SECURITY SURVEILLANCE CAMERA USING FACE DETECTION

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ABSTRACT

In present, face recognition has become probably the best innovation for computer vision. Face detectionand recognition is dependably a truly challenging task in computer vision, enlightenment, pose and face expression. Face detection and recognition tracks target objects in live video, and images taken with a camera. In straightforward words, it is a framework application for naturally identifying an individual from a still image or video outline. In this framework, we propose face detection and recognition and temperature with facial mask covering detection which is one of the high accuracy and effective facial mask detector

Keywords: - Convolutional Neural Network, Face, Mask, Temperature

INTRODUCTION

Human Face always play crucial role in application such as security system, credit and debit card verification surveillance on identify criminal public places. The primary goals of the framework are to develop a facial recognition framework that can be imitated and overcome this limit of human. This framework centers particularly around the human frontfacing faces. Different face recognition techniques have been implemented and each has its own accuracyrate. More often than not we check out a face and can remember it moment assuming we are as of now acquainted with the face. This inherent capacity, if conceivable, can be supported and can be utilized for genuine applications. Now a days the most commonlyused security is the CCTV (closed circuit Television) itdoesn't detect neither recognize the person who ishe/she? The Project is "Security Surveillance Camera using Face Detection" it detects the person through face. Face recognition system is efficient technique forface recognition based on deep learning using CNN with Dlib alignment. In this project, image will be captured using camera and distinguishable landmarks or facial features such as distance between eyes width of nose, leaps, chins, jawline etc. will be extracted andthe image will be converted into digital data. Thecaptured digital image will be compared with the saveddatabase and if features of that face are matched with saved image, face will be recognized of that particularperson and a buzzer will be triggered. The alert message has been sent to the user with capture image ifnot matched. Putting a face mask on can reduce the riskof getting infected by a great extent, not only to the onewearing it but also to the others that he comes in contactwith. Wearing masks every time we go out is something we can do with little effort that can effectively save lives, and that is precisely why it is in so much demand at this point of time. Hence we have proposed a system with three different modules i.e. Face Recognition, Face mask and measuring temperature of person simultaneously.

RELATED WORK

Paper-1: Raspberry Pi based Automatic Door Control System. The application was uncommonly planned it biometrics face acknowledgment instatement for home entryway opening utilizing IOT worldview and OpenCV (picture handling). The significant extent of the application is to get and control the haven in the proprietor's absentia. The UI of the work is delivered so that, an ordinary family can comprehend the phrasings and uses.
Limitation: If an anonymous/relatives person comes, the camera takes the picture and goes to the API. The owner can decide to be itself weather the person get in or get out.

Paper-2: Surveillance Camera using IoT and Raspberry Pi. The execution of the proposed reconnaissance camera is basic, where the caught information is scrambled at the transmitter side and decoded at the recipient side. Subsequently, the proposed framework gives a got information transmission. The live taking care of is conveyed by utilizing Rasbicam Remote App. The proposed model can be handily designed, where it permits us to test the picture channels of the camera. Subsequently, the proposed reconnaissance camera utilizing raspberry pi and IoT gives off an impression of being better than the ordinary IP cameras.
Limitation: The proposed system saves and records video and captures images only when the motion is detected

Paper-3: Smart Surveillance with Smart Doorbell. In this paper, they have fostered a savvy doorbell that can caution the inhabitants when it recognizes human presence and triggers the doorbell to inform its occupants and furthermore can send the information to the cloud or any capacity gadgets suddenly. The brilliant doorbell created will have PIR or ultrasonic (aloof infrared) sensor that recognizes the presence of people over a given distance and can catch the image of the article close to the entryway. Further, this image is messaged to the enlisted email and furthermore pushed to cloud too offering the necessary Limitation: Sending the email of every object detected without identifying the objects

PROBLEM STATEMENT

With the constant pandemic, have advanced examination applications and promotion ministrations set up to mitigate danger. For public security and prosperity, specialists are proposing the wearing of facial covering and to control the spread of COVID19. The world is doing combating with Covid19 pandemic. There are so many principal preparement's relied upon to fight against Corona contamination. One of such most fundamental is Face Mask. As a matter of first importance, facial covering was not obligatory for everybody but rather as the day propels scientist and Doctors have recommended everyone to wear facial covering. By and by to perceive whether or not an individual is wearing Face Mask, we are proposing Face Mask Detection Technique

