

Visit Detection System Using Face Recognition

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ABSTRACT

Recognizing face is a biometric technology that is based on the identification of facial features of a person. After collecting the face images of a person, the recognition equipment automatically process the images. It is the technology in which human faces are matched against the images in a database by measuring the facial features from the given image. This paper is proposed to provide a visit detection system for a bed ridden patient. It also aims to provide a security system by implementing an alert system in front of the door of bed ridden patient. When an intrusion occurs it gives alert to the relatives of the patient through a message at the exact time.

Keywords: Face Recognition, Open CV, Numpy.

INTRODUCTION

Face reputation systems use laptop algorithms to pick our specific, one of a kind information about a person's face. these info, which include distance between the eyes or form of the chin, are then transformed into a mathematical illustration and compared to facts on other faces accrued in a face reputation database. Face recognition in a extensive experience includes associated technology for constructing a face recognition device. It consists of face detection, face function, identity recognition, photograph pre-processing, etc. Face detection algorithm is to discover the coordinate machine of all faces in one photograph. that is the system of scanning the whole image to determine whether the candidate location is a face. The output of the face coordinate gadget can be square, rectangular, and so forth. The face function is the coordinate role of the face function in the face detection coordinate gadget. The deep studying framework basically implements a few modern-day excellent positioning technologies. as compared with face detection, the calculation time of face positioning set of rules is a great deal shorter within the area of safety, both the early caution of suspicious situations and the hint of suspects can be finished with the help of face reputation. It represents a splendid development of artificial intelligence era, which means that we require greater accurate, more bendy and more quicker popularity generation.

PROPOSED METHODOLOGY

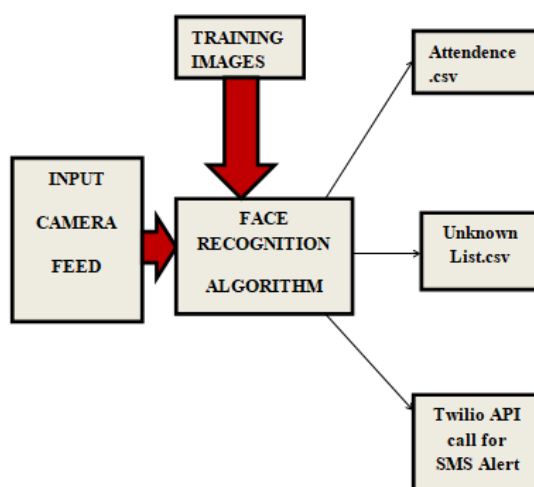


Fig 1: Block Diagram

The components used to implement face recognition system with alert system are input camera feed, face recognition algorithm, training images, twilio software. Input camera feed is to capture the image of person who

tried to enter the room of the bed ridden patient and it is forwarded to the face recognition algorithm. Training images stored in the PIL library is compared to the image from input camera feed by face recognition algorithm. If the input image matches with the training image then it is stored in the attendance sheet and the person can enter the room. If the input image mismatch with the training image then an alert will be sent to the relatives of the patient at the right time.

SOFTWARE DEVELOPMENT TOOLS

1. Jupyter Lab

Jupyter notebook is an open-deliver net application that lets in you to create and percentage documents that include stay code, equations, visualizations, and narrative textual content. Makes use of encompass information cleaning and transformation, numerical simulation, statistical modelling, records visualization, device studying and lots greater. Jupyter has resource for over 40 unique programming languages and Python is one among them. Python is a call for (Python 3.three or greater, or Python 2.7) for putting in the Jupyter notebook itself.

Command to install Jupyter: pip3 install Jupyter

PIP: PIP is a package deal management machine used to put in and manage software program packages/libraries written in Python.

