

# HOME AUTOMATION USING CHATBOT

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**Abstract:** Home automation is used for controlling bulbs, ceiling fans and other alternative electrical household appliances containing Internet-Of-Things is generally favored as of late. In this survey, we prefer applications utilizing the ceiling fans, bulbs, & various electric apparatuses are managed over the Web. The critical highlights of web-based app is right off the bat, we have a chatbot calculation with the end goal that the client can contain data to managed the working of electric based apparatuses in house. Messages delivered utilizing the Chatbot are handled utilizing Regular Language preparing methods. Also, many gadgets associated with the area of the home can manage the contraptions & diverse machines inside home.

Index Terms – Raspberry Pi, Telegram, DHT11, PIR Motion, Home Automation System.

## 1. Introduction

Automation in the 21st century is a tipping point making it assume an imperative job in our day to day life. The rule interest of any robotized structure is reducing human work effort time[1] & goofs in light of human recklessness with the improvement of presence day advancement, computerization has turned into a need for everybody in everyday life. Applications are being created on Raspberry Pi's [2] that are valuable in different ways. Another forthcoming innovation is regular language handling which empowers us to direction and control things through talking bot. Joining these, our paper displays a smaller scale controller (Raspberry Pi) based sensors home mechanization framework. Such a framework will be useful for clients to have power over each apparatus.

The term Chatbot implies controlling or working electrical Machines by utilizing Chatbot direction. [3] This project presents the development of home appliances based on Chatbot command using Android. In this venture, the order input has been caught by the Android and will be sent to the Raspberry Pi. Raspberry Pi got the flag and handled the information flag to control the light and fan. We are utilizing a PIR movement sensor to recognizes developments in home and DHT11 moistness sensors to identify temperature.[4]The android application for example Chatbot controls the Raspberry Pi remote to play out the fundamental capacity. This task can be altered by our necessity and need. This should be possible as it has numerous GPIO ports that can be modified and can give the client authority over different utilities and capacity from his/her shrewd gadgets. It permits a controlling number of home machines at the same time. Here nearby server is made on Raspberry Pi. A client can work the home apparatuses utilizing different cell phones, for example, PDAs, workstations or tablets.

Chatbots are gradually supplanting applications close by held gadgets as a result of their usability and knowledge. As demonstrated by a continuous report by 'Business Insider', about 83% of associations have effectively utilized or plan to utilize chatbots by 2020.

Telebots owe their insight to customary language taking care of methodology. Immaculate chatbots must probably understand the setting of a discourse, gain from the dialogs and improve itself after some instance. It can be cultivated through different AI and significant knowledgeable frameworks.

There are three types of home automation:

1. Individual control gadgets: This gadget controls just a single machine, models incorporate; photocell Lighting controls and
2. Distributed-control systems: Framework which takes into consideration single apparatuses to discuss inside with one another with electrical wiring and without a focal controller.
3. Centrally controlled systems: This framework transmit motions between a focal PC and machine controllers or ecological sensors. This paper present controlling the home mechanization apparatuses utilizing cell phones or workstation phone custom calculation with the assistance of Raspberry Pi.

## 2. Literature Survey

Currently there are many systems working on home automation but there are some problems happening so to overcome those problems and make our system easier, secure and effective to use. There are some systems which work on voice recognition. In voice recognition it operates through voice as a input but there is a problem that , if owner gets some problem related voice or oral surgery is done then the system cannot access the functionalities, even though some systems use Arduino but Arduino has also problem that, it has less processor speed than Raspberry PI. We are using raspberry pi because it is nothing but a mini computer where we can use as a server to manage over the web also. So we referred some papers to find out what problems can happen in currently used home automation system and we have tried to overcome those problems. Following are the referred papers that describe the how their system works.

