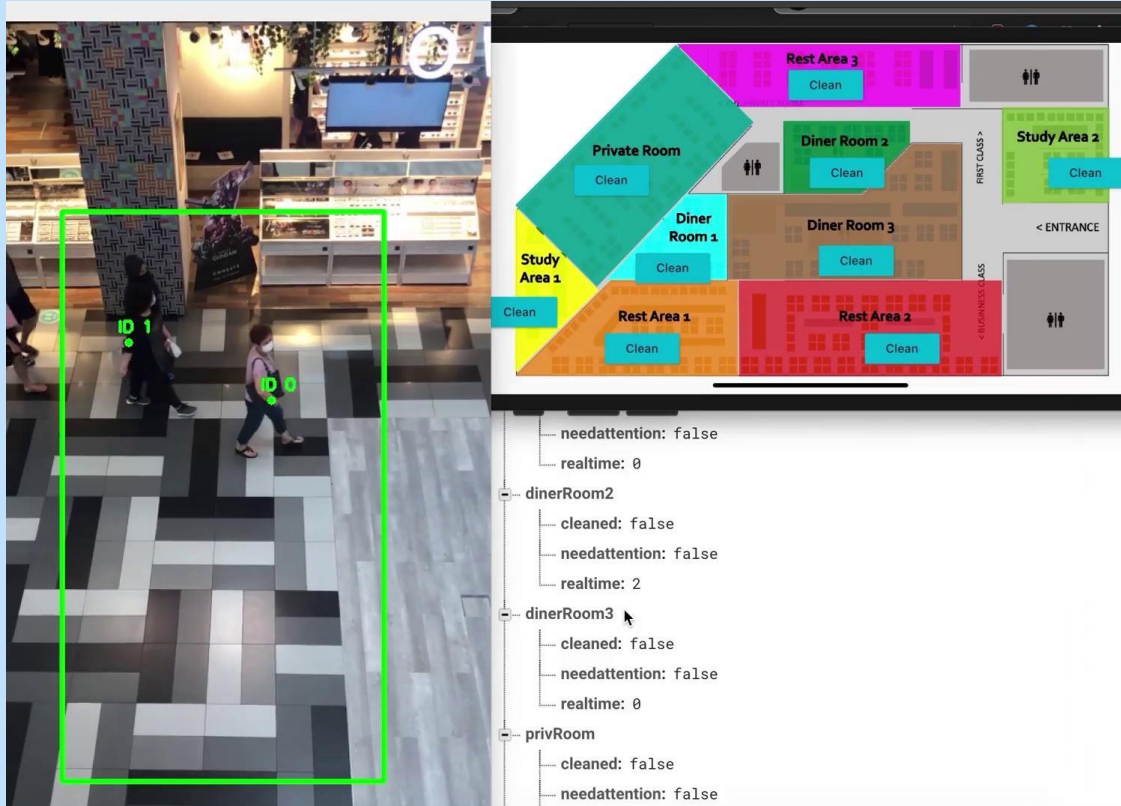
USER JOURNEY4: CLEANING STAFF



USER JOURNEY4: CLEANING STAFF



OUR PROTOTYPE: CLEANING STAFF APP



CROWD-MONITORING SYSTEM

01

PASSENGERS

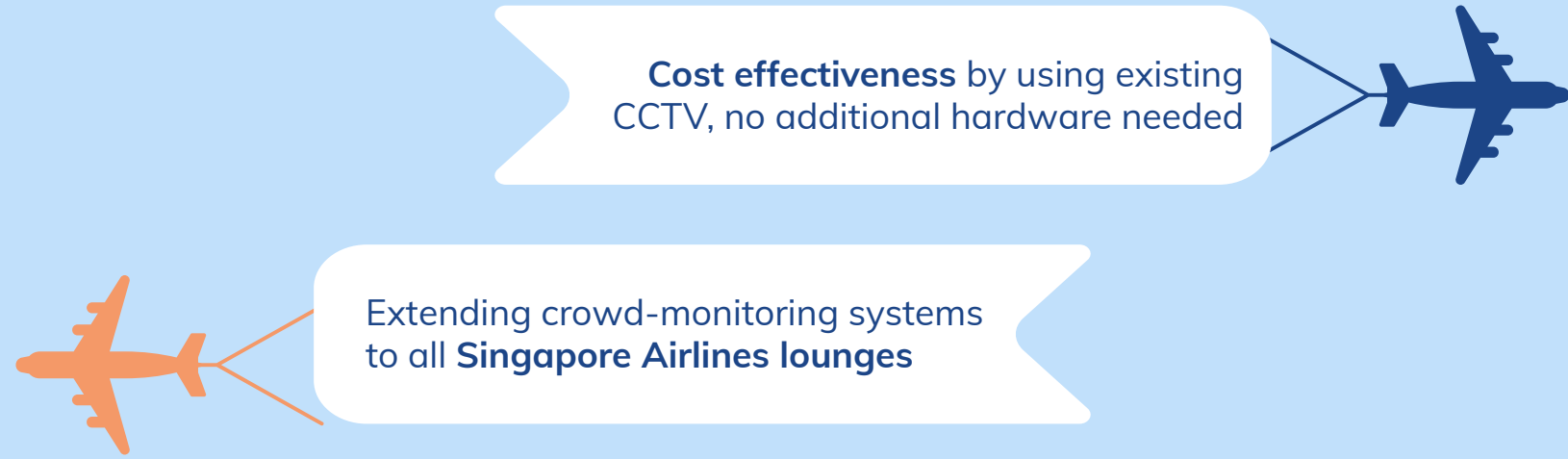
Be informed on **real-time crowdedness**, to facilitate effective pre-planning.

02

CLEANING STAFF

Bring **life updates** on the time and areas to clean to direct manpower to where is needed

SCALABILITY



Cost effectiveness by using existing CCTV, no additional hardware needed

Extending crowd-monitoring systems to all **Singapore Airlines lounges**

SCALABILITY (TECHNICAL)

Transfer detection algorithms online to **reduce lag** and stress on CCTVs



Fine tune our algorithm to better fit the airline's needs



Easily increase accuracy of our object detection model by using other/custom pre-trained model



Thank You!

OUR IDEAL ARCHITECTURE (TECHNICAL)



CCTV Device

Sends live feeds to the cloud



Cloud Computing Platform

It will run these functions:

- Object detection code
- Logic of a highly utilised area
- Code to determine when to send notifications to the cleaning staff



Passenger App

Receives real time occupancy number of all areas and latest time it has been cleaned