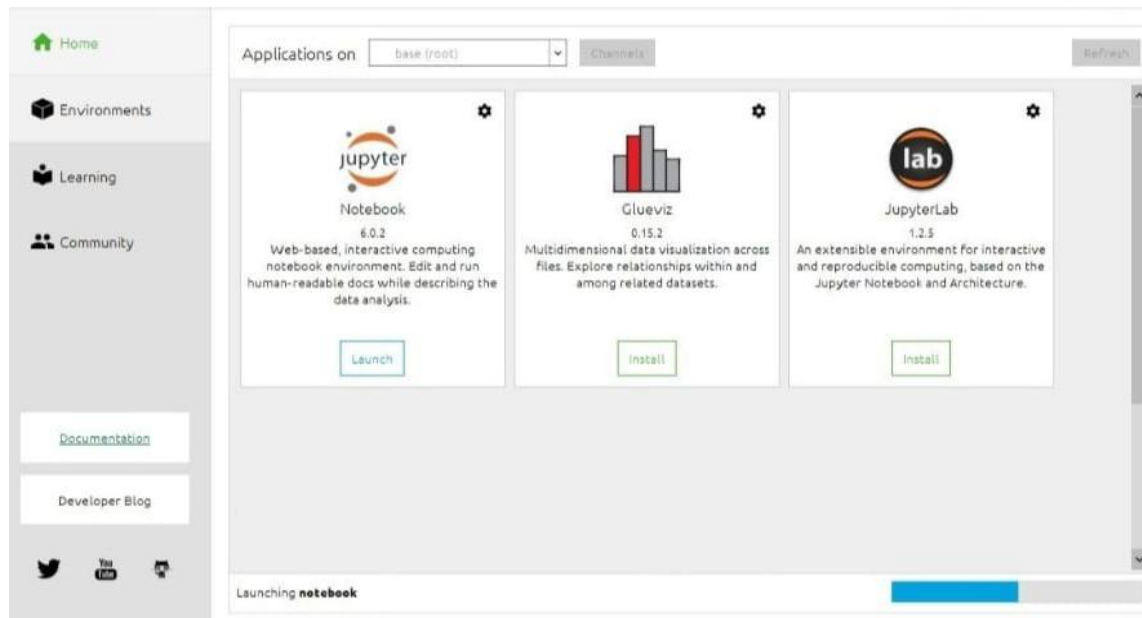


Fig 2: Launching Jupyter

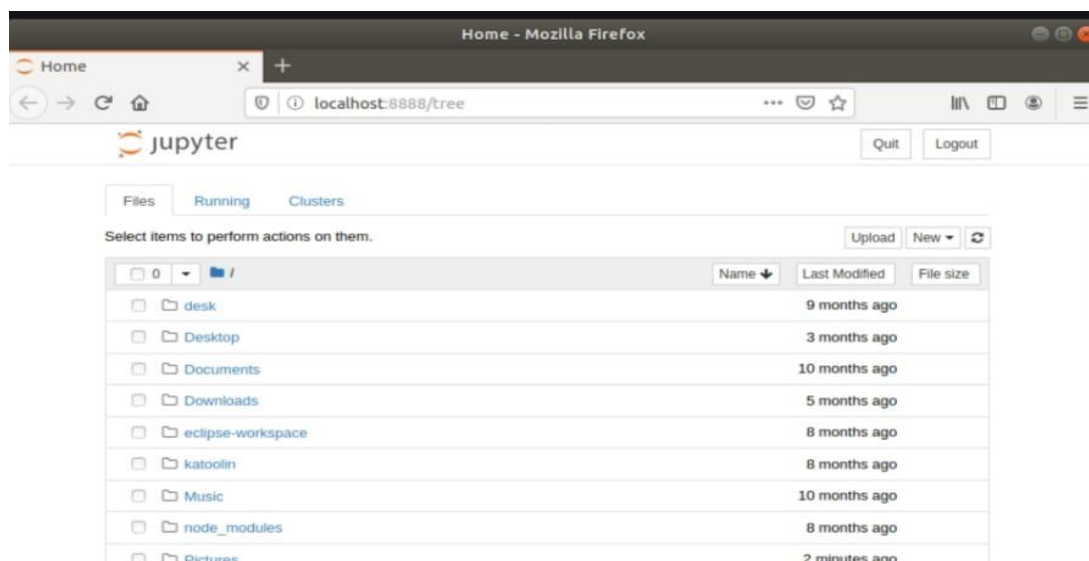


Fig 3. Jupyter lab

2. Twilio API

Twilio is an American company primarily based in San Francisco, California, which provides programmable communication tools for making and receiving telephone calls, sending and receiving textual content messages, and performing different communicate capabilities the usage of its net service APIs.

