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Motion Detection System with Web Cam

Lalit K. Surwade[1], Pallavi D. Patil [2], Bhagyshree B. Surwade[3], Bhavna D. Patil[4], Nilesh V. Ingale[5]

[1,2,3,4] *UG Student, 5 Assist. Prof.*
[1,2,3,4,5] *Computer Engineering, COET, North Maharashtra Knowledge City, Jalgaon*

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Abstract- *The topic of the project is "Motion Detection System Using Web Camera". From the topic, everyone may know that the target of the project is using "web camera" to achieve the target of the "motion detection". In the application, there are many web cameras attached to the computer. These web cams are used as an eye to find motion. Whenever a movement occurs in front of the web cam that frame is stored in specific location. The project also focuses on reducing the storage capacity needed for these types of applications.*

Keywords-*Web-based Surveillance System, motion detection*

I –INTRODUCTION

Security is one of the most important problems all over the world. This project basically concerns on the use of automatic motion detection application using webcams for security purpose. Today in our society security is one of the major issues and having a 24*7 human eye is just impossible. Our project Motion Detection Application Using Web Camera is just a one of the applications which help us to achieve this goal. In order to be secured of safety, it is useful to realize and manage smart surveillance system combined with image processing techniques. These functions are necessary for autonomic monitoring, which is provided by our surveillance system. This paper presents related works and problems of our previous surveillance system, at first. An overview of the new version of our surveillance system and its functions are described in the next section. For comparison process there are many approaches but here frames are converted from RGB format to GRAY scale format and then compared. Again, the frames are converted back to RBG format before storing. The gray scale conversion is done to decrease the pixel values. Whereas the frames are compared pixel by pixel. The difference in the frame gives only the moving objects on the frame. The main objective of the proposed approach is to reduce the storage size by storing only the frame having motion instead of the whole video.

In the web cam selection, the user first of all initialize the camera then specify frame size. The frame size and frequency will be changeable because of frame saved in the specified location. In this location image stored as frame. It will then start to capture the video, it will set the first image as a background, the next image will be taken with the same frame Real Time Security System Using Web CameraReal Time Security System Using Web Camera International conference on Global Trends in Engineering and Technology (ICGTET-2020-21) Fig. 2 Background Image size „x‟&‟y‟ i.e. width & height.

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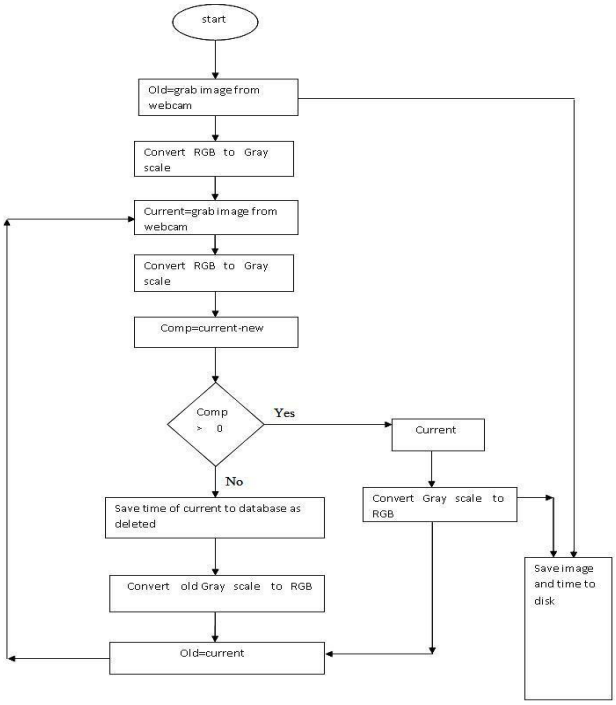

Fig. 1- System Configurations

Now we have to calculate the image mean position and mean velocity. For any given frame of video, we can subtract the background image from it to check the motion (the detection for motion is purely pixel to pixel detection). Those pixels with a result near zero are treated as background and those pixels with a larger result are treated as foreground. Thus, once we have the model of the background image, this is simple, efficient, and easy to implement.

