



HO

CityHack Members



PROBLEM



Problem 2

is it safe to give out my personal information?

Problem 4

Can we get the real-time data of the places we want to go?

Problem 1

i want to go out... but too many people



Problem 3

All of the shops has front head thermometer, why can't we add more?



TASKs

Real-time + camera + security + Best UI + ...



SOLUTION

NPU

Machine Learning
Count bypasser



Door A In

Door A Out

Door B In

Door B Out



Real time update website



Real time
1. Population Density, ρ
2. Population Count

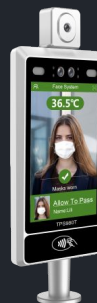


Presenter
Server

- Passive Solution
- Computer Vision
- Realtime Data

Real time Camera

Real time
Streaming



SOLUTION



Machine Learning
and Algorithms

Caffe



Computer Vision
recognize individuals



Centroid Algorithms
tracks movements



Counting individuals in
room (Enter and Exit)



Room size for population
density



Firebase
Realtime Database

Realtime
Data



Front-end UI



Maps API for location
selection

Authorized Individuals



Monitoring of
situation

Video
Feeds

RTSP

demo

Real-time Demo at Lecture hall 7 & Computer Science Lab

PROS CONS

ADVANTAGE

- **Protection of personal privacy**
detection instead of recognition
- **Adaptability to different venues**
control only the entrances
- **Accessibility for all customers**
one filming device per gate



DISADVANTAGE

- **Inaccuracy when objects overlap**
calls for optimization of ML model
- **Lack of contact tracing**
not suited for tracking covid patients



USE CASE



OFFICE

commercial buildings,
government offices...

UNIVERSITY



lecture halls, classrooms,
canteens...

SHOPS

shopping malls, street markets,
individual shops...



BUSINESS MODEL

PLATFORM

- Analytics, monitoring
- Promotion
- Cooperation with Government
- Alternative to CCTV solutions

USER AWARENESS

- User Awareness of Covid-19
- Demand of sanitary and population density information of local shops.



INFRASTRUCTURE

- Devices for recording
- UI for platform
- Firebase realtime databases

ALGORITHM

- Training data to recognize people better.
- Different solution for different entrances.

MILESTONES

PHASE 1 - Q1 2021

design and development
Incorporate with thermometer solutions

PHASE 2 - Q2 2021

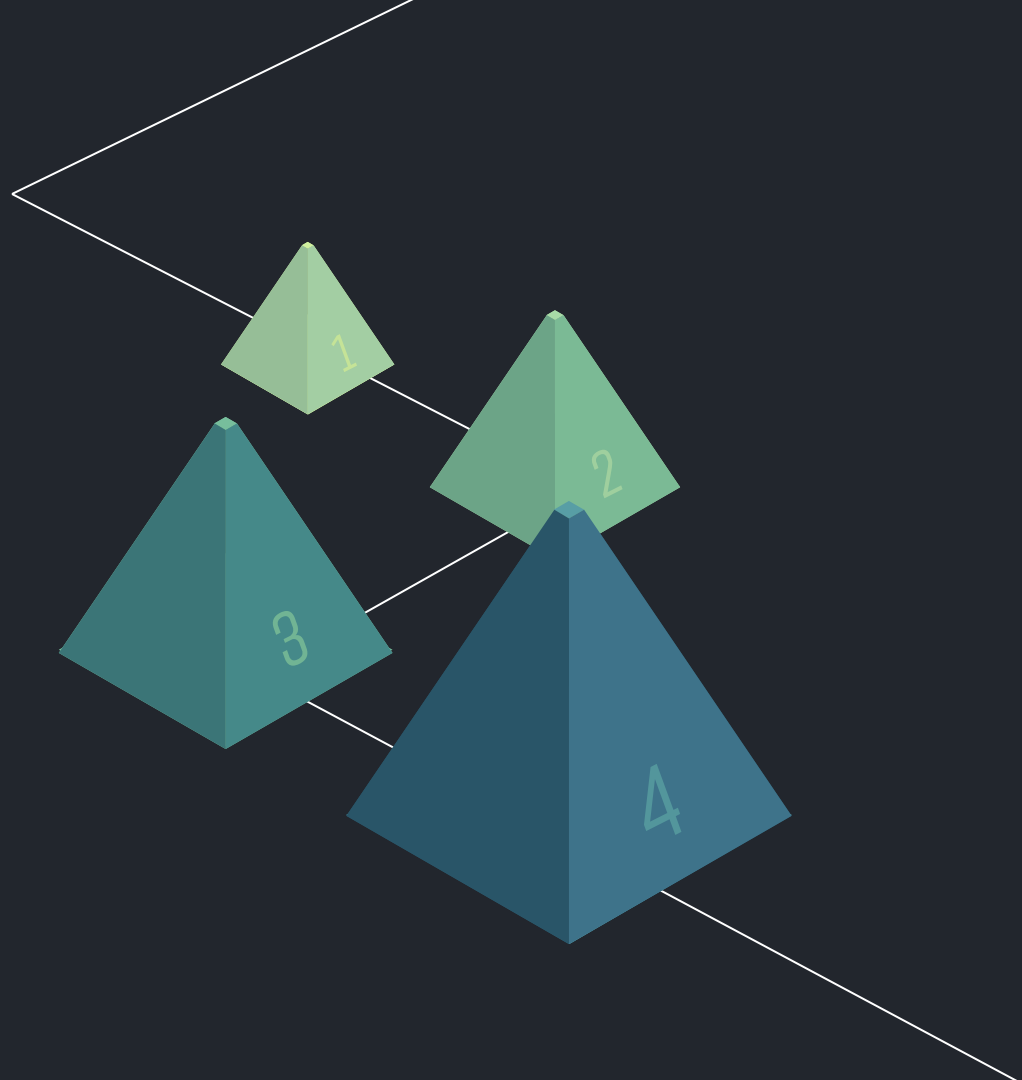
test and refactor, implement to
supermarket

PHASE 3 - Q3 2021

Product optimization, implement to school,
and others indoor area

PHASE 4 - Q4 2021

Mass Production, implement to most of
the areas in Hong Kong



WHO WE ARE

Eugene

Always smiling/ Always optimistic/
Lalamove Software Developer

Team Leader

Michelle

Cool girl/ Bridge between nations/
Networld Data Engineer

ML Developer

Rax

Handsome guy/ work-life very balance/
Networld Software Developer

Web Developer





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Does anyone have any questions?