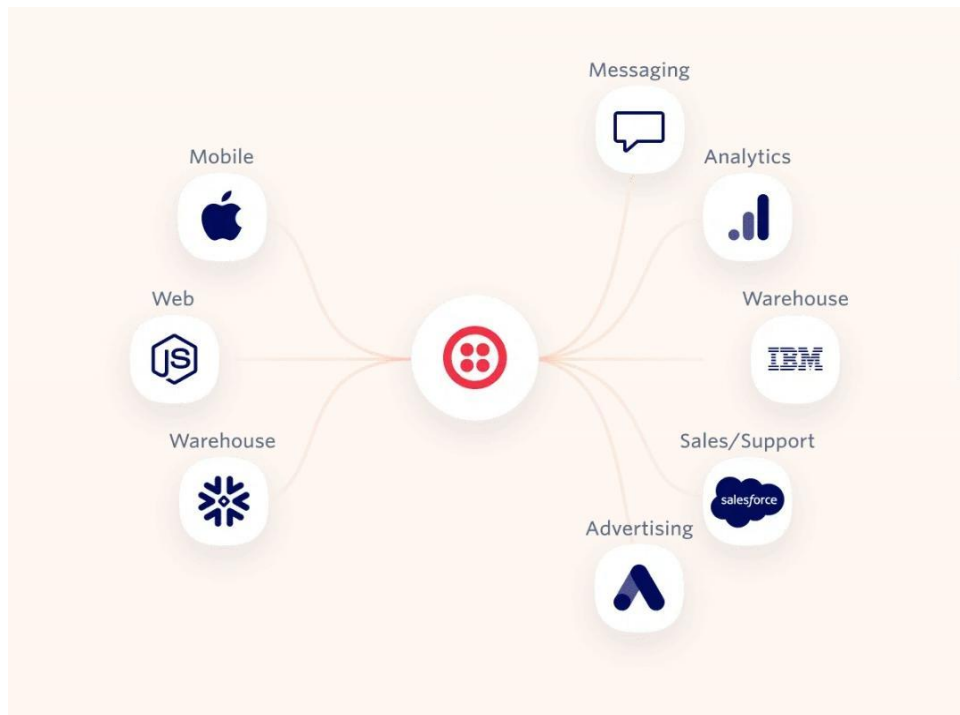


Fig 3: Twilio

It's far a programmable cellular software that enables virtual relationships over messaging and voice to enhance sales efficiency and effects. Integrate the app with any CRM or patron database and begin building meaningful relationships with customers. Twilio gives aeasy entry point into the telephony global, and enables your business keep away from most of the conventional complexities. Builders can quickly get worldwide connectivity by means of interacting with Twilio the usage of commonplace internet protocols and simple markup. Right here whilst an unknown individual attempts to interfere in to the mattress ridden affected person room an alert with the precise time and date might be despatched to the affected person's relative right away. That is finished the use of Twilio API.

SOFTWARE REQUIREMENTS

1. Libraries

Open CV: For some snappre-processing. OpenCV is a videotape and image processing library and it's used for image and videotape analysis, like facial discovery, license plate studying, print modifying, superior robotic vision, and numerous redundant. It's freed from value and an open- force library. With lower system RAM, it works more. It helps utmost of the running systems like windows, Linux, and macOS.

installing opencv: pip install opencv

Face recognition: The face recognition library, created and maintained through Adam Geitgey, wraps round dlib facial popularity capability. Face popularity is a step in addition to face detection. In face detection, we simplest locate the area of the human face in an photo however in face reputation, we make a system which can identify human beings. The technology gives a powerful manner to guard private records and guarantees that touchy records stays inaccessible.

installing face recognition
pip install face recognition

Numpy : NumPy is the fundamental bundle for clinical computing in Python which affords a multidimensional array object different mathematical operations may be accomplished the usage of this but truely speakme we just want it to convert our images into some form of an array in order that we can store the version that has been skilled.

