

Monitor quality of video surveillance camera

Background

It is a common scenario that once a surveillance system has been setup to record video, it is left more or less unmonitored until some incident occurs. The problem is that there might be a significant time between incidents (e.g. a year) and when it finally happens it is very frustrating to find out that the recorded video is of no or little help because the video quality for some reason has degraded over time. Environmental factors such as dirt, sand, dust, moisture can degrade the video quality significantly. In addition, worn-out moving parts in the camera can leave the sensor out of alignment causing blurry or distorted images.

In setups where video surveillance is mission critical, one solution is to have a person go through all cameras every morning to check that the quality is still as expected. This is however a very costly approach especially if there are thousands of cameras in the system.

A better solution to the problem would be to have the system automatically monitor the video quality. Ideally, it should come up with a number that represents the current video quality of a camera. This number can then be compared with numbers from when the camera was originally setup. If the difference is bigger than some threshold, an event should be posted thus notifying the owner of the system that the video quality needs a manual check. Maybe the lens needs to be cleaned or maybe it is time to replace the camera with a new one?

The project

In this project, we want to investigate how to make an algorithm that automatically can measure the quality of video delivered by a given camera. The measure does not need to be an absolute measure allowing comparison between video from different cameras.

It is important that the algorithm is fast since this is something customers likely would have running on all camera feeds. The more resources it requires, the more hardware needs to be bought and the less attractive the feature will be to our customers. Likewise, it is important that there is little or no setup associated with the measure.

It is expected that a standalone prototype of the proposed algorithm is implemented and that it is tested with different video feeds showing video quality degradation. In addition, performance measurements are expected.

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