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CONTEXT SETTING

The COVID-19 pandemic has halted multiple industries across the globe. Many businesses were caught by surprise and proved to be unprepared for such an unprecedented event. The primary reason behind this halt is that most workplaces are not equipped with advanced systems to ensure a safe environment for its workers. The previous safety precautions are now insufficient and many enterprises are seeking out an AI based solution.



SOLUTION INSIGHTS

Many workplaces currently require some form of a computer vision system to assure the safety of their employees while at work. The purpose of this system is to generate reports that can suggest immediate intervention, as well as reflective actions to ensure the health of all employees. Enterprises are accountable to ensure worker's safety which includes abiding to guidelines like maintaining the appropriate social distancing and wearing a face mask.

The workplace must be monitored and detection of unsafe behavior is crucial. All of this has led to a need for rapid and agile technology that can be operationalized quickly to keep workplaces continuously running ensuring employee health and safety.

After working with many enterprises and understanding their requirements, Pluto7 is transforming safety with Google Cloud Video Intelligence, Vision API, and Machine Learning.

Distance learning platforms can collect real-time employee behavior such as facial expressions (coughing, sneezing), eye movements, and body positions (slouching or sitting up). This data can be harnessed for either premises or reflective actions such as redesigning the safety standards of the workplace.

Safety ML can quickly detect if an employee is wearing a face mask or not with the help of real-time video streams by leveraging Google's video intelligence API.

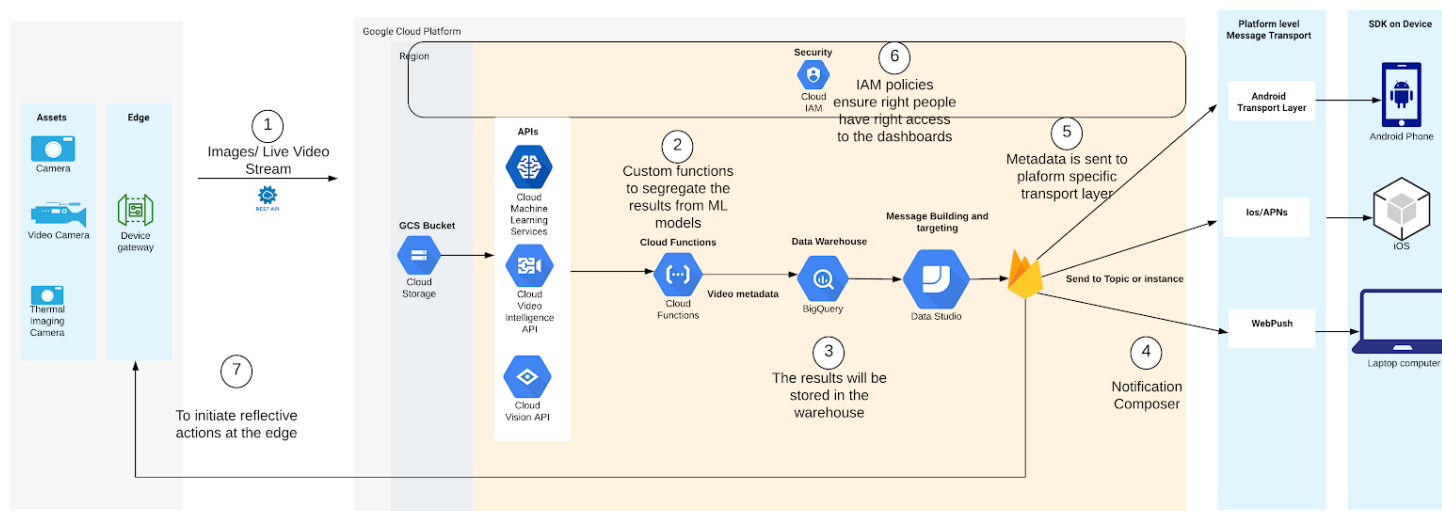
It can also track the number of people in a specific area and check for social distancing.

The body temperature of an employee can be screened upon arrival with the help of a thermal camera. Elevated temperature indicates a fever or an underlying infection.

As soon as an unfavorable situation is detected, a notification can be quickly sent to an individual's personal mobile device, and alert the appropriate management.

In addition, trend analysis can be conducted and reports generated. For example, a historical trend can determine what proportion of the staff continue to comply/ignore the safety measures, this includes not wearing a mask, or social distancing. These statistics can be used to enforce more effective actions for the offending workers.

Here is a reference solution architecture built using Google Cloud. Pluto7's Safety ML is a solution developed to solve these problems in a real world scenario:



THINKING AND ADAPTING TO THE “NEW NORMAL”



COVID-19 precautions may not last forever. Hence, a common question that we receive from our customers is can this Safety ML solution be leveraged for future purposes after the pandemic?

The good news is YES! The investments companies make today for the safety of their workers can be leveraged for future purposes as well. Many video surveillance use cases can be achieved with this single infrastructure investment. The same technology can also measure operational efficiency of workers.

