PROJECT

Real-time Face Detection and Recognition

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Application for Face-Detection and Recognition or QR Code that help to organize and manage any event. With Machine Learning

Overview

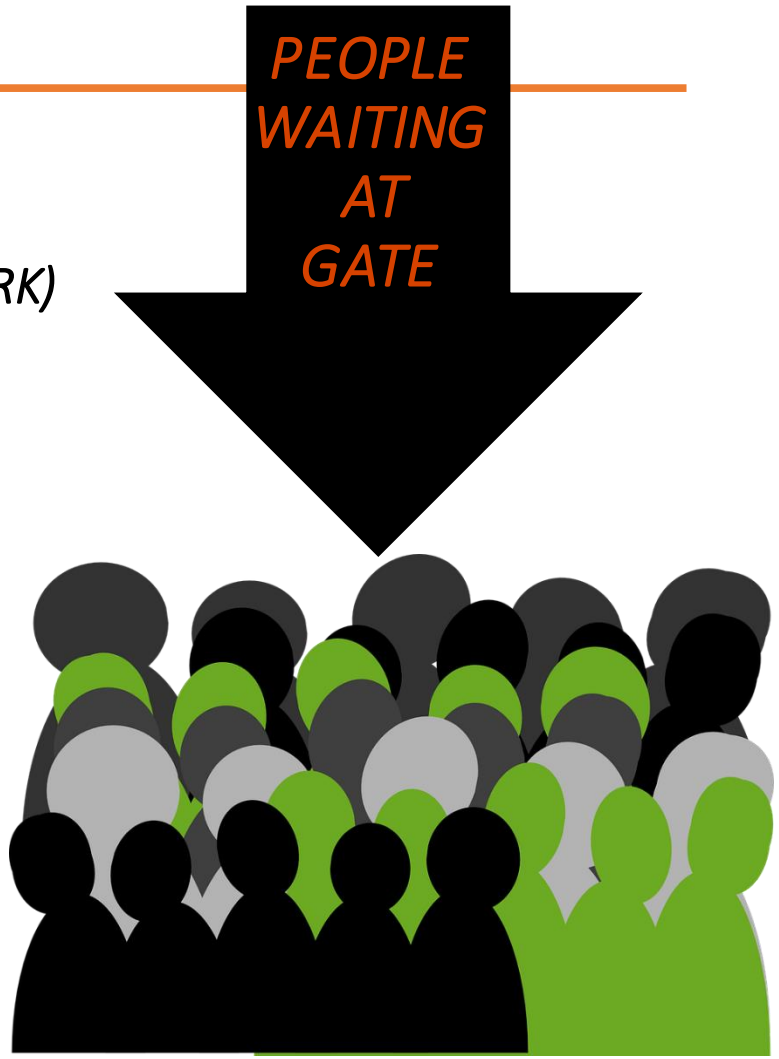
INTRODUCTION
Why? ,PROBLEM
TECHNOLOGY USED
WORKING
FRONTEND
PROCESS
APPLICATION

WHY! (or) Problem It Solve

Invited only Conference and Event *(A LOT OF WORK)*

Steps

1) Form Submission
2) Confirmation Email
3)Need A lot of volunteers
4) Waste of time in checking people identity Cards at Gate
5) Marking Their attendance for Certificate



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Our Project *(less work, Automatic)*

Steps
1)Fill Form online
2) Need A Camera At Gate
DONE

Technology Used

JAVA,PYTHON
SPRING BOOT for Web-App
PYTHON for Face-Recognition
Open-CV for computer vision
MYSQL for Database

