GORiA

Case Study

Smart City Solution

Taiwan Centers for Disease Control

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Overview

Following on the heels of the SARS epidemic in 2003, the Taiwan Centers for Disease Control (CDC) wanted to setup a health alert system at the Taoyuan International Airport. Gorilla was approached to develop a mask detection solution. This whitepaper gives an overview of that project.

Taiwan Centers for Disease Control
衛生福利部疾病管制署

Taiwan CDC

The CDC was established in 1999. This agency is in charge of disease control system planning and drafting relevant laws and regulations within the Ministry of Health and Welfare in Taiwan. The CDC also handles the prevention, control and research of various communicable diseases and disease outbreak management.

In 2003, Taiwan was greatly affected by the SARS pandemic. In response, the CDC wanted to improve the process of dealing with future outbreaks and looked to video analytics as a possible tool to help.

Medical Masks

In Asia, it is typical to wear medical masks in public during any kind of illness— colds, flus, allergies and other serious conditions. The CDC was interested in seeing if there was a way to highlight every person who was wearing a mask after alighting a plane as this would help in determining trends for the spreading of infections.

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Project Goals

The CDC had some concrete objectives in terms of setting up the project:

1. Control the spread of communicable diseases at international entry points

   With the increase of global air travel, airports have become a hub for viruses and other infections to spread unchecked. Detecting a possible infection here would help curb the spread into the general population.

2. Detect individuals who may be harboring some sort of illness

   The CDC needed a method to quickly determine who might be a health risk as it is not always apparent to the human eye with a large stream of people.

3. Support airport work staff

   During peak travel times staff were overwhelmed with screening passengers and needed some support.

Technical Challenges

The main issue when setting up a video analytics system to detect mask-wearing individuals is volume. With so many passengers moving through the airport corridors at once, the system needs to able to quickly scan crowds, analyze faces and then pick out which ones are covered.

Taoyuan Airport staff themselves couldn't handle the large influx of passengers at peak hours, and so a digital video system could alleviate the strain on their time and energy.

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Solution

Gorilla designed a solution to meet the needs of the CDC and keep track of potential infections coming into the country. The mask detection system consisted of the following:

- Video analytics reporting people wearing masks in real-time deployed at critical areas of the Taoyuan airport as well as the CDC.
- System records the time, location and amount of people wearing masks to analyze trends.
- Graphical analytics of the mask detection data within the central control platform.

The system was set up at key arrival corridors and gave the staff real-time and long-term data. This allowed the CDC and Taoyuan staff to analyze trends in the passengers and potentially head off contagion before it spreads.

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Results

The project was a success for the CDC, Taoyuan International Airport and Gorilla Technology. When the system was used in concert with biomedical equipment to detect body temperatures, it proved to be a great warning system to the CDC.

Notably, when the system reported an increase of mask detection, this data matched the Taiwan authorities' data showing an increase in seasonal flu rates and other viral infections.

There are currently plans to deploy the system to other airports in Taiwan as well as other points of entry such as ferry terminals.

Conclusions

Edge AI and video analytics can be a good tool for public health and disease prevention. Mask detection can be deployed successfully and can act as a good barometer for potential infections – keeping communities safe and free from harm.

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