Some of the extensions to social distancing tracker would include:

- Detect motion in a restricted area
- Monitor the movement of assets
- Identify line-crossing events, such as a worker reaching an unsafe zone
- Detect and count the number of people in an area incase of a natural disaster

Some of the extensions to face mask detector would include:

- Distinguish unknown faces in a factory floor through facial recognition
- Read license plates to identify vehicles entering and leaving a facility
- Detect protective gear

Apart from the above mentioned applications, the solution can also be used for following purposes:

- Measure attendance and productivity of the employees
- Save time by optimizing supervision
- Measure the working hours of employees
- Optimize the overall productivity and operations



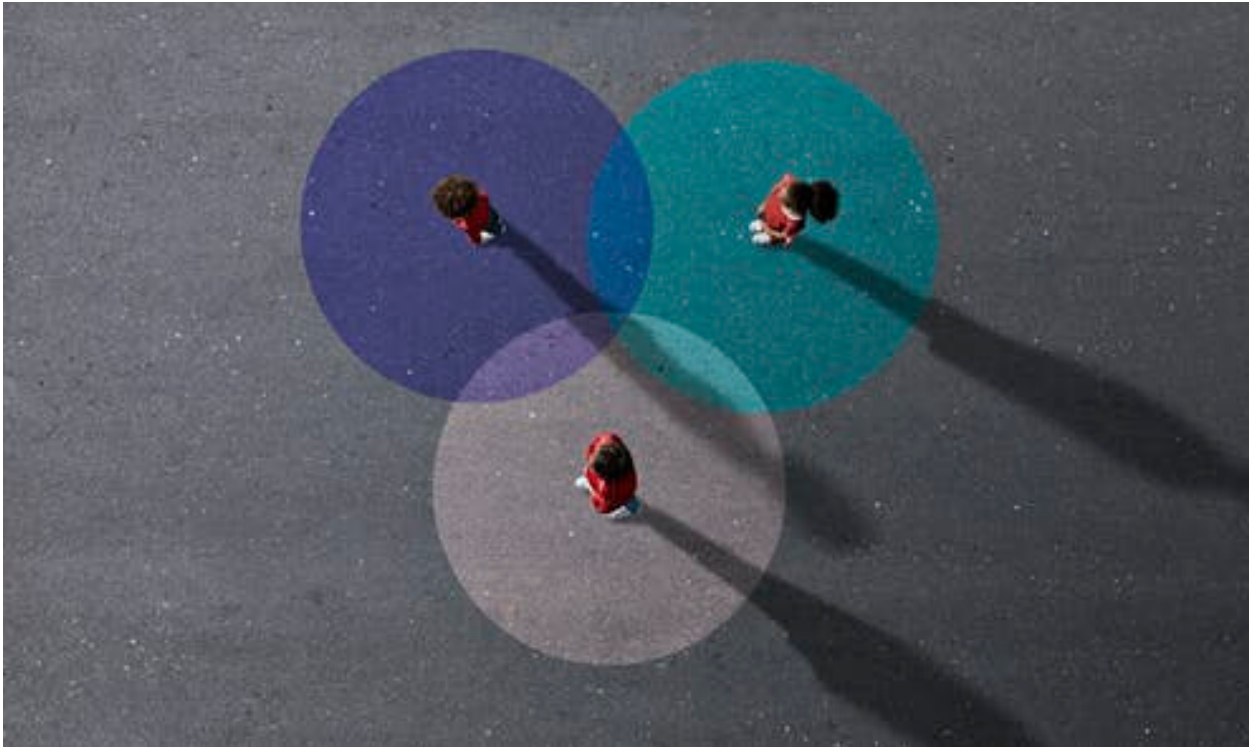
Security Threat & Safety

Signal alerts can be created with different colors like green, yellow and red. For example, if a production line worker entering the packing area is not wearing a face mask, the system would generate a red signal alert. However, if the same worker enters the packaging area wearing a face mask properly, the system would generate a green signal alert.

Access Control Methods:

- Create prohibited areas in specific offices and factories
- Manage and monitor the site area more efficiently
- Online monitoring to significantly reduce physical site visits
- Reduce theft

Thus, it can be observed that multiple applications can be achieved with a single investment. This solution is helping companies be more cost effective and have a higher return on investment while prioritizing the health and safety of employees.



Conclusion

Safety ML can be a great resource for employers resuming their business operations to ensure the safety of their workers with AI capabilities. As per the latest guidelines from CDC for employers responding to COVID-19, especially those seeking to resume normal or phased business operations, the below strategies & recommendations must be implemented

- Conducting daily health checks
- Conducting a hazard assessment of the workplace
- Encouraging employees to wear cloth face coverings in the workplace
- Implementing policies and practices for social distancing in the workplace

Also, WHO safety protocols for employers seeking to resume business operations revolve around the same lines.

Additionally, it can be observed that multiple applications can be achieved with Safety ML. This solution is helping companies be more cost effective and have a higher return on investment while prioritizing the health and safety of employees acting as a digital twin to watch the employee movements and identify potential threats and prevent infections where possible.

If you are interested in learning more about Safety ML, please contact us at marketing@pluto7.com or visit our website at www.pluto7.com