

## **PERSONAL ASSISTANT AND INTELLIGENT HOME ASSISTANT VIA ARTIFICIAL INTELLIGENCE ALGORITHMS-(RASPBERRY PI/PINEAPPLE)**

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### **ABSTRACT**

“Personal Assistant “ the word itself means assistant working exclusively for one particular person. The major purpose of any automation system or artificial system is to reduce human labour, effort, time and errors due to his/her intelligence. The major goal of this project is to design and implement a Personal Assistant and Intelligent Home Assistant in a same device (via world –wide-web) or even any mode of Internet-Access, which gives the ability to control your home appliances and to perform task or service for an individual. These tasks or may be services are based on user input, on location and also the ability to access information from variety of online sources. Various sensor based control for this application is being added to improve the security and also the ability to make more accurate decisions.

**KEYWORDS:** Home Automation, Personal Assistant, Raspberry Pi, Pineapple

### **INTRODUCTION**

The “Artificial Intelligence” is the study of how to make computers to do things which at the moment people do better [1]. This one, the process of assistant is often termed as Mudane Tasks [1]. Now, an intelligent assistant is one kind of automation system which can assist a person’s home as well as his/her home. This can identify the mode of internet access easily which means the internet can be [even a hotspot/wi-fi] of any kind. As, the growth of personal computers, high speed internet, mobile phones lead to access any kind of information and can take control of any sort of appliances (home appliances). Managing personal life and home appliances are two different vigorous process. To take both vigorous process into a single one and also to increase the security and assist an individual personally AI algorithms is useful. This allows someone to make his/her house an active partner and also his/her own personal information in managing busy life.

The aim of this project is to give an overview about raspberry pi based on intelligent systems and also to use voice control to control home appliances and personal life from anywhere in the world.

### **OVERALL DESIGNING**

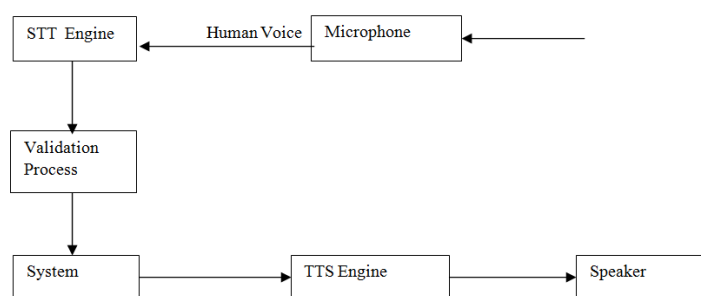
The overall designing can be classified into five modules and they are

- Speech and face recognition module
- Power control
- Remote control
- Core control

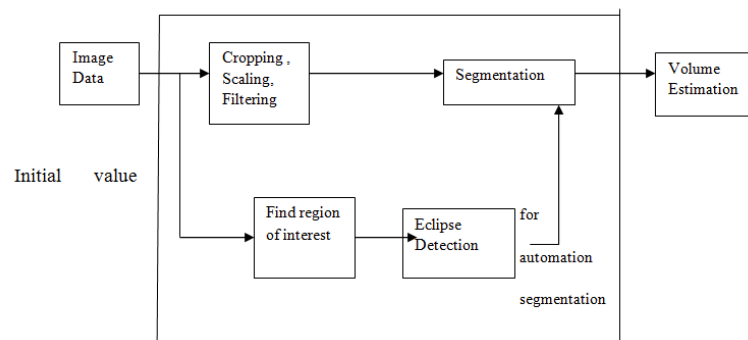
- Assistant control

### Speech and Face Recognition Module

In the figure 1 the user gives voice or shows his/her face to the RaspberryPI camera (5MP)[2] which is for the security of the operator. When voice is being given as input, the microphone present in the raspberrypi circuit converts the signal into electric signal and then it is being given to the speech recognition module. The major of the speech recognition module is to convert the analog signal into the digital signal and then the signal will be transferred to the system. Then the system will take decision to win on/off any devices with the help of relay based power control module [4]. In case of face recognition, the user allows the circuit to take his/her picture to find the person is same using Image Processing Systems. This will be discussed in detail by the figure 2.



**Figure 1: Block Diagram of Speech Recognition Module**



**Figure 2: Image Processing System**

### Power Control

The power control module is described below in figure 3. This is based on switching system, and it is for switching any of home appliances.

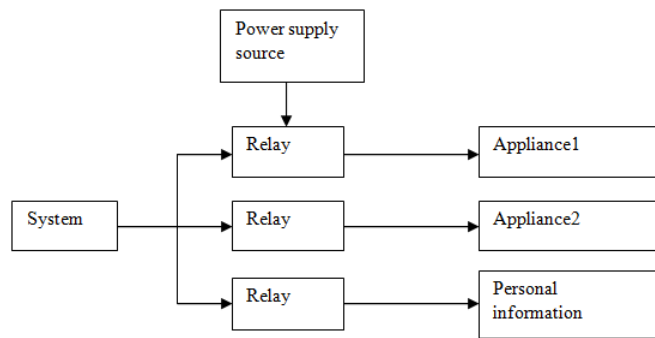


Figure 3: Block Diagram for Power Control

### Remote Control

The raspberry pi allows to store the current status of all the appliances into a file and store them in server (this will act as an database). When, the user turns on the mobile app which shows the current status of the appliances. The user can turn on/off by sending a message using certain keyword or by pressing the button in the application.