Paper [1] ATmega328P launched by Arduino-UnoRev3 is used in robotized system. Diverse detectors are used like LPG Sensor (MQ5) which perceives any spillages of LPG gases, Temperature Sensor (LM35) and Moisture Sensor (DHT11) which separates soaked quality in addition air recognizing is conceivable. Bluetooth component is utilized for framework HC-05 module. The voice based structure gives precision in vocal attestation and better sound examination. Many gadgets can be replicated & the clock can be set for automatic performance.

Paper [2], House computerization is done by the Raspberry-Pi3 ZigBee Protocol and Mobile Communication (GSM). ZigBee includes very less information exchange limit and Global System for Mobile Communication as generally huge transmission limits. It depends upon Fringe Interface Controller which is 8-bit  $\mu$ controller.

Paper [3], the House robotization framework - managed by Raspberry-PI3, It gives command through chatbot using natural language processing. This system also uses Email-server. It can work through also via a web application. When command entered and system checks with the server it response as switching a light on/off. This framework responds on if interloper coming when entryway is bolted, it sends letters to the owner of the house.

Paper [4], the Home Computerization framework is constrained by Arduino with the principle of giving a simpler life to incapacitated individuals. It utilizes Voice Acknowledgment module V3 and microphone. The detected voice command makes system to switch the relay and change the direction of motor due to which jack lifts the bed up or bring back bed to lower elevation angle, switch on/off the bulbs and rings the buzzer when disabled person needs help.

Paper [5] The Home Computerization Framework is finished by Arduino UnoRev3 microcontroller and in place of the framework, to a Cell phone, the HC-05 Bluetooth module is utilized. Another advancement which is in this endeavor is ordinary language dealing with which controls contraptions. Voice controlled Home Computerization Framework impacts the intensity of the arduino uno which give a maximum vocalcontrolled robotization framework. By using Normal Language Processing and the diverse h/w in a smart phone, it forwards vocal to be utilized to oversee control of electrical contraptions.

### 3. Proposed Methodology

#### A. The architecture of the Proposed System:

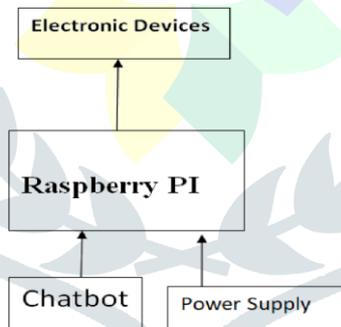


Fig 1: Architecture Of Home Automation System

The proposed system fills in as first it takes readings from sensors like dampness DHT11 and PIR movement sensor. DHT 11 detects temperature, moistness in the air and PIR faculties any movement recognized or not. The two readings are exchanged to the raspberry pi. Raspberry PI gathers that perusing and check dataset what can do in the event that such perusing occur, at that point, it performs undertaking that will be turned on a gadget or off. It performs errand programmed yet when on the off chance that proprietor needs to kill light, at that point it direction through chatbot utilizing wire then wire contact with Light which introduced on raspberry Pi which goes about as a server. On the off chance that client direction a/on\_f1, at that point gadget will be on.

B. UML Diagram:

1. Use Case Diagram:

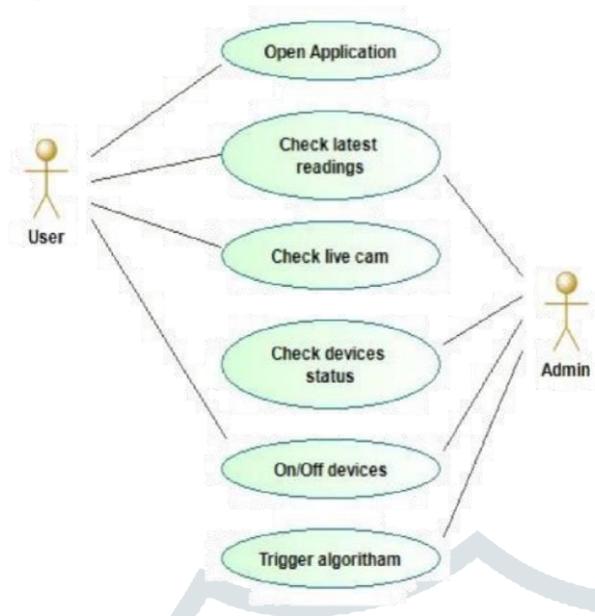


Fig 2: Use case Diagram

Being used case chart Client can open an application, read the readings that originate from sensors, check the camera live account and check gadgets status. Subsequent to checking all These strategies administrator, for example, Raspberry Pi takes activities on that condition by the above calculation of undertaking.