INPUT

Mobile Camera with HTTP VIDEO STREAM
Or Web-cam

TWO Step Process

First: face detection
Second: face Recognition

Input image -> detection -> recognition -> classification

TWO Step Process

First: face detection

Second: face Recognition

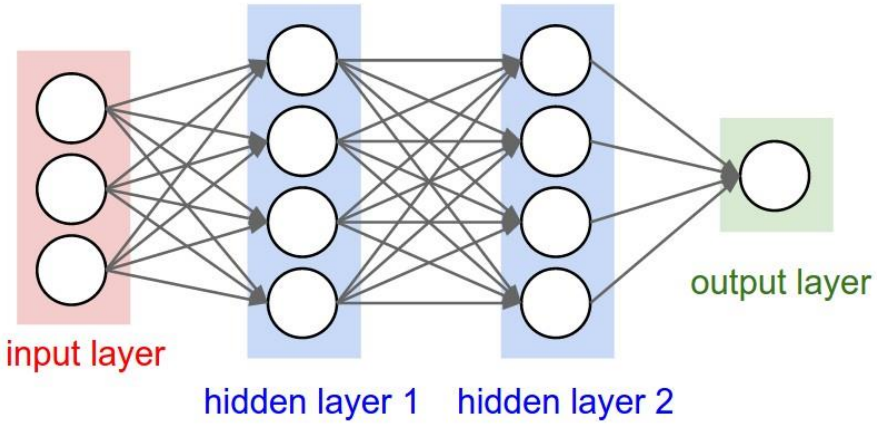
We Used

Deep Learning and Convolutional Neural Networks and

Consist of neurons

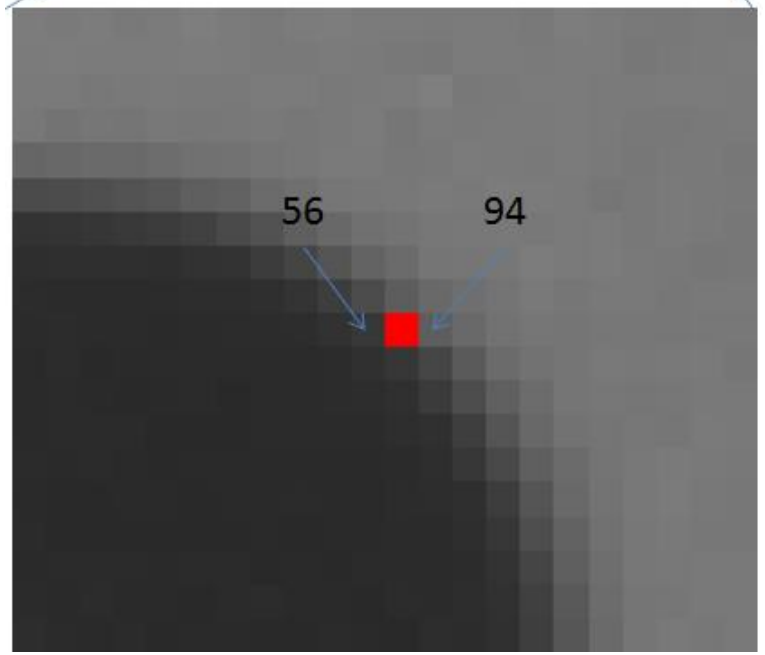
Neuron is a mathematical function

Brandon Amos`s Pre Trained Model



TWO Step Process

First: face detection
Second: face Recognition



*For Face Detection in a Picture it use HOG (*histogram of oriented gradients*)algorithm*

- **In Greyscale**
- **Gradient** Ve**ctor**

  a measure of the change in pixel values along the x-direction and the y-direction around each pixel.

Steps

1)Load image file as Numpy Array (pixels)
2) Neural Network gives features of the face and
Multi-dimensional Encoding
3)Now Classify and predict face

