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Real Time Security System Using Web Camera

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ABSTRACT: The topic of the project is "Real Time Security 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. When any motion is occurred in the room or any suspicious activity is performed then our project take a picture and stored in server and Google Drive.

KEYWORDS: Web-based Surveillance System

I. INTRODUCTION

kMotion Detection Application is basically created or Developed As respect to time. And Also, for Security Major. In that We are Use Image Processing technique. In this Project Webcam detect motion Automatically when some motion is occurred. Also, in this project we are provide the complete solution for College and School. And Our Goal is to save the money and time of people. The Main Goal of this project is to reduce the storage size and valuable time. In this project stored only image rather than video. and same time save this photo's on Google drive. For Comparison process there are many approaches but the frame converted from RGB format to GRAY Scale format and then compared to each other. and after detecting the motion this image frame converted into RGB frame for storing. The Gray scale conversion is done to decreased the pixel values. The frame gives only the moving objects on the frame.
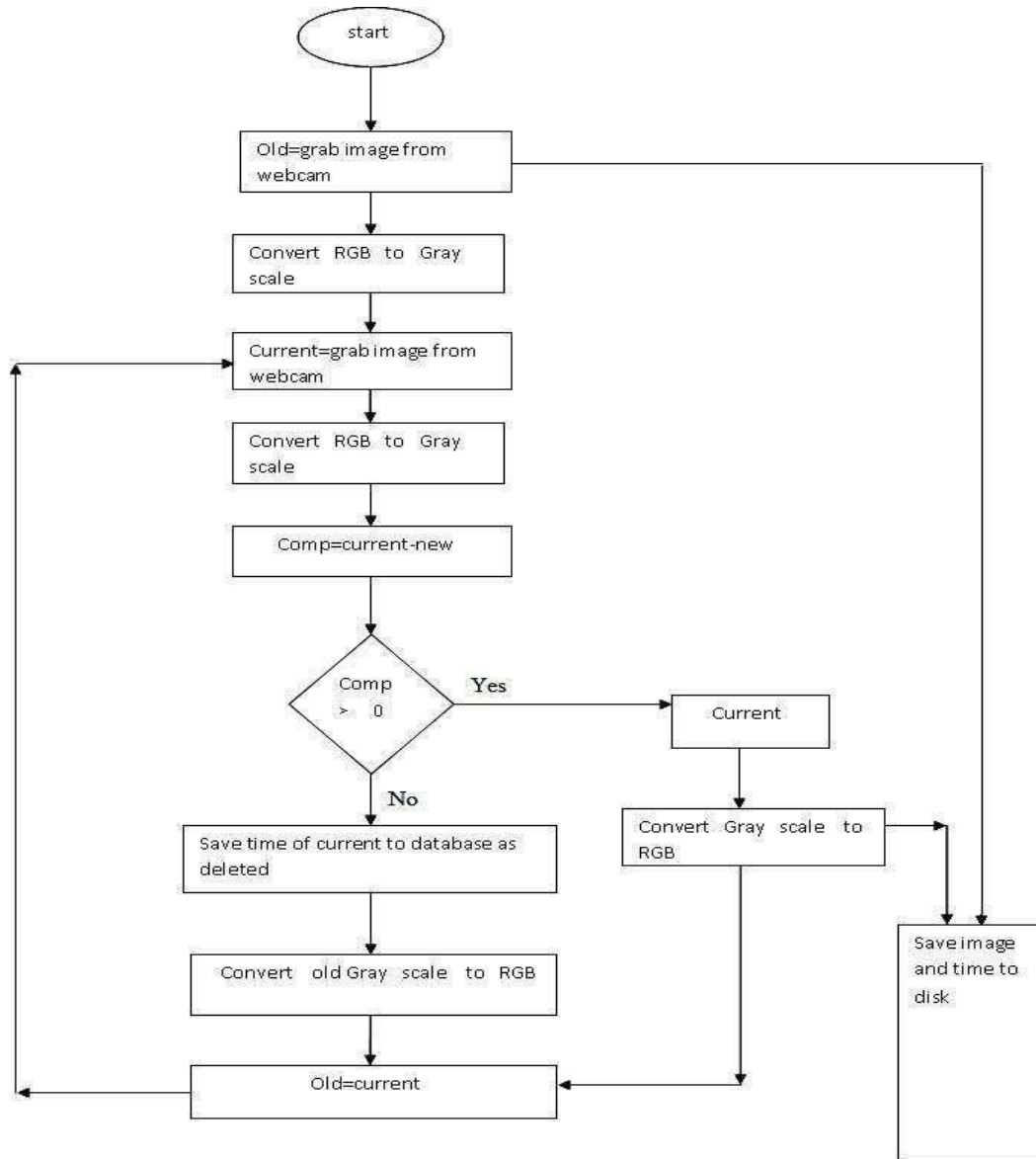
Fig.1.1 :Flow Chart of Motion detection