SYSTEM ARCHITECTURE

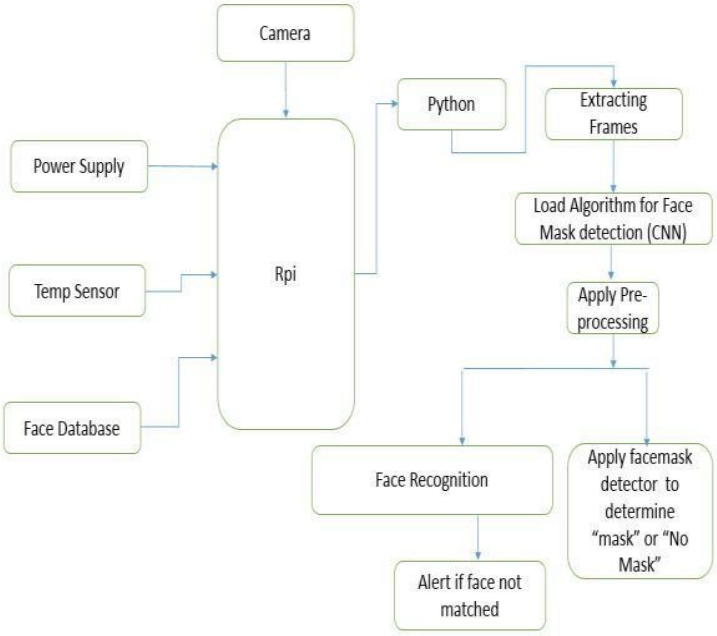

Fig: - System Architecture

METHODOLOGY

In the current situation the security and health is very much important keeping this in mind we have proposedan idea. In this we will store some images in thedatabase of family or work persons. When a person comes in front of the door the camera will check the person with the stored images in the database. If the person is found in database the email alert will not be done. And the person found unidentified then he emailor WhatsApp or telegram alert is given to the authorized person. As well as we are developing the project for detecting whether person is wearing a maskor not and even for measuring the temperature of person. This system focuses on how to identify a person wearing a mask on image or video stream withthe help of Deep Learning and Machine Learning usingKeras, TensorFlow, OpenCV and the ScikitLearn library. We have used CNN architecture which is an accurate and efficient and can be applied to embedded device. The model will compute the ROI(Region of Interest)for the detection. We then, at that point, process bounding box an incentive for a specific face and guarantee that the face falls inside the limits of theimage. We then, at that point, decide the class label dependent on prediction returned by the mask detectormodel and colors are assigned for interpretation. The box with green will be for with mask and color red willbe for without mask. Temperature sensor used in proposed system detects the person's temperature.

RESULT AND DISCUSSION

The proposed system is integrated with raspberry piinterfaced with camera and temperature sensor. Thesystem operates in Raspbian and the coding part is build using python and php, and mysql database.

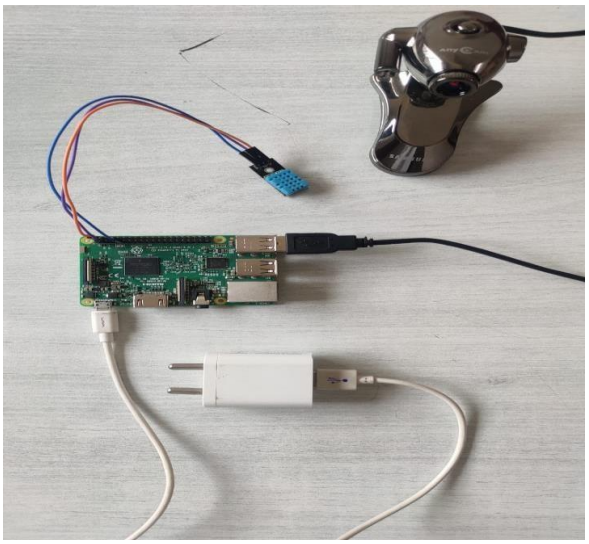

Fig: - Hardware Setup

CONCLUSION

In this project the face detection is done with the storedimages in the database and image is not found, then thealerts will be send authorized users with the image , even the temperature and mask detection is addedwhich is now more important to get protected from virus . The accuracy of the model is achieved and, the optimization of the model is a continuous process and we are building a highly accurate solution by tuning thehyper parameters

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