

# Smart Security System for Homes

## 1 INTRODUCTION

### 1.1 Overview

This project will guide us in developing the smart home security and automation using any hardware devices collaborate with software like - Python I used for my project from a basic level.

### 1.2 Purpose

- A camera-based door opening.
- Alerting and sending the captured images to the Web application when someone arrives at home.
- Monitoring of temperature and humidity using the Web application.
- Controlling home appliances through Web application.

## 2 LITERATURE SURVEY

### 2.1 Existing problem

At present Home security for the safety of human and it's automation is very much necessary in the world.

### 2.2 Proposed solution

Develop an end-to-end web application that provide us Face detection of any unauthorized person. The application can be built with Python-Flask framework with the IBM IOT platform.

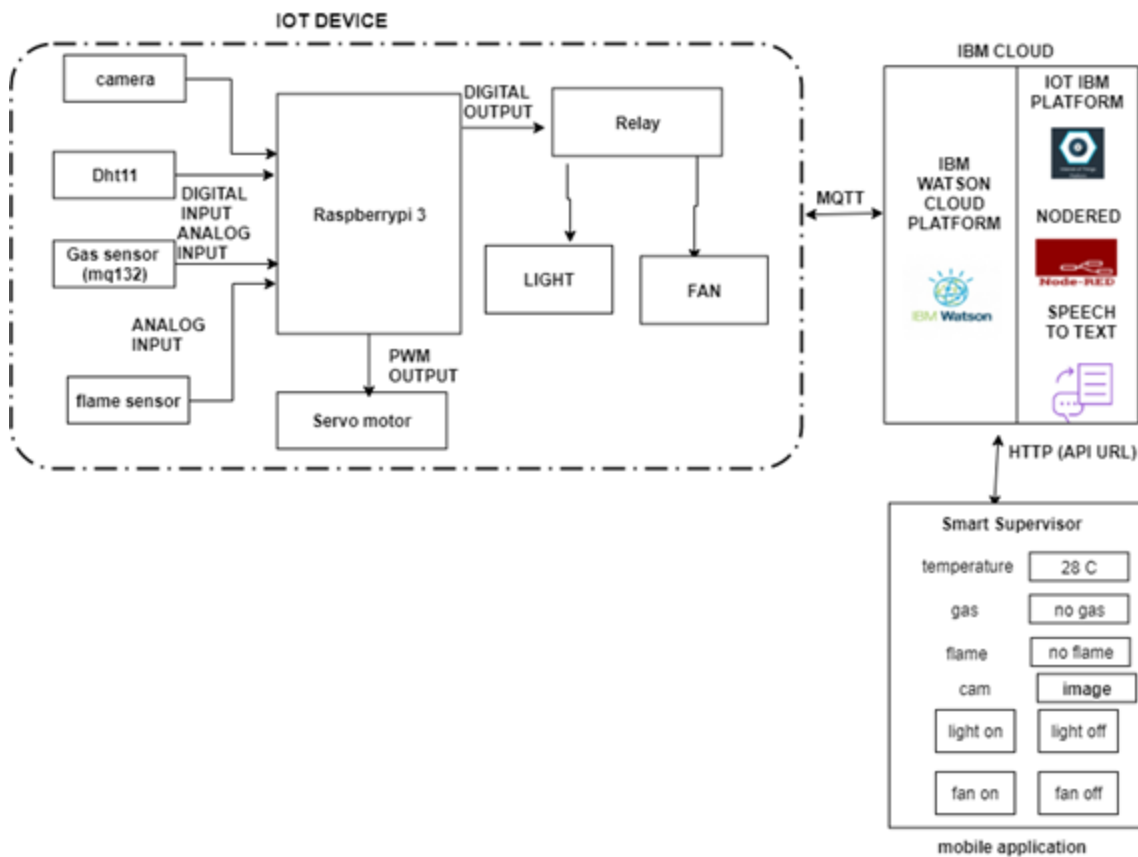
Following are the activities to be performed.

1. Create a device in IBM Watson IoT platform
2. Create Node-red application
3. Install libraries for the device
4. Develop the code snippet for sending the indoor weather parameters to the cloud and receiving the commands for controlling

5. Develop the code snippet for connecting device to the Web App.
6. Create the Web UI to visualize the indoor weather parameters
7. Create a Web application visualizing the reading of Temperature , Humidity etc . and buttons to control the door

### 3 THEORITICAL ANALYSIS

#### 3.1 Block diagram



#### 3.2 Hardware / Software designing

##### Hardware

PC / Laptop with 64 bit , 2 GHz , 8 Gb , Windows-10 or higher.

## Software

Python, Python For Data Visualization, IOT Open Hardware Platforms, IOT Application Development, IOT Cloud Platform , IOT Communication Technologies, IOT Communication Protocols

## 4 EXPERIMENTAL INVESTIGATIONS

**Refer to the screenshots of the folder - Experimental Invesigation uploaded on Github.**

## 5 FLOWCHART

- - Smart Security System For Homes
    - Setup Environment
      - Download Rasbian Operating System For The Pi
      - Install OpenCV
      - Create IBM Academic Initiative Account
      - Create Node-Red Application
      - Create An IBM Watson IoT Platform
      - Create Speech To Text Service
      - Create The MIT App Inventor Account To Build The Mobile App.
    - Setup Hardware And Develop The Code
      - Code Snippet For Capturing Frames Using The Camera
      - Code Snippet For DHT11 Sensor To Measure The Temperature And Humidity
      - Code Snippet For Gas Sensor And Flame Sensor
      - Code Snippet For Servo Motor To Open The Door After Detecting Face

- Code Snippet For Relay And Lights
  - Code Snippet For Text To Speech
  - Use The Service Credentials- Speech To Text API Key In The Code
- Building Cloud Platform
  - Configure Node-Red
  - Create HTTP Requests To Communicate With The Mobile App.
- Building A Mobile App
  - Design Your UI To Display The Temperature, Gas Level, And Fire
  - Configure The Application To Receive The Data From The Cloud.
  - Configure The Application To Control the Home Appliances ON/OFF BY Using The Mobile App.

## **6 RESULT**

**Refer to the files uploaded on Github.**

## **7 ADVANTAGES & DISADVANTAGES**

**SECURE & SAFE**

**ACCURATE**

**SMART CONTROL**

## **8 APPLICATIONS**

**For different homes.**

## **9 CONCLUSION**

After the completion of this project,

- one will be capable of understanding the different libraries used
- Interfacing different type of hardware with the device.

## **10 FUTURE SCOPE**

**This concept can be used for Jewellery shops , Hospitals ,Malls , Complexes etc.**

## **11 BIBLIOGRAPHY**

### **APPENDIX**

A. Source code-Folders containing 3-files -2 of .py & a .xml

B. All other files & Folders uploaded on Github

C. Video-Demonstration-link in README.md