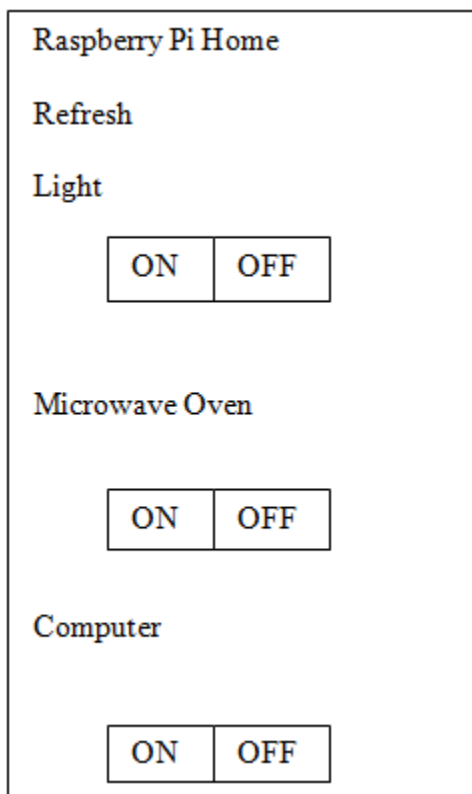


Figure 4 Application of Home Assistant

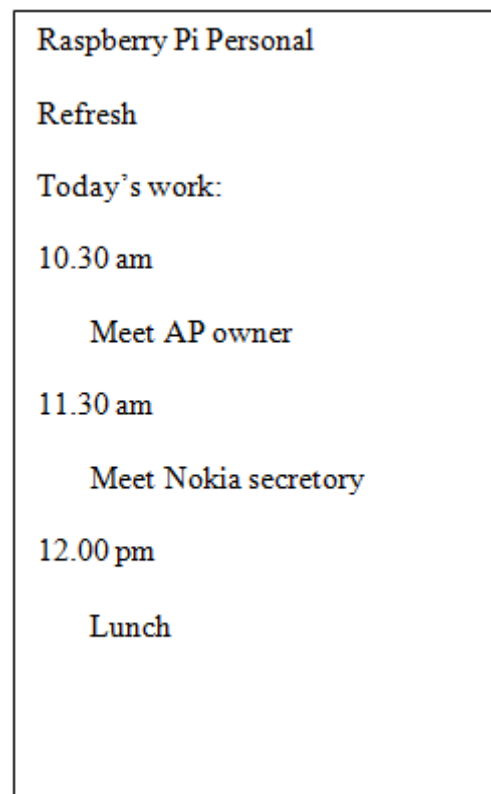
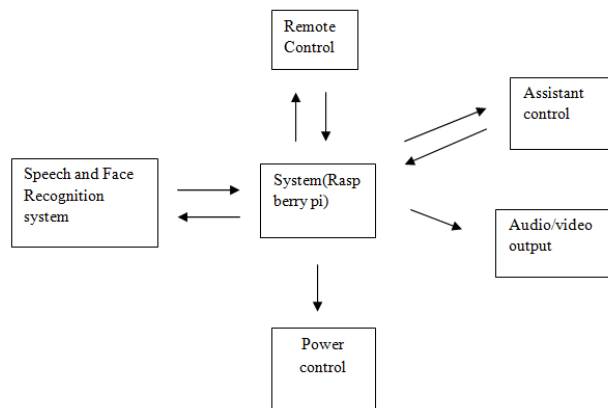


Figure 5: Application of Personal Assistant

### Core Control

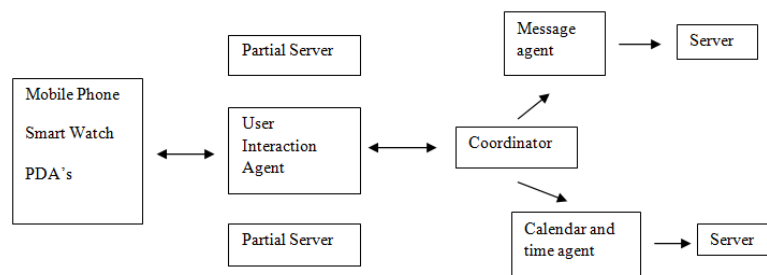
The overall working of a system is seen in this module. The block diagram is being shown figure 6.



**Figure 6: Core Control View (Block Diagram)**

### Assistant Control

The overall personal assistant works under this assistant control module. It will help his/her to just to give a voice note in which it get converted into speech[speech to text convertor] and it can be viewed by the user as an command.



**Figure 7: Block Diagram of Assistant Control**

Server contains all the information about the individual.

### SCENARIO

Here, are some scenarios for both personal and home assistant [4]

User: Is there any new mail from PA?

PA: You have two mails from PA.

User: what is my schedule at 12.00 pm?

PA: Lunch.

User: I am going to meet PM now!

PA: Appointment has been created.

(Displays calendar showing new appointment)

User: Is my LPG is turned off?

Checking...

PA: Yes.

User: Is my AC is On?

Checking...

PA: No.

User: On the AC in 10 mins!

Checking...

PA: starting a timer for 10 mins.

After 10 mins.

PA: starting AC.

## CONCLUSIONS

This system is very useful for each and every human being. Mistakes are being done by each and every human being often". This will act as an error reducer for each and every human artificially. Mostly, useful for physically challenged person who are not able to do various activities efficiently even to do small works they need assistance and also many accidents like fire, short circuit in home can be founded easily.

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