

Unsurpassed Image Surveillance System

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Abstract: People use security measures to protect their property whether it is a house or a company. Current security systems include the use of various motion sensors and video surveillance cameras, namely, Perimeter Intrusion Detection Systems. Most video monitoring systems work with algorithms such as background image removal, duplicate screen filter (DBF), a virtual flow path to detect motion where a video is recorded with a digital video recorder when a moving object is identified for memory retention, but in a proper process. Some missing frames even moving objects are perceived as being treated as stable (without considering the minimal movement of objects below the boundary value), here we suggest a combination method to remove the background image and double screen filtering with open morphological motion identification. Items and improve video quality. This project aims to provide one such perspective to ensure the safety and security of personal property. This system performs face recognition as an authentication procedure and alerts the owner when an unknown face is detected by sending an email with the snapshot of unknown face and a SMS. Live feed from multiple cameras can be viewed through smartphones, computers

Keywords: CCTV, monitor, face-identification, camera

I. INTRODUCTION

Like any CCTV, CCTV smart works by providing real-time monitoring videos. The days of traditional CCTV are long gone. Like any CCTV, CCTV smart works by providing real-time monitoring videos. However, when the traditional camera only records, intelligent CCTV can understand the feed and can make sense of the recording images. Sure, it's a little annoying; however, it is fair to say that experts may outweigh the disadvantages with such technological advances. It constantly monitors frames and monitors any movement in the frame using a high-pass filter where the image edge is sharpened. It uses the LBPH Face Identification Method: So now we have found the face in the frame and this is the time to identify it and check if it is in the database we used to train our LBPH model. This feature is used to find the sounds in the frames well this is something you can find on most CCTV. Simply put all the frames are continuously analyzed and monitored for sounds and any movement Therefore, it works through the following steps:

- 1 - Begins to hear sounds in the frame.
- 2 - Then in the event of any movement, find out which side that happened; either left or right.
- 3 - At last it checks if motion from left ended to right; then it will detect it as entered and capture the frame, or vice-versa.

II. MOVING OBJECT TRACKING (BACKGROUND SUBTRACTION)

Since the video sequence consists of several frame sequences with some degree of excessive continuity, the detection of moving objects in the video is performed so that the frame sequence is extracted from the video sequence according to a particular cycle. Increase. Therefore, detecting a moving object in a still image relies solely on tracking the moving object based on the object's motion properties the following is a brief definition of the method of video sequence analysis frequently used in moving object detection. Two or more frames captured at different times contain information about the relative motion between the imaging system and the scene. Therefore, information about motion can be obtained by analyzing and processing frames captured at different times optical flow method reflects frame variability caused by movement at specific time intervals. It is estimated that the moving object will contain similar motion vectors in the frame's motion field. The optical flow method requires solving the transcendental equation. Computational complexity, noise sensitivity, computational load, and poor real-time performance and practicality. Therefore, it is difficult to use this method for real-time video processing. This method splits the image into a foreground and a background. The pixels that correspond to the background model are called the background, and the other pixels are called the foreground.

III. FACE IDENTIFICATION MECHANISM (LBPH ALGORITHM)

This a face identification model which uses LBPH algorithm. Here we have to train the model. Algorithm working: What happens is that the face detection, it works by the principle of LBPH algorithm. Mindy's what happens is that it takes the input, face it. You have to train the model. That means it in the model means takes the photo person. Takes about the 300 photos. To be under photos and then the images. Mr Putin is the folder where it is stored. Then near the training is is model is trained. After that we have give also two button one is the ad and another is the start with the loan. When you if you want to add any personal click on the air button or if you want to start with the lone person means any person in the data set. So likewise, this is about the LBPH working in the face detection model.

IV .MOTION DETECTION

Let us talk about the motion detection. The motion detection works on the basis of the background subtraction algorithm. What happens is the the two frames are present. Here one frame is captured by the webcam which we are using the project in our project and the other is that continues. Premise captured and after that the background suppression algorithm is used like the two frames are compared, the difference between 2 frames are subtracted and hence the motion can be detected. Step 1: Image capture and framing video frames. Step 2: Using the background removal method. Step 3: Stack of 10 frames to use double back filter. Step 4: Applying the Duplicate Background Filter (DBF) by morphological expansion and applying the image enhancement method. Step 5: Movement of movement number 2–6 until the object is detected. The detection of a temporary difference or subtraction of the background applies to the principle of independent variation which is used to identify the movement of an object from one frame to another when the background is stable. The difference between two consecutive images or frames is calculated, suppose $I_m(x, y, t)$ is an image during 't' and $I_n(x, y, t + 1)$ is an image in 't + 1' and provides a temporary variation of the I_d . The moving object can be identified by the Rate of Change (ROC) from the forward movement information and background information. Here the cumulative flow of the first five frames and the last three frames determine the degree of change from the front and the background image. A. How to Work At first the outline is constantly alert to detect movement. When a movement occurs, the frame captures until the movement ends. If you only move then take another photo and then simply apply the layout of both frames.

