

Chatbot Service

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Abstract-A chatbot is a piece of software module that conducts a conversation between the user and chatbot via a textual method. Such programs are often designed to convincingly simulate how a human would behave as a conversational partner. Chatbots are typically used in log systems for various practical purposes including customer service or information acquisition. Some chatbots use sophisticated natural language, chatbot scans for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database where a collection of required information for solving the user queries.

The term "Chatterbot" was originally coined by Michael Mauldin in 1994 to describe these conversational programs. Today, most chatbots are accessed via virtual assistants such as Google Assistant and Amazon Alexa or via individual organizations apps and websites. Chatbots can be classified into usage categories such as communication, customer support, design, education, entertainment, finance, food, games, health, HR, marketing, news, personal, productivity, shopping, social, sports, travel, and utilities

This project is designed in such a way that a chatbot service assistance is created for students who are looking for engineering colleges that meet their criteria by creating an interactive environment between the student and chatbot. This chatbot allows to clarify the queries or doubts raised by the student regarding the course summary, course fees, timings, cutoff marks, etc and finally at the later stage it recommends the best college with best criteria for the student based upon the information given by the student, this helps hassle of student who is looking for engineering colleges via internet websites where he or she will have troublesome variation of information in several websites.

Keywords - Chatbot, Webapp, scratch, mit, student buddy, blockcoding, Raspberrypi.

I. INTRODUCTION

In general, the service based chatbot is that is utilized to make a discussion by means of sound-related or literary techniques. The principle point of the undertaking is to make "Student Buddy Chatbot using Raspberry Pi" in this project we are designing a chatbot service assistance for students who are looking for engineering colleges that meet their criteria by creating a interactive environment between the student and chatbot[1].

The student can clarify the doubts regarding the course summary, course fees, timings, cutoff marks etcetera and the student can choose the college meeting his choices.

This project solves the problems of students having difficulty in finding out the colleges according to their preferences in inclusion with their criteria. System allows

admin to delete the invalid answer or to add a specific answer of that equivalent question. The User can query any college related activities through the system. The user does not have to personally go to the college for enquiry. The Chatbot analyzes the question and then answers to the user. The system answers to the query as if it is answered by the person. With the help of database of collected information related to colleges, the system answers the query asked by the students. The system replies using an effective Graphical user interface which implies that as if a real person is talking to the user. The user can query about the college related activities through online

Raspberry Pi is a progression of system on chip boards it is created in the assembled realm by the Raspberry Pi establishment. In general it is utilized for fundamental programming by the developers who want to create projects on games, graphics, and chatbots etc. Raspberry Pi is providing an SD card space from 16 GB to 128Gb, 1 Micro-HDMI port, 2 USB openings for the keyboard and mouse use. It additionally has the ethernet port for getting to the web or sharing the system from PC[1].

Who Should Be Using Them:

In this project the main target audience are students, the aim is centered towards the students who are looking for best colleges meeting their criteria, hence student buddy chatbot simplifies the hassle of student and gives out information of colleges which is most preferable by letting the user know the cutoff marks, placement percentage of college, branch availability in the college, course fee of the branch.

A portion of the striking brands that are utilizing chatbots are:

Disney – They utilized their "Official Judy Hopps" bot on Facebook for the advancement of Zootopia. The clients unraveled cases by chatting with the chatbot so as to examine pieces of information found and potential suspects.

CNN – They use chatbots to convey the most recent news inclusion or articles dependent on the client's inclination by means of facebook flag-bearer.

Baidu – what could be compared to Google propelled Melody, a chatbot that has been coordinated inside the Baidu Doctor application for every single versatile stage. The chatbot investigations the side effects so as to waitlist the potential infirmities so as to accelerate the analytic procedure with the specialist face to face.

Taco Bell – Their chatbot called TacoBot encourages individuals to cause a buy, to change their requests, look at and get request affirmations.

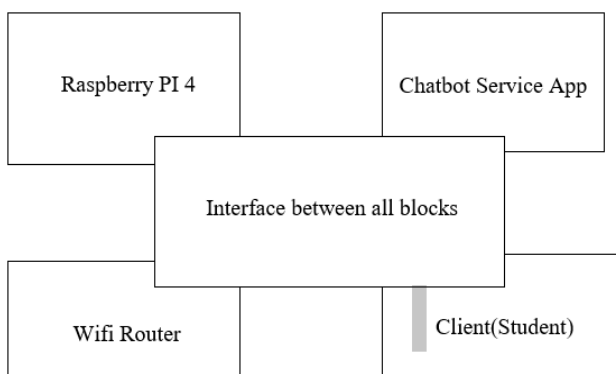
H&M – They use Kik bot to offer their clients proposals on strengthening apparel dependent on their underlying determinations.

