Project Requirements:

1. Tools to be used:
   1. Sublime Text
   2. Pycharm
   3. Spyder
   4. Nvidia CUDA Toolkit for GPU
   5. Computer Vision
   6. OpenCV
   7. Python
   8. React Native
2. Platform

Window 10 iot core , Linux , MacOS

1. Hardware

a. Raspberry PI model 2 B

b. Breadboard

c. 5V Relay Module

d. Microsoft Lifecam 3000

e. Generic Keyboard and Mouse

f. Speakers

g. Microphone

e. 12V DC door lock

Project Overview

The project consists of smart lock which can be unlocked using Face Recognition. The face is recognised using webcam in real time through web application which is connected to Raspberry Pi. In case of successful authentication the raspberry pi commands the relay to open the door.

The product also consists of mobile application which can be logged in by the owner through details set initially. These credentials will be used to bypass the face recognition system in case the owner is not recognised. There is also a feature to grant access rights to third person by the owner. In this feature the third person when denied access can record voice message and send an access request to the owner via mobile application and further action can be taken.

Need Analysis:

Home Security is very crucial these days. This system(decide some name) provides ease to use face recognition which is also effective.This project aims to provide solution to problem of research labs in campus of TIET where the keys of the room are with supervisor & students cannot access the apparatus directly in the absence of supervisor.Using this product supervisor can give access to selected students via web or application interface using which students can directly open lab. Proper database of entry/exit of students will be maintained on the server so as to ensure transparency .This product address the problem of robbery by alarming the system when third person is trying to enter the premises. The product along with solving the problem of remote access also solves the problem of distant access through special permission grant feature.

Project Outcome

Product-:Home automation ready smart lock with autonomous web & app interface.

Work Plan

To complete all the necessary documentation work including use case diagram,Data Flow Diagram,Control Flow diagram,Swimlane Diagram,class diagram,Component diagram,deployment diagram,Sequence diagram,Communication diagram & Activity diagram.

Role/ Contributions of Individual Team Members

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