Cleaning Staff App

Receives notification when an area needs attention

OUR PROTOTYPE: PASSENGER (TECHNICAL)

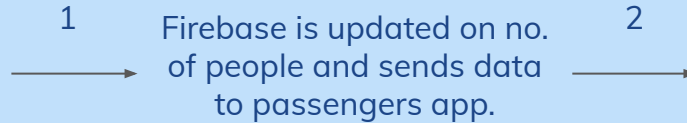


CCTV Device

Films real-time video and counts no. of people with OpenCV (Python) in different areas of lounge and sends to Firebase.



FIREBASE



FLUTTER APP

Passengers are notified on no. of people in different lounge areas for pre-planning.

Link to code: <https://github.com/chuaqibao/SlAchallenge>

OUR PROTOTYPE: CLEANING STAFF (TECHNICAL)



CCTV Device

Films real-time video and counts no. of people with OpenCV (**Python**) in different areas of lounge. If count exceeds certain number, device notifies Firebase the need to clean the area.

CCTV receives update and resets count. Cycle repeats



FIREBASE

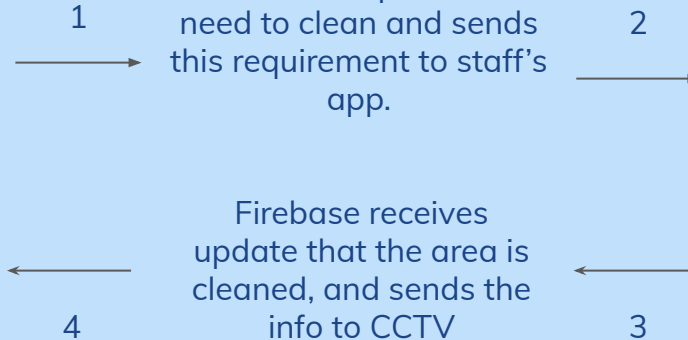
Firebase is updated on need to clean and sends this requirement to staff's app.

Firebase receives update that the area is cleaned, and sends the info to CCTV



FLUTTER APP

Staff are notified on the areas needed to be cleaned on app (**Dart**). After cleaning, cleaners will indicate the area is cleaned.



Link to code: <https://github.com/chuaqibao/SlAchallenge>