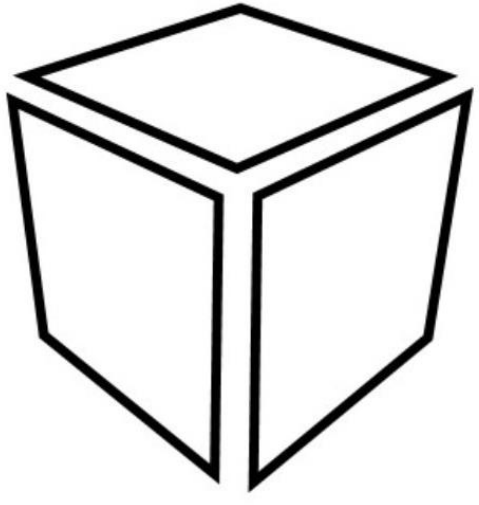
	A	B	C	D	E	F	G	H	I	J	K
1	-1.80E-01	3.95E-02	6.67E-02	-4.09E-02	-4.23E-02	1.21E-02	5.76E-02	-5.60E-02	1.06E-01	-1.04E-01	2.40E-01
2	-1.26E-01	2.45E-02	5.53E-02	-1.25E-01	-1.08E-01	-4.15E-02	-2.46E-02	-1.57E-02	2.22E-01	-1.65E-01	2.47E-01
3	-1.56E-01	2.61E-02	8.67E-02	-2.46E-02	-1.36E-02	-7.90E-02	1.66E-02	-4.52E-02	1.35E-01	-1.21E-01	2.61E-01
4	-1.34E-01	4.48E-02	5.67E-02	-1.17E-01	-1.20E-01	-4.77E-02	-3.71E-02	-4.89E-02	1.85E-01	-1.44E-01	2.67E-01
5	-3.63E-02	1.71E-01	5.93E-02	6.04E-03	-1.22E-01	4.40E-02	-5.93E-02	-8.04E-02	9.72E-02	-3.43E-02	2.07E-01
6	-1.09E-01	1.20E-01	-1.27E-03	-7.50E-02	2.99E-03	3.27E-02	-8.24E-02	-8.69E-02	1.92E-01	-1.06E-01	2.41E-01
7	-1.15E-01	-2.57E-02	4.70E-02	-1.31E-01	-1.03E-01	-5.95E-02	-3.18E-02	-5.90E-02	1.97E-01	-1.91E-01	2.24E-01
8	-1.26E-01	7.93E-02	6.21E-02	-3.04E-03	-1.40E-01	1.17E-02	-5.62E-02	-7.22E-02	2.20E-01	-1.68E-01	1.61E-01

