Smart Doorbell

Introduction :-

The objective of this project is to build a system for a doorbell to recognize the house owners and unlocks the door for them while not allowing strangers and send their picture to the owners

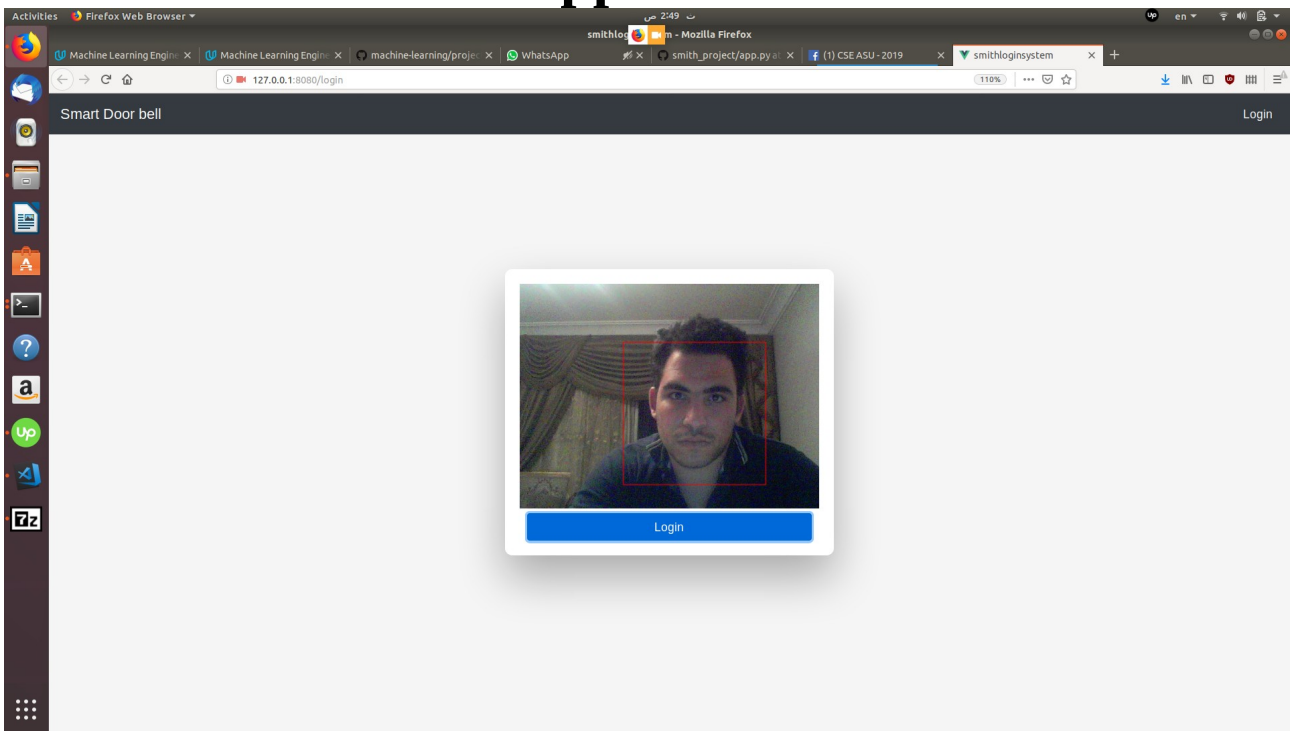
Project approach :-

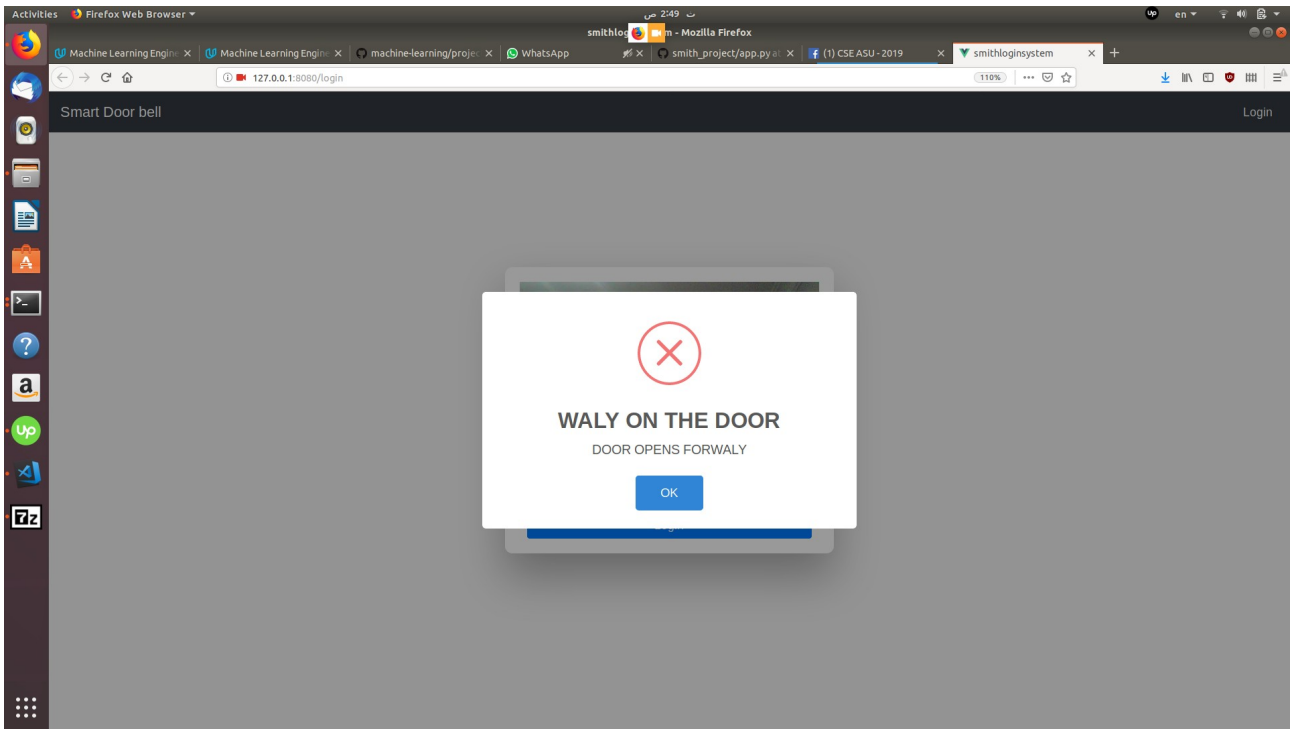
-DETECTING FACE USING DIGITAL IMAGE PROCESSING :
We used digital image processing to detect faces and live all the other pixels black using the approach presented in **(Face and Facial Component Detection by Using Image Characteristic) paper .**

Simply the approach is applied to each and every pixel of the image. The RGB image value is converted to HSV as well as YCbCr value, the HSV and YCbCr value of each pixel is compared to the standard values of a skin pixel and the decision is made whether the pixel is a skin pixel or not depending on whether the values lie in a range of predefined threshold values for each parameter.

GENERATING FACE UNIFIED EMBEDDING :
after the face is detected we pass the image to FACENET to generate the embedding of it then we compare it with embeddings generated from faces of owners to take decision

Screenshot from our application:





notes :

- the ui is made with Vuejs and the backend that contains our program is made with flask

-you can use any photo from magdy as a stranger while the other 4 of us are owners of home