Objectives
Objectives of proposed work are:
1)   To reduce the cost of CCTV Installation.
2)   To reduce the memory Storage capacity.
3)   To reduce the time for finding the object.

II. LITERATURESURVEY

In literature various research are done on CCTV cameras. can be done with various matching techniques such as correlation-based matching, minutiae-based matching, and pattern-based (or image-based) matching. Among all such

techniques work done on minutiae extraction techniques and artificial neural network is described.It is necessary to know where the object is in the image at each instant in time. If the objects are continuous observable and their sizes or motion does not vary over time, then tracking is not a hard problem. In general surveillance systems are required to observe large area like airports, shopping malls. In these scenarios, it is not possible for a single camera to observe the complete area of interest because sensor resolution is finite and structures in the scene limit the visible area. Therefore surveillance of wide areas requires a system with the ability to track objects while observing them through multiple cameras. But here no disscussion about multiple camera network is done. Lipton et al. [5] proposed frame difference that use of the pixel-wise differences. between two frame images to extract the moving regions. In another work, Stauffer & Grimson et al. [6] proposed a Gaussian mixture model based on background model to detect the object. Liu et al. [7] ,proposed background subtraction to detect moving regions in an image by taking the difference between current and reference background image in a pixel-by-pixel. Collins et al. [8], developed a hybrid method that combines three-frame differencing with an adaptive background subtraction model for their VSAM (Video Surveillance and Monitoring) project. Desa & Salih et al [9], proposed a combination of background subtraction and frame difference that improved the previous results of background subtraction and frame difference. Sugandi et al. [10], proposed a new technique for object detection employing frame difference on low resolution image. Julio cezar et al. [3] has proposed a background model, and incorporate a novel technique for shadow detection in gray scale video sequences. Satoh et al. [11], proposed a new technique for object tracking employing block matching algorithm based on PISC image. Sugandi et al. [12],

III. PROPOSED METHODOLOGY

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.

The Detailed algorithm steps are implemented as follows:
Step 1:In Real time capture frame from camera
Step2:To Convert the RGB image to Gray scale
Step3:Get the current and the last frames.
Step4:Find the difference between these two frames
Step5:Threshold this image
Step6:Check if the difference value between the two frames (i.e. rate of movement) is greater than the value set by the user.
Step7:If yes buzz the alarm and send SMS to receivers

2). Gray Scale Algorithm Input: image Img Process:
 1. For each row r,
 2. For each column c,
 3. Color c=Img .getpixel(r, c);
 4. Extract red, green, blue from color c;
 5. Get average =(red+green+blue)/3;
 6. Img .setPixel(r, c)=new Color(avg);
 7. End for
 8. End for
 9. GrayImg=img;
 10. Return GrayImg

1) Output: grayscale image GrayImg 3. Motion detection Algorithm Input: Frame f captured at time t and Frame f captured at time t+1,Th as Threshold
 Output: SMS, Email, Alarm Process:
 1. Convert frames into grayscale
 2. Calculate difference of Frames. Create an array for storing question numbers (e.g.arr[length])

IV. RESULTS & DISCUSSIONS

We are developing motion detection system that will be helpful for detecting the moving object without present of shadow. By using Human Motion Detection system banks safe will be more secured as it will send alerts regarding burglary happening. Moreover, it will save memory and memory wastage would be avoided.

