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Reconfigurable Portable Assistant Device

Sarthak Acharya
Student, Amity School of Engineering and Technology,
Amity University
Noida, India

Ritwick Samanta
Student, Amity School of Engineering and Technology,
Amity University
Noida, India

Abstract:- A large number of us like using voice assistants and automated chatbots in our daily life .Automated assistants such as Apple Siri, Google Assistant have risen in popularity quite sharply over the past few years.The project implements this popular features into a package meant to educate freshers about the Amity University campus.

Keywords:- *Chatbot, Raspberry Pi, Voice Assistant, Wireless Communication, Integrated Components.*

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I. INTRODUCTION

IoT stands for the Internet Of Things. With the help of Internet of Things, we can connect any number of devices, ranging from phones,vehicles,appliances,computers or almost anything with sensors and the ability to create or connect to a network.

One thing which differentiates an IoT network from a normal network is the conspicuous absence of human role, i.e. the network should be self configuring and self-regulated,similar to an Ad-hoc network.The device,with all the sensors and other components connected to it,should be able to work in an autonomous fashion.

We build a portable IOT device for assistance for various tasks. It will be connected to internet and is incorporated with various features. Slowly but steadily,connected devices are becoming a important part of everyday lifestyle.It is estimated that by 2022,there will be 21 billion IoT enabled devices across the world-leading to a smarter future.

Consumer devices that are or can be Iot enabled include Smart Televisions,wearables,toys, appliances such as refrigerators,fire alarms etc.

They can also be used in commercial situations,such as smart meters,security systems,smart city technologies-including traffic monitoring and automatic switching.

They can also be used in smart air conditioning to save power,smart lighting systems to conserve power and have several industrial applications.

Prices of IoT devices have fallen sharply due to reduction in the production cost of core components such as sensors.IoT devices can make use of several sensors such as temperature sensors,smoke sensors,pressure sensors , proximity sensors and so on,either alone or a combination of various sensors.

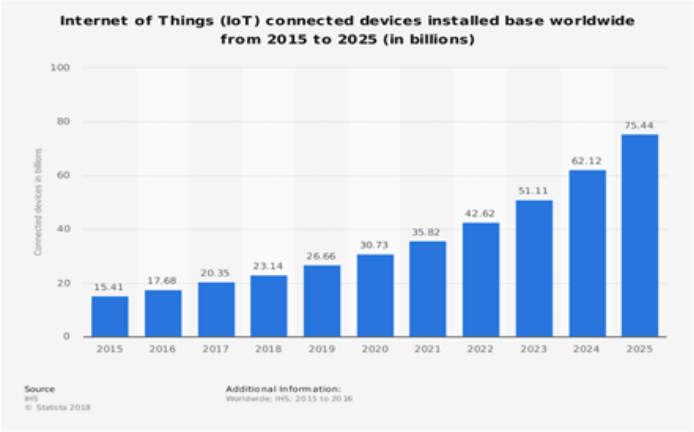

Fig 1

IoT devices are also used in conditions which are unsafe and hazardous for humans to work in ,such as radiation monitoring,toxic gas monitoring and so on.

II. RECONFIGURABLE PORTABLE ASSISTANT DEVICE

This project is basically meant to aid a fresher on the Amity campus about some typically asked questions which the person aims to get resolved.

Fig 2

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A. Setting Up The Raspberry Pi 3

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside its target market for uses such as robotics. It does not include peripherals (such as keyboards and mouse) and cases. However, some accessories have been included in several official and unofficial bundles.

The first step in setting up the Raspberry pi is to format the SD card. Then we have to download NOOBS onto the SD card. Now we need to connect the peripheral devices on the raspberry pi such as keyboard, ethernet cable, mouse, HDMI monitor cable and download Raspbian operating system on the device. After installation we have to configure our Raspberry pi and then it would be available for further use.

B. Interfacing The Speaker With Raspberry Pi

- The most current gadget from the Raspberry Pi Foundation, Raspberry Pi 3 Model B, accompanies both inherent Wi-Fi and Bluetooth 4.1. Like the most things Raspberry Pi, it doesn't come running out of the boxes, however. Indeed, even after you introduce NOOBS or Raspbian, regardless we need to do some amount works to get Bluetooth upgrade and running.
- Luckily, it's not exceptionally troublesome or tedious, but rather it will take insignificant learning of the support (Terminal). Here's the means by which it's finished.
- The easiest way to get the speakers paired to Pi is through its terminals.
- Now first from the Raspberry pi desktop, we would open a new terminal window.
- Ex: we type sudo bluetoothctl & then press enter and input the password.
- Next, we enter agent on and press enter. Later we type default agent & press enter.
- Now we type scan on & enter again.
- To pair the device, we type pair [device address].

