Smart Security System

Purposal Basics :-

A) Purposal Title :- Smart Security System.
B) Proposer Name :- Mandeep Jain & Team.
C) Proposer Institution :- Geetanjali Institute of Technical Studies , Udaipur.

Objective :-

This project aims to design and implement a security system with the capability for human detection with high accuracy. The traditional security system, i.e., closed circuit television (CCTV) can only capture and record the video without able to give warning feedback if there is any suspicious object. Therefore, an additional object detection and warning method is required if there is an intruder.

Proposal Details :-

(A) Work Specification :-

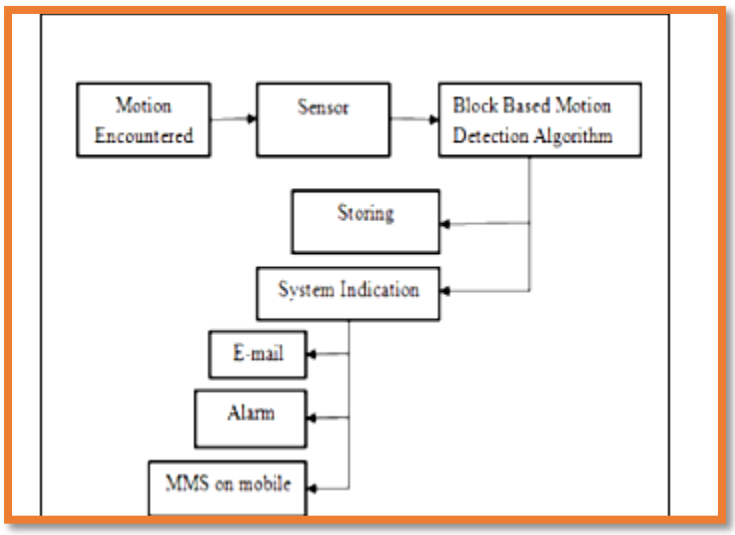
In our project we have aimed to build such a surveillance system, which can not only detect motion, but will

a) Warn the User of the Intrusion by Setting on the Alarm.
b) Record the Footage from the Moment the Motion Was Detected.
c) Sends an E-Mail to the Logged in User And Desktop Notification.
d) BackUp of All Motion Detected Images.
e) Data Visualation for all detected images and live tracking.
f) Face Recognition with High Accuracy.
g) Embedded with CCTV to establish any where in low cost.

(B) Technology Stack :-

a) Python Programming.
b) Computer Vision with open cv.
c) Data Visualation with matplotlib.
d) Cloud authentication with AWS cloud.
e) User mail Authentication with SMTP Server.

(C) WorkFlow Diagram :-



(D) System Architecture Functioning :-

The system architecture is going to function in following way:

1. Capturing Phase :-

   To detect Motion, We First Have to Capture Live Images of the Area to Be Monitored and Kept under Surveillance. This Is Done by Using a Web Cam which continuously provides A Sequence of Images in a Particular Speed of Fps (Frames per Second).

2. Comparing Phase :-

   Comparing the Current Frames Captured with Previous Frames to Detect Motion: For Checking Whether Any Motion Is Present in the Live Images, We Compare the Live Images Being Provided by The Web Cam With Each other So That We Can Detect Changes in These Frames and Hence Predict the Occurrence of Some Motion.

3. Storage Phase :-

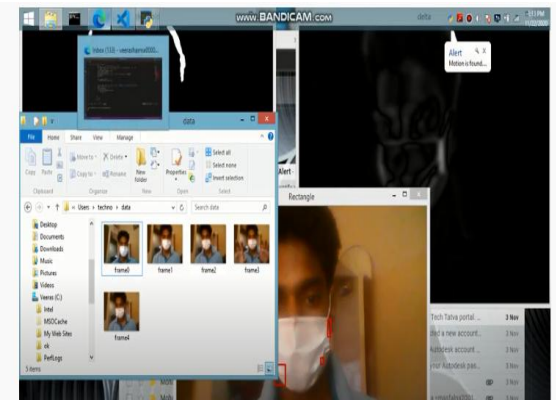
   Storing the Frames on The Memory If Motion Is Detected: If Motion Is Being Detected, We Would Require Storing such Motion So That the User Can View It in The Near Future.

4. System Indication Phase :-

   Indicating through an E-Mail, Alarm and Mms When the Motion Is Detected: The User May Want to Be Notified Immediately That There Has Been Some Intrusion Detected by The Software, Hence an Alarm System Is Included in The Software. This Alarm system immediately activates a Wav File Format Audio Alarm Signal If Any Kind of Motion Is

Detected Hence. This helps In Preventing Any Kind of Breach of Security at That moment Of Time. As Soon as The Motion Is Detected an E-Mail Containing the Pictures of The Intruder Are Sent to The Mail Account of The User and Simultaneously an Mms Will Be Delivered on The User's Cell Phone.

(E) Demo of Smart Security System :-



Demo Videos of our Project :- https://www.youtube.com/watch?v=yKO8yHY1aN8

https://www.youtube.com/watch?v=wPk33dX_UUM

https://www.youtube.com/watch?v=qqi4bqAI29Q

(F) CONCLUSION :-

The "smart web cam motion detection surveillance system" is a Home/Office based security system which can be of great where security is a matter of concern. The Motion Detector patches up for the need of a cheap and small security system in day-to-day life. Computerized Home-based security can develop a lot with the coming future. Future is promising and easier with innovative technologies.