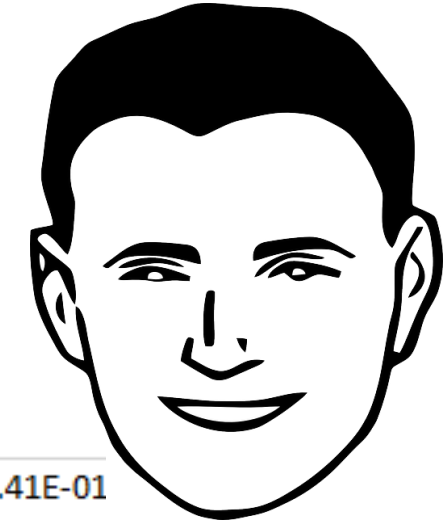
Compare Face and Classify

-1.26E-01	7.93E-02	6.21E-02	-3.04E-03	-1.40E-01	1.17E-02	-5.62E-02	-7.22E-02	2.20E-01	-1.68E-01	1.61E-01

match with closest measurement

ML Model





-1.09E-01	1.20E-01	-1.27E-03	-7.50E-02	2.99E-03	3.27E-02	-8.24E-02	-8.69E-02	1.92E-01	-1.06E-01	2.41E-01

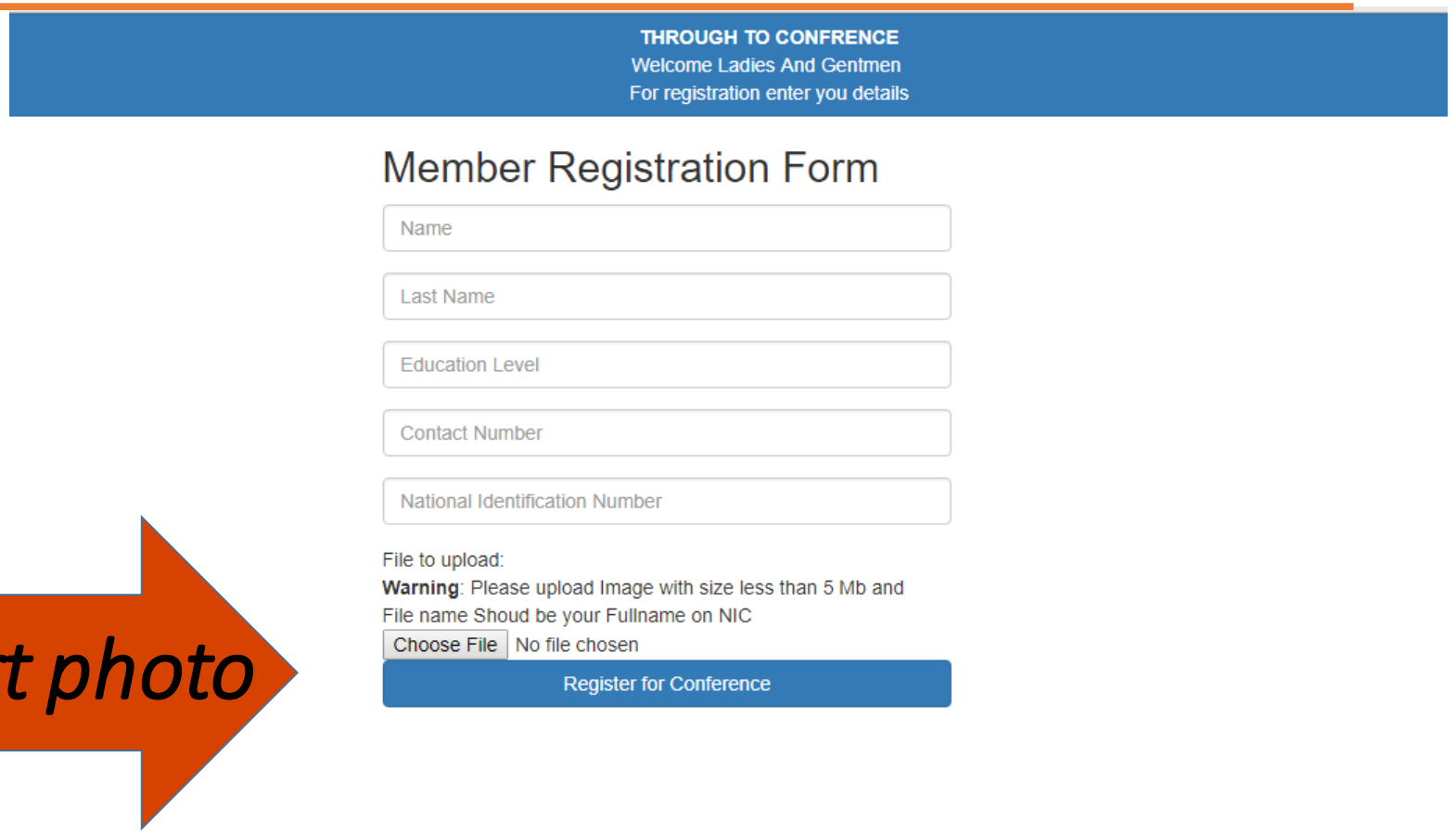
After Classifying the face

It check weather the person in Database
And
if it is in Database then It display the name of the person
And
add a entry in database
otherwise it display unknown

