**Door Sensors That Help You (Smart Doors)**

*Submitted by-*

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**LNM INSTITUTE OF INFORMATION TECHNOLOGY, JAIPUR**

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**DECLARATION**

I hereby certify that,

a) the work contained in this report is original and has been done by me under the guidance of my supervisor(s).

b) the work has not been submitted to any other Institute for any degree or

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c) I have followed the guidelines provided by the Institute in preparing the report.

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Shivam Sharma (15ucs130)

Date:

09-05-2018

**CERTIFICATE**

This is to certify that the Dissertation Report entitled, “Smart Doors” submitted

by Mr “Shivam Sharma” to LNMIIT, Jaipur.

India, is a record of bonafide Project work carried out by him under my/our

supervision and guidance and is worthy of consideration for the award of the degree of Bachelor of Technology in Electrical Engineering of the Institute.

Name of the Supervisor, Name of the Supervisor

(Signature) (Signature)

Department of

LNM Institute of Information Technology

Jaipur

Date:

09-05-2018

**ACKNOWLEDGMENT**

This document is prepared by the inspiration received from Professor “.............”,

Head, and Department of CSE. Many colleagues at LNMIIT have carefully read and improved the document; their contributions are gratefully acknowledged.

Student Name and Roll Number

**Abstract**

It happens to everybody , when one is not in condition of opening the room door , but has to open it for someone. Opening door in the middle of urgent work or sleep is always painful. My project solves this problem using door sensors.

If you are not in the right situation of opening the door and someone knocks, if he/she is your friend then the program send email to him/her automatically. It uses face recognition to check weather he/she is your friend or not and sends the email if he/she is. First it checks your schedule for the current time and if you are busy or sleeping, then it sends the mail to your friends so that they can know when you are awake and free. Helping them to even know your next free slot is done , so that everyone is happy and stress free in the end.

The storage used in the project is Amazon S3 it has your friends pictures . Using google calendar API so as to access your calendar . Using Amazon Face Rekognition API for face recognition. Any Ip Webcam can be used , even a smart phone will do when an app named Ip Webcam is installed , which is free of cost. Using smtp protocol to send mails . Using concepts of networking to connect to the ip webcam using Wireless Network written in OpenCV .The whole code is written in Python and is durable and works well in less time complexity.

The project can be seen here -

<https://github.com/jack17529/Smart-Doors>

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Introduction

What is the last time you opened your door for someone(friend) , when you were actually sleeping , or were busy ?

Yes I know it's painful .

That’s why I made this project.

Problem Statement

How to keep doing your important work or sleeping when someone rings the bell.

State of Art

Automatically sending Emails to friends when you are not in the condition of opening the door.

I am focusing on sending info to friends when I can’t tell them thus automating the task of telling when will I be free.

Proposed Solution

My project solves the problem by sending emails , to the person or a friend standing on the door . It also tell the next time I will be active to talk to him/her.

So that I can keep doin my important work and my friend too leaves stress free cause he/she knows that I am busy doing something or in deep sleep.

Steps in the process

1. Checks day schedule –

Program checks my google calendar using google calendar API.

Checks the event on the current time. And if I am busy or sleeping.

2. Takes a pic –

Takes the picture using OpenCV library using to the webcam connected to the door. Using secure SSL certificate.

3. Does Face Recognition –

This done using Amazon face Rekognition API , which requires use of several libraries like boto3 and auth.

4. Putting in the S3 Database –

The picture gets stored by the name Unknown.jpg in the Target bucket of my S3 account.

5. Running Face Recognition Algorithm –

Does face recognition from the source bucket of my S3 account . In the source bucket the pictures of all the known persons are stored.

Finds the largest image in the Unknown.jpg and does face recognition.

6. Checking Email –

If the face of the person is recognized , then the program checks the name of the person and email written in the database.

7. Sending Email –

If the name of the person along with email is found in the database , then it sends email using the smtp library.

Usage of Hardware and Software

Hardware –

1. Ip webcam or a phone with Ip-webcam app installed.
2. A pc to run the program

Software –

1. Python 2.7 must be installed in the pc to run the program.
2. Libraries that need to be installed –
   1. Numpy
   2. Boto3
   3. Opencv
   4. Google-api-python-client

Results

I have made a software that sends emails to a known person when you are busy or sleeping or have any urgent work. Giving them the next time you can meet.

The software accomplishes its goal to send emails.

Also reducing the tension in stressful situations.

Future Work

1. I am thinking of putting the software on Heroku so that it can be active 24/7 and can be used anytime.
2. I am thinking of solving the problem of the bell ringing in the end.

What if the person does not understand the seriousness of the situation then I need to disable the bell after certain period of time.

Implementing an hardware bell that stops when the email is delivered.

This is the current proposal that was made by me to the problem to disable the disturbance caused.

I need to start the python code when the bell starts and then disable the bell with the same python code when the email is delivered .

Difficulties –

After researching for a week , it seems like this require some serious hardware skills . Even process priority skills which is beyond my report submitted before. Average time 2-3 months.

References

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