

# Intelligent monitoring system for crowd and social distancing with mask detection.

Dr. Somaya Al Madeed | Dr. Omar elharrous | Najmath Ottakath

## Problem / Question

COVID 19 requires efficient crowd monitoring and social distancing. We have surveillance everywhere but needs vast human resource to monitor in real time.

## Hypothesis

- Efficient intelligent monitoring of crowd and social distancing with identifying individuals without masks.

## Project Overview

- Use surveillance system to make smart decision by monitoring crowd
- Identify non-social distancing people in the crowd
- Identify people not wearing masks.
- Sending an alert incase of non-compliance to rules of crowd gathering, social distancing and wearing masks.

## Variables / Research

### Controlled variables

- The minimum distance between two individuals.
- The maximum number of people that can form a gathering.

### Independent variable

- Crowd size
- Masked and non masked individuals.
- The distance between two individuals.

### Dependent variable

- Crowd detection
- Social distancing or not.
- Individuals with mask or not.

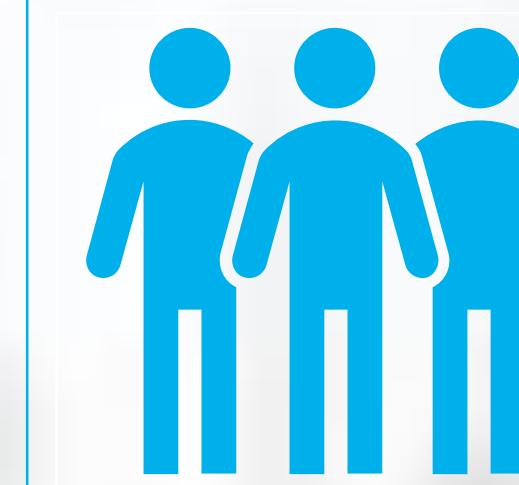
## Materials

### Materials (detailed list)

- MOXA3k Data set
- Deep learning equipment
- An alert system

## Procedure

### Step 1



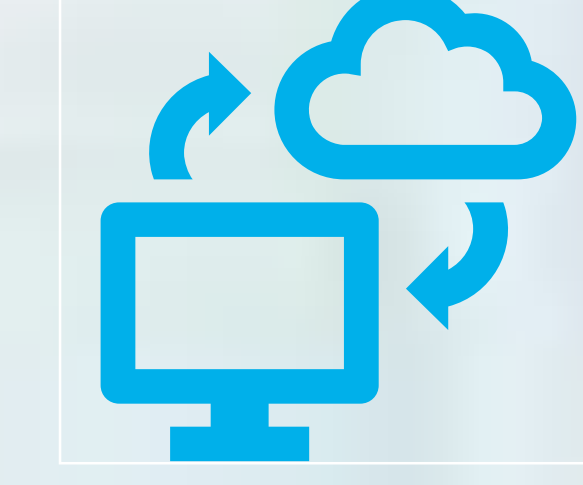
Collect surveillance dataset

### Step 2



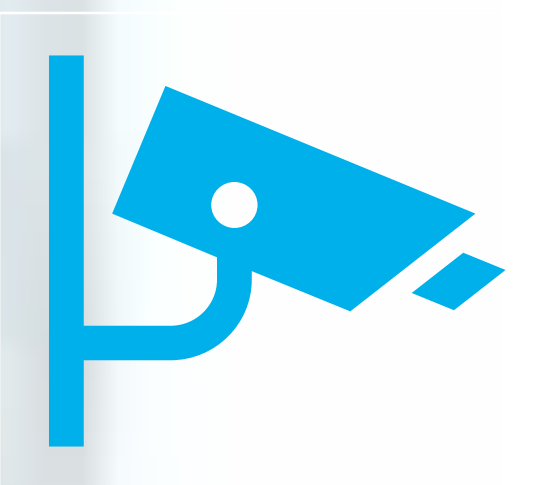
Panoptic segmentation of the image frames in the surveillance video.

### Step 3



Train and test a deep learning model to detect crowd, social distancing and masks.

### Step 4



Deploy the model and test it on live surveillance video.

### Step 5



Compare the efficiency with similar models.

## Works Cited

- [MOXA: A Deep Learning Based Unmanned Approach For Real-Time Monitoring of People Wearing Medical Masks](#)