RESULT AND DISCUSSION

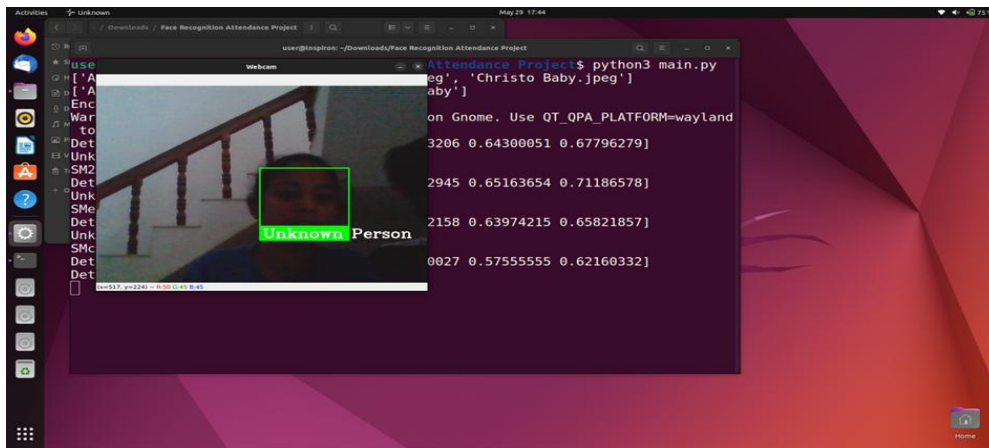


Fig 4: Image of unknown person who tries to enter the room.

When an intrusion occurs it gives alert to the relatives of the patient through a message at the exact time. This project is discussing on a system that able to manage and monitor the visitors of a bed ridden patient using face recognition as an authentication method. After the comparison valid visitor will be recognized and stored in the attendance sheet. If the images mismatch then an alert will be sent to the relatives of the patient. Twilio API is used to send alert to the relatives. Through this exact time and date will be known. So to avoid the unwanted visit and to protect the unhealthy person the face recognition technique can be used.

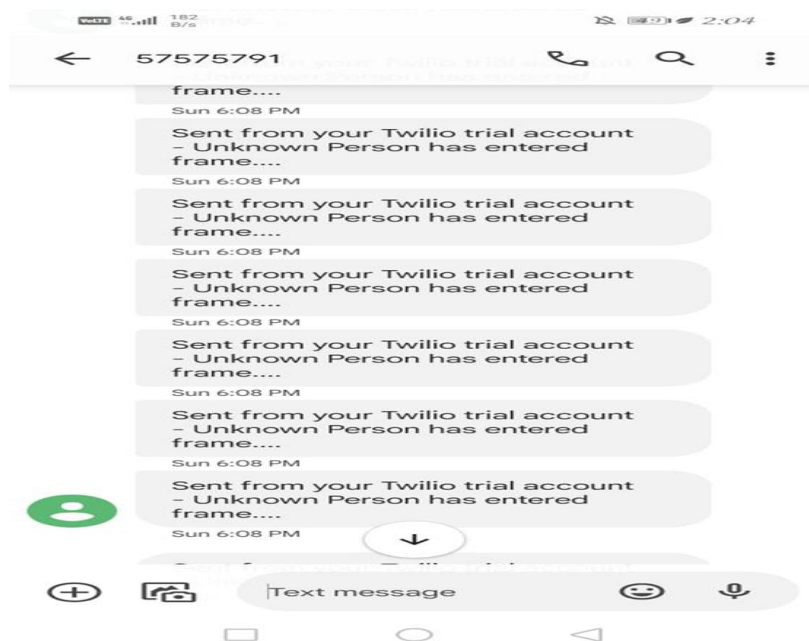


Fig 5: Alert message received to the relatives of the person when intrusion occurs.

FUTURE SCOPE

One of the maximum apparent advantages is stronger safety. Corporations were the use of two aspect authentication (2FA) together with safety questions to improve protection for a while now. This manner has developed to encompass biometric authentication like facial popularity. Facialreputation era scans an worker's face and the statistics is converted to amathematical formulation. From there, it's miles in comparison to a database that verifies that the face fits the name, all inside seconds. Technology like this is a effective manner to maintain your agency's records safe from phishing and other kinds of cyber attacks too. If your organisation troubles devices to employees for paintings, it may guard these devices from theft or unauthorized use. Facial recognition does no longer want such things as special keys or magnetic playing cards for verification so there are no outside things which could wander off, stolen, or manipulated. Moreover, facial popularity may be used with different supporting apps to make such things as scheduling and payroll greater streamlined and correct.

CONCLUSION

With the improvement of technology and era, the face recognition generation has made outstanding achievements. At the same time as figuring out and locating criminals are arguably the maximum essential blessings of facial reputation, they extend past safety to comfort. In place of making coins or credit score purchases at shops, facial recognition era can recognize your face. Face popularity gadget could be very important in our every day life. It's far dependable and distinctly correct. The performance is taken up become round ninety percent when examined with numerous databases. Destiny studies will focus on deny get admission to to unknown human beings and ship alert to the own family individuals. By using face popularity device we can fulfill the motive of security. Right here we use anaconda with the programming language python three. here the face reputation algorithm is implemented on the detection part.

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