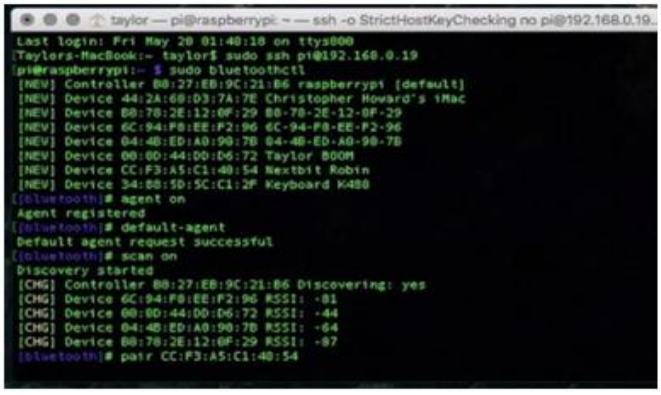

Fig 3

As shown in figure below (fig 4.) , we can tell that the average length of lines plotted on the screen will decrease whenever there is a discontinuity in the train track , this decrease in the average will be the determinant .

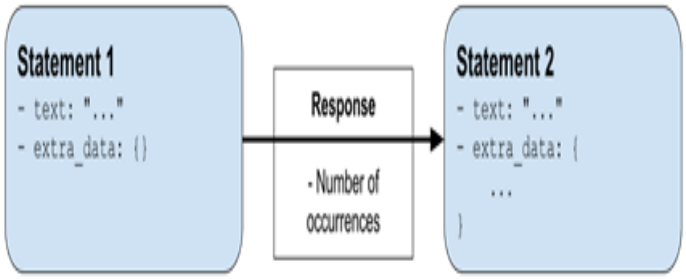

Fig 4

In this module,the every announcement is able to have various number of conceivable reactions.

Every statement protest has a reference which interfaces announcement to various different explanations that it has been figured out how to be in light of. This reference property is basically a reference to all superior or parent articulations of the present proclamation.

➢ *Espeak*

eSpeakNG is a conservative, open source, programming discourse synthesizer for Linux, Windows, and different stages. It utilizes a formant blend technique, giving numerous dialects in a little size. A great part of the programming for eSpeakNG's dialect bolster is finished utilizing rule records with criticism from local speakers.

➢ *Chatterbot*

ChatterBot is a great library in Python programming language that makes it simple to create computerized reactions to a client's information. It utilizes a choice of machine programming calculations to create diverse sorts of reactions. This makes it way easier for designers to make visit bots(software-based robots) and computerize discussions held with clients.

➢ *Chatterbot-Corpus*

It is the pre-configured database(written in simple English) from which the bot references the question,compares it to the best of its abilities & given the inferenced output as per its confidence level(threshold used is 65%).

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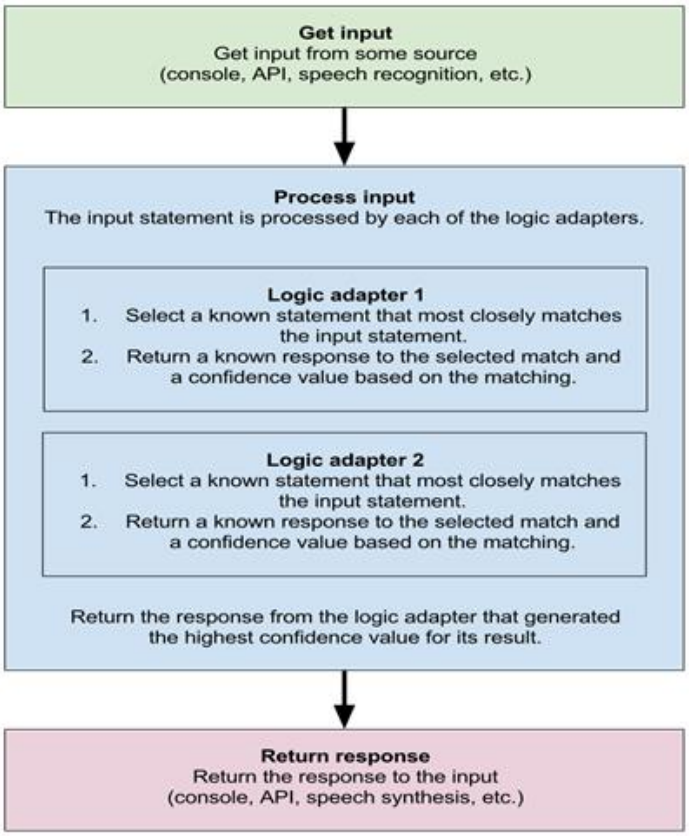

Fig 5

III. RESULT

The configured device works fine in indoor conditions,although results can vary in outdoor scenarios.Works both in online and offline mode,however the voice output latency increases in the offline mode.

Fig 6

IV. CONCLUSION AND DISCUSSION

In this paper , we have presented a novel method to implement a voice assistant in a real-world application,or for Amity University in this case. The focal point while developing the project was to build a quick and applicable system that relies on the current IoT technology to convert audio and text and cloud computing for faster results .

The most ideal use for this technology would be to this technology would be world in a headless,autonomous fashion,implement some security features and improve voice detection in outdoor scenarios.

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