Saad ahmed

Process For The Application

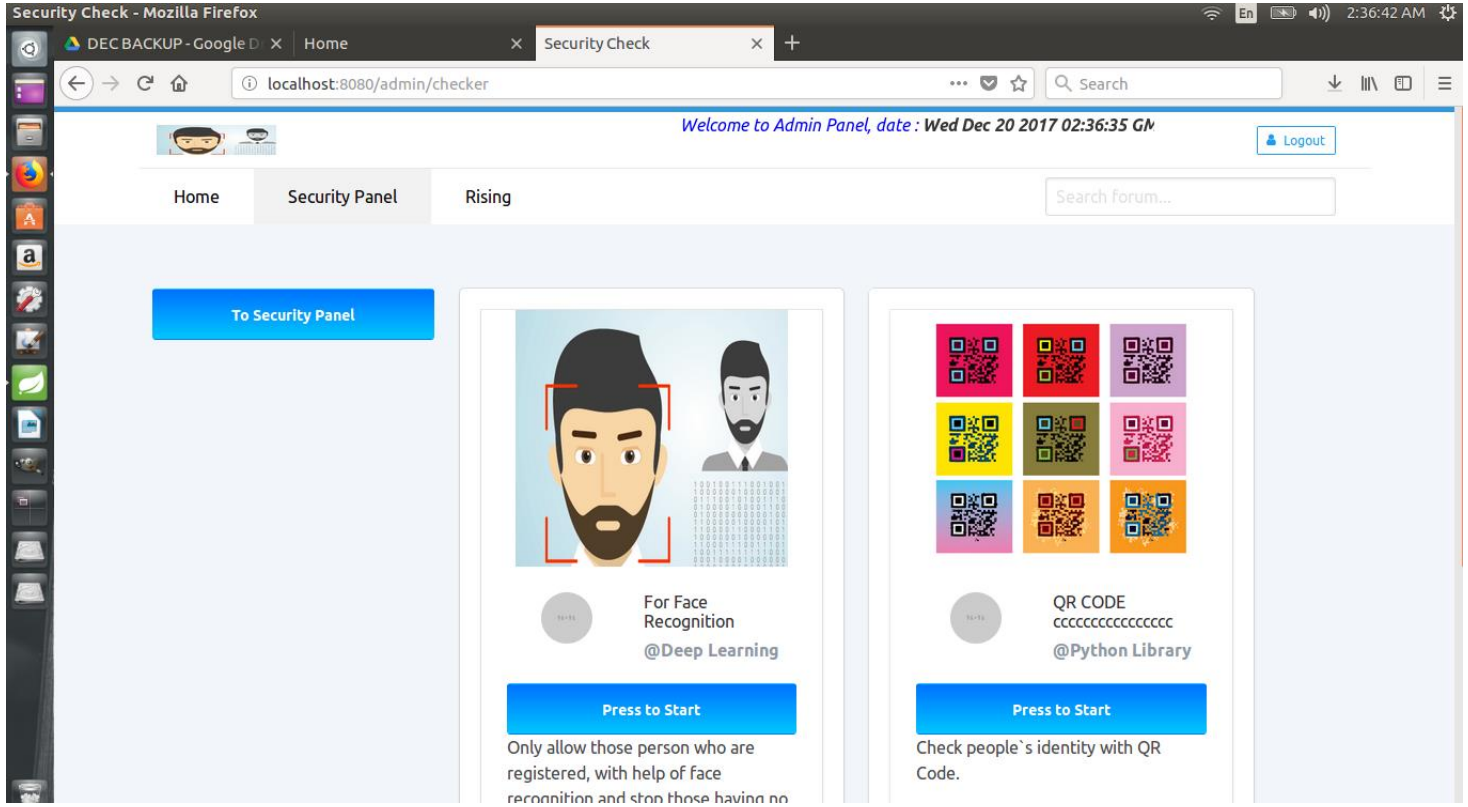
Form For Registration



Insert photo

Process

Control Panel



Flow

Mobile Camera

HTTP

Face

-1.34E-01	4.48E-02
-3.63E-02	1.71E-01
-1.09E-01	1.20E-01
-1.15E-01	-2.57E-02

ML Model

Predict person Face

APPLICATION OF THE PROJECT

1- Help To Organize any Conference (which allow only Register Member)

2- Online Testing

3- Attendance System

Questions?