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***Abstract*—This is an innovative project add some extra features to normal human detection . Our motive is to improve security at sensitive place like bank locker , school class , office , laboratory those place there a single human can destroy all system . Using this we can count total number of people in side a room , building .**

INTRODUCTION

In this python project, we are getting to build the Human Detection and Counting System through Webcam otherwise you can give your own video or images. this is often an intermediate level deep learning project on computer vision, which can assist you to master the concepts and cause you to an expert within the field of knowledge Science.

Failures of Human Detection Previous Days

Facial Recognition Failure in China Back in November 2018, Chinese police admitted to wrongly shaming a billionaire businesswoman after a face recognition system designed to catch jaywalkers 'caught' her on a billboard on a passing bus. Traffic police in major Chinese cities deploy smart cameras that use face recognition techniques to detect jaywalkers, whose names and faces then show abreast of a public monitor. After this went viral on Chinese social media, a Cloud Walk researcher stated that the algorithm's lack of live detection could are the matter.

PITFALLS FACED BY AUTHORS

1. Every problem needs an AI/ML solution.
2. The excitement has led to high expectations.
3. Blind chase after accuracy is needless.
4. Models don't fare well with rushed timelines.
5. Last-minute changes are hard to accommodate.
6. ML models should stay future-ready with none

INNOVATIVENESS

1. The first aim is to use the project as a business perspective, able to scale.
2. Use case: counting the amount of individuals within the stores/buildings/shopping malls etc., in real-time.
3. Sending an aware of the staff if the people are over the limit.
4. Automating features and optimizing the real-time stream for better performance (with threading).
5. Acts as a measure towards footfall analysis and during a thanks-to tackle-COVID-19.
6. Real-Time-alert: we send an email alert in real-time. Use case: If the entire number of individuals (say 10 or 30) exceeded during a store/building, we simply alert the staff.
7. Multi-Threading is implemented in 'mylib/thread.py'. If you ever see a lag/delay in your real-time stream, think about-using it.
8. Threading removes OpenCV's internal buffer (which basically stores the new frames yet to be processed until your system processes the old frames) and thus reduces the-lag/increases-fps.

TECHNOLOGIES

Python (3.9), Open CV, CMake, Open CV Contrib, Visual Studio

COMPONENTS CONTRRIBUTION

1. VisualStudio: simpler to develop C++ projects built with CMake without the necessity to get VS projects and solutions from the instruction.
2. CMake: CMake is cross-platform free and open-source software for build automation, testing and packaging employing a compiler-independent method.
3. OpenCV: OpenCV is that the huge open-source library for the pc vision, machine learning, and image processing and now it plays a serious role in real-time processing.
4. OpenCV-Contrib: Machine learning tasks which also supports Tensorflow, Torch/Pytorch and Caffe. one can process images and videos to spot objects, faces, or maybe handwriting of a person's

IMPACT OF HUMAN DETECTION AND COUNTING

During this COVID-19 situation, we should always maintain equal social distance and to possess a limited number of individuals in each place. to take care of these within the public places like shopping malls, theatre, complexes and lots of other. Then it'll gives an alert through mail by saying "Limit Exceeded within-the building". This project are going to be most useful during this COVID-19 pandemic situation.

APPLICATION

Detecting citizenry accurately during a visual closed circuit television is crucial for diverse application areas including abnormal event detection, human gait characterization, congestion analysis, person identification, gender classification and fall detection for elderly people.

ADVANTAGES AND DISADVANTAGES

ADVANTAGES	DISADVANTAGES
1. Makes implementation super easy	1. Highly coding difficult.
2. Provides continuous surveillance.	2. Not useful in airports, railway station, bus stands.
3. It is a very efficient way of delivering alerts to admin.	3. Cannot operate from other places.
4. As you have access to the net 24*7,you can train system anytime and from anywhere also	4. Needs more memory to execute and communicate.

We overcome the drawbacks of the Human Detection and counting. We will give the long time access, conduct the live CCTV footage, videos.

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