V PERFORMANCE

A. Video processing

Thus after the discovery of the video, further processing is required to improve certain aspects of the image. Image enhancement is done to enhance the immature image by pressing the sound and emphasizing the structures.

B. Frame

We have to split the frame into video streaming in order to do the same task as thresholding and binary functioning. Finally all frames must be combined into a single video stream to analyze video after all work has been done.

C. Thresholding

In highway surveillance images, we use a street image location as a photo processing location indicator. So the background image is simple. To meet real-time performance requirements and save attempts to calculate algorithms, this paper adopts a back-to-back mathematical model algorithm with high speed definition, low calculation effort and ease of implementation.

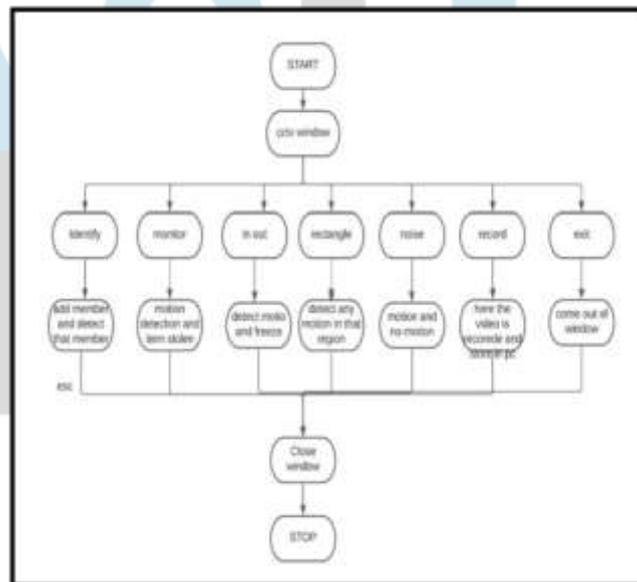


Figure 1 Block Diagram of Smart CCTV

Figure 1 shows the block diagram of features and working of Smart CCTV. There is a presence of identification feature which is used for identification of face , monitor feature uses high pass filter technique for moton detection and in out feature shows whether the movement is in left or right ,rectangle feature is used to detect motion in one region,noise feature is used for motion detection,,record feature is used for recording video ,and exit is used to come out of the window .

VI. RESULT AND DISCUSSION

Feature 1 – Monitor

- Monitor

Showing use of first feature or you can consider it as output from feature 1.



Fig 3 Output in High Pass Filter Form

Feature 2 – Noise Detection

This is working captured output for NO-Motion and Motion being detected by this application.



Fig 4 Output of Noise Feature (no-motion)

Feature 3 - In out Detection

It has detected me entering in the room and being detected as entered and gives info about right or left

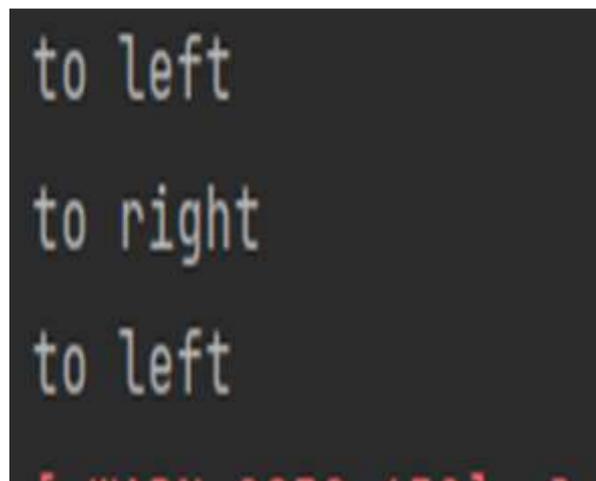


Fig 5 In out Detection



Fig 6 Face Identification output

Since I have trained my model for bezos and it is predicting bezos correctly. Now it's not always predicting right sometime it makes bad predictions also..

Feature 6 - Record



Fig 7 Record Video

This Is Used For Recording The Video Of The Frame.

VII. CONCLUSION

The Project Smart CCTV camera Surveillance system is designed using python. This project is basically designed for providing a security in different areas like military, banks, and industries etc and save the power, memory required for the CCTV and CCTV footage respectively.

VII. FUTURE SCOPE

Although small in scale, this design can be widely used based on technological advances such as the ability to have high computing power. Here are some future steps for this project. • Realization of portable video surveillance. • Added integrated night vision function. • Add deep learning if you have a powerful device. • Additional functions such as e.g., Deadly Weapon Detection, Accident Detection, Fire detection, Build standalone applications with no Python-like requirements. Create a standalone device.

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