2. Class Diagram:

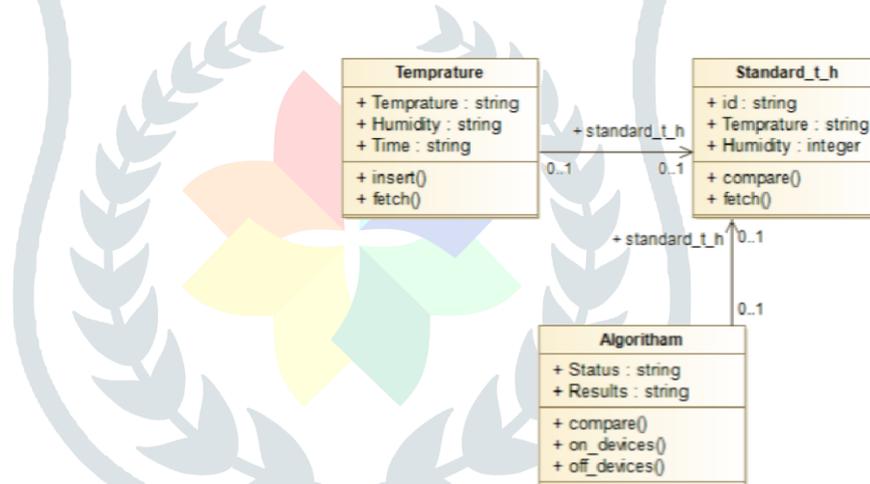


Fig 3: Class Diagram

In this class diagram, how he class works There are three classes used that is Temperature, Standard\_t\_h, and Algorithm.

The Temperature class contains we taking contribution for temperature, moistness and time since we necessitated those qualities to realize what activity to perform with gadgets that will be turned on or off temperature class takes values from humidity sensor DHT11 for collecting data or information regarding the temperature of a room, humidity in a room, current time.

Standard\_t\_h class make id and taking information from the temperature class of estimations of temp and dampness sensor. It looks at the past qualities and current qualities in the wake of contrasting those qualities it exchange status with calculation class. The calculation class read that status from class Standard\_t\_h and afterward calculation class makes a move on that status, for example, turn on a gadget or turn off gadget.

4. Technology Used

Raspberry-PI 3: The fundamental innovation is Raspberry Pi3 it’s a credit estimated PC everywhere grade programming languages coming from classification is finished with all the impressive sound coming from python over transparent authorship alive structure raspbian.

Chatbot: Android gadgets are utilized to give input as a wire bot order to Raspberry Pi.

## 5. Conclusion

This project covers most simple pieces, to what end it can show tense positively sprightly place residence qualifications. Powerful bot ordered domicile motorization the use of raspberry pi is recommended to this extent enhance traditional wield and control of gadgets by older and handicapped individuals. This task gives a fundamental arrangement of home computerization which can be effectively executed and utilized adequately. This structure enables a client to make choices & to control the house apparatuses with help of an android apk, along this making people's life pleasant meanwhile remotely open through adaptable contraptions like mobile phones.

## 6. Future Possibilities

The future-extent of this undertaking task is:

- a. Sensor: By utilizing sensors we lessen the exertion of proclaiming every single gadget a specific name. Precedent: If an individual gives an order "bulbs on" the sensor will recognize a particular area and the bulbs will be switched on.
- b. Intelligent Doors: The adroit Door knocker can be developed by acknowledging video calls with the individual standing farther the gateway & the proprietor remotely. In this manner expanding the security remainder of the framework.

## 7. REFERENCES

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