A variety of motion detection algorithms for video surveillance systems are developed. But most of the systems do not absolutely detect the moving object because it causes some darkness and it requires large memory to store the video. As we know the CCTV camera work is very use full for every organization. Finally, we are run the application and detect the images through web camera and also stored the images on Google with per second capturing. Our objective is clearly specified like we are reducing the cost of CCTV camera also we are saving the storage of memory. but the limitation of this project is all time laptop has been started, and weakness of this project is to stored multipleimagesin mini seconds. This project will have a future any researcher can research on it.
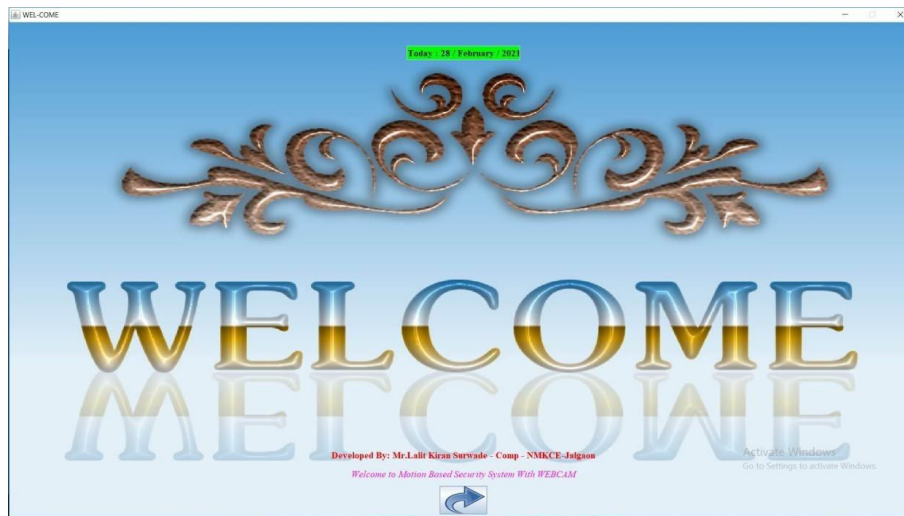

Fig.1.2 : When you run the application the figure shown the first time screen.

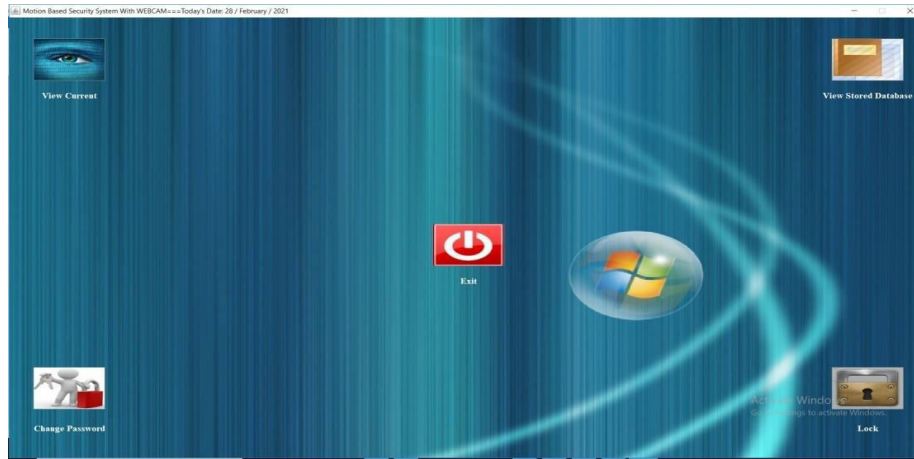Fig.1.3: In this screen you should enter the password for login