II- LITERATURE REVIEW

Literature survey earlier to begin a research project is Motion Detection system with Web-Cam, as this will supply the researcher with much needed additional information on the methodologies and technologies available and used by other research complement around the world. But it has many technological lacuna still exist in the methods of background subtraction. In this section, some previous works is discussed for frame difference that use of the pixel-wise differences between two frame images to extract the moving regions, Gaussian mixture model based on background model to detect the object and finally background subtraction to detect moving regions in an image by taking the difference between current and reference background image in a pixel-by-pixel, and previous works done for the background modeling. After the detection scenario is over, tracking part is done. Once the interesting objects have been detected it is useful to have a record of their movement over time. So tracking can be defined as the problem of estimating the trajectory of an object as the object moves around a scene. It is necessary to know where the object is in the image at each instant in time

III- METHODOLOGY

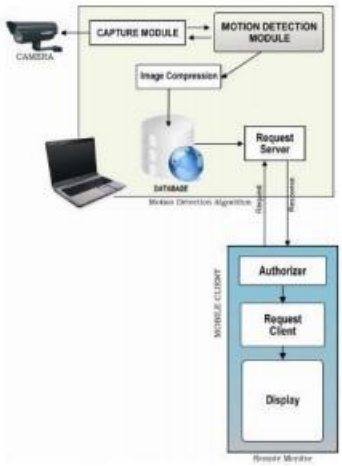

Fig.2- Architectural design

At first, by means of image processing for monitored data, it is illustrated whether remarkable changes between continuous sampled images happen or not. Secondly, through comparison of a series of monitored image from network camera, detection of dynamic changes from the previous image to no one is performed so that the signal for homing of camera's platform can be computed and sent to camera for controlling its platform. It is used to read data from an output Data Source of a Processor. It creates a processor and hook up the output. Instantiate and set the frame access codec to the data flow path. Get the output Data Source from the processor and hook it up to the Data Source Handler. It reads from camera and display information of each frame of data received. It uses the Java Media Framework to detect image capturing device. It locates the Locator = vfw://0 to detect capture device using plugins.

IV- DESIGN

This technique starts from the assumption that the background is static and compares the pixels of the frames captured in very small time intervals (Δt)[14]. If the absolute difference comes to a value above a pre-defined threshold (Γ), it means that the pixel has changed and therefore there was movement. This method can be described by the following formula: I = 1,

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if | ft − ft−1 |≥ Γ , (2.2) 0, if | ft − ft−1 |< Γ where Ii is the binary result of the absolute difference of a pixel between two consecutive frames (ft and ft−1)

V- RESULT & DISCUSSION

Human tracking is a complex issue because of its body shape, articulation, fast motion and clothing. To further complicate the problem, the lighting and background conditions and the noise may have a great influence in several techniques. To achieve our final goal, these circumstances require a pre-processing of the video before executing any other steps. After pre-processing, we need to detect and categorize the object, before being able to track it.We have to apply object detection techniques to detect objects of interest in the video sequence and to cluster pixels corresponding to these objects. Then, we have to find ways to represent them in order to allow differentiation from all the others. Objects can be classified as different things, e.g. vehicles, bodyparts, birds, floating clouds, swaying trees, among others. After that we are able to track our objects more easily.

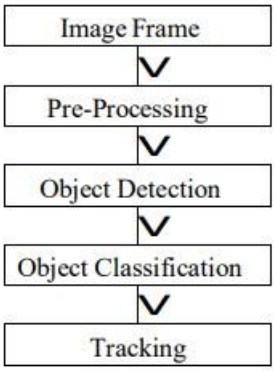

Fig.3- Basic Motion Detection

VI- CONCLUSION

Today's world CCTV camera plays very important role But CCTV camera Activate all 24 hrs of the day. Even suspicious activity not happen. So its required Separate LED Screen and DVR box for this. And also its not affordable to anyone. So in our project we are try to sort out this issue means we are Use the Web Cam rather than CCTV camera. and Web Camera take a picture when any motion is detected. And at the same time picture stored on Google Cloud. Using our project not required any extra set up like DVR box and LED Screen. Its can used only with any desktop computer and affordable to anyone.

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