**IOT based home automation and control system**

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'Internet of things' is a very hot topic under extensive research nowadays. The market research firm 'Allied Market' research projects states that the global smart homes and buildings market will grow at a compound annual growth rate of 29.5% through 2020, at which point the market will be worth $35.3 billion. Another report from Juniper Research states that tech market will grow to $71 billion by 2018[5].

Imagine, if you would, come home tired and exhausted. You open the door and the lights immediately turn on, The answering machine automatically starts playing the new messages that came while you weren't home, the parking garage automatically opens once the system detects that you are approaching home, you are on your way back home and intend to bake something and all you do is press the preheat button from smartphone application which does the job for you prior to reaching home and many more applications related to this. Just think for a minute how easy and interesting life experience that would be and you really enjoy being at home.

The main objective of our project is to build a robust and reliable software system that lets the consumer to monitor and control IOT devices via internet. Secondly, we will develop a real-time communication between devices with minimal delays so that the consumer's session with the system is fast and effective. Thirdly, we want to make our system scalable so that we don't have to worry about adding new IOT devices into our system. Fourthly, we want to incorporate an intruder detection and alarm feature which enables the consumer to be notified instantly of any inappropriate activity around.

The overall system comprises of web based system which displays the current state of IOT enabled devices. For the time being we are using an android phone to act as the device. The salient features of our system include:

1. Only the authorized tenants of the house will have access to the system.

2. Anonymous visitor would be able to chat with the owner. of the house and also share his picture to him.

3. The owner will be notified instantly incase of any suspicious activity.

4. The house owner will be able to control all the connected IOT enabled devices just by logging into the online web interface.

5. There will be a separate interface to add and remove new IOT enabled devices.

6. The owner of the house will be able to see the current status of all the devices.

7. Complete session log of all the devices will be stored on the permanent database. User may be able to analyze the statistics of each device.

We have done a small research before putting up our idea. There are systems and apps similar to our project in the market that does the job for you but the main idea which they lack is that they are not platform independent and developed for different operating systems like Android and Apple. It is very hard to incorporate and synchronize changes and new features all at once in both platforms together. There are two mobile applications **Stringify[1]** and **Wink[2]** available in the market which provide smart home solutions. Both of these are developed using platform dependent languages. And also, these systems are not scalable and provide support for limited number of devices. On the other hand, we are proposing a thin client system which is platform independent. All the functionality and UI will be available at our web server. So there’s no or very little development required on the client side. Our client application will be a mini web browser that loads the app UI from the web which will all be in JavaScript and HTML5. So the UI will be same in both the platforms i.e. Apple, Android and Windows.

As a backup project we have planned to create a **Reliable Real Estate Portal**  in which people can put their property for sale as well as search for the property they’d like to buy. The system will be made reliable by having each user creating an account in the system. Any user can be buyer or seller at one time. For a particular deal to happen, buyer can first check the seller’s profile for authenticity. The user profiles can’t be forged the complete history of all the deals and their associated buyers and sellers are stored in the system. Using this system buying and selling the property is simplified.

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