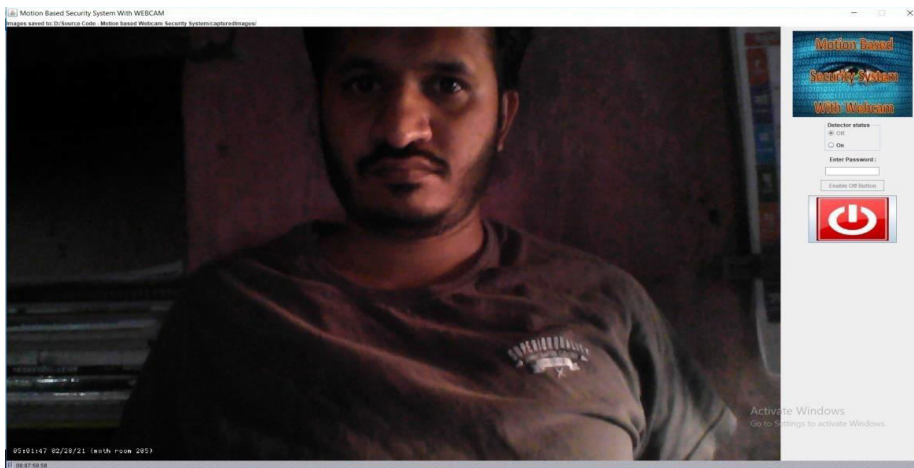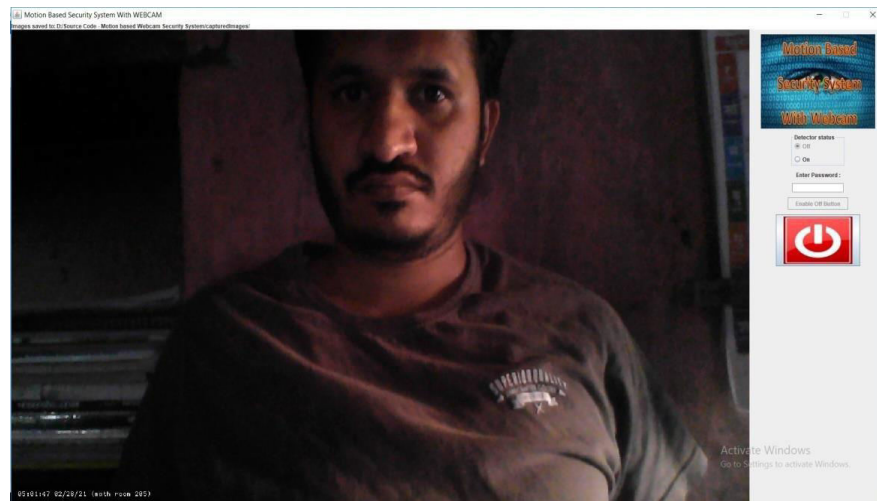Fig.1.4 :This is the Homes screen of Project

Fig.1.5: Change password screen

Fig.1.6 : Motion Detection Screen

V. CONCLUSION & FUTUREWORK

TheToday's world CCTV camera plays very important role But CCTV camera Activate all 24hrs of the day. Even suspicious activity not happen. So its required Separate LED Screenand DVR box for this. And also its not affordable to anyone. So in our project we are tryto sort out this issue means we are Use the Web Cam rather than CCTV camera. and WebCamera take a picture when any motion is detected. And at the same time picture storedon Google Cloud. Using our project not required any extra set up like DVR box and LEDScreen. Its can used only with any desktop computer. And affordable to any one.Implementing the system in real time and testing the system on large number of longsequences. Determining the identity of a person who has entered in room. The system iscapable of recognizing a number of interesting human actions. The system can be appliedfor multiple cameras or a single camera also Alert send by sms to manager and police. Authenticated person can stop alert for some time to entered into room by remote

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