Since we've caught up on your nuts and bolts on chatbots, you have to make sense of how to utilize them for your business and streamline your work procedure[2].

Listed objectives:

1. Work on the Raspberry Pi's IP address by using and connecting it to monitor for display uses.
2. Accessing the Raspberry Pi's IP dynamic address by using 'Open terminal' present in Raspberry Pi.
3. By using the command 'arp -a' and 'ip config' Raspberry Pi's IP address can be found in the dynamic address category, by doing this anyone can access Raspberry Pi by using any laptop.
4. To see if the Raspberry Pi is connected to the internet connection use command 'ping raspberrypi.mshome.net' or 'ping IP address'
5. To create an interactive system between the user and chatbot to solve the queries or doubts raised by the user and provide the best answer to the query.
6. To create a program in Scratch 3 IDE by collecting the required information and dumping it on to the program meeting the query requirements.
7. Add all the examples of questions and answers
8. To create a service based chatbot using Scratch MIT from Raspberry Pi's built-in Scratch 3 IDE.
9. To convert the sb3 file executed by Scratch 3 to HTML file for operating the Chatbot online by any remote device.

Block Diagram:



The student buddy chatbot is created using scratch 3.0 present in the Raspberry pi programming tools list after creating the student buddy chatbot the code script of a

chatbot it is then converted into HTML using htmlify after converting the code to HTML one can access the chatbot directly online without the usage of Raspberry Pi.The interface between all block is active internet connection[3].

II. SOFTWARE

A. RASPBIAN:

Raspbian could be a Debian based pc os for Raspberry Pi. There are many versions of Raspbian with Raspbian Buster the family of Raspberry Pi single board computers. Raspbian was created by a microphone Thompson Associate in Nursing Peter inexperienced as a freelance project. The initial build was completed in June 2012. The OS continues to have and active and to be the processor to be beneath active development. Raspbian is very optimized for the Raspberry Pi line's low-performance ARM CPU's.

B. SCRATCH MIT FOR CHATBOT:

Scratch is a block-based visual programming language and online community targeted primarily at children. Users of the site can create online projects using a block-like interface. The service is developed by the MIT Media Lab, has been translated into 70+ languages, and is used in most parts of the world. Scratch is taught and used in after-school centers, schools, and colleges, as well as other public knowledge institutions. As of May 2019, community statistics on the language's official website show more than 40 million projects shared by over 40 million users, and almost 40 million monthly website visits.

Scratch takes its name from a technique used by disk jockeys called "scratching", where vinyl records are clipped together and manipulated on a turntable to produce different sound effects and music[3]. Like scratching, the website lets users mix together different media (including graphics, sound, and other programs) in creative ways by "remixing" projects.

C. SCRATCH 3.0:

The Scratch interface has 3 main sections: a country blocks palette, and writing space to position and prepares the block into runnable scripts. The scratch 3 development surroundings on startup

The stage space options the results (i.e., animations, turtle graphics, etc., either during a little or traditional size, with a full-screen possibility conjointly available) and one sprite thumbnails being listed within the bottom space. The stage uses x and y coordinates, with 0, [12]0 being the stage center.

With a spiritual being selected at an all-time low of the country, blocks of commands will be applied thereto by dragging them from the blocks palette into the writing

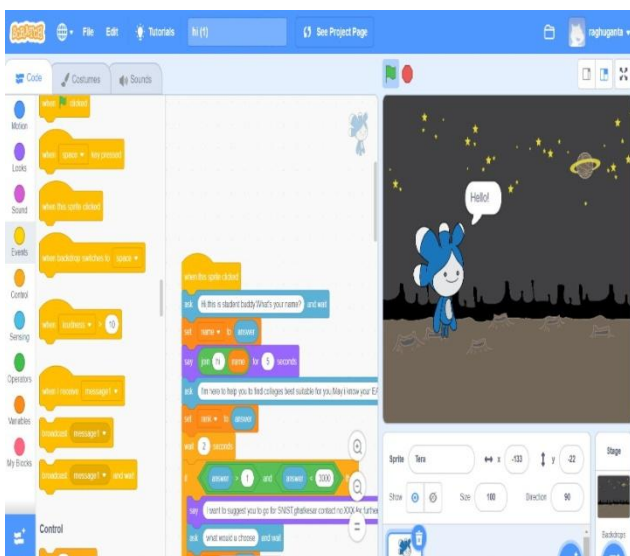
space. The Costumes tab permits users can amendment the form numerous effects, together with animation. The Sounds tab permits attaching sounds and music to a spiritual being.

When making sprites and backgrounds, users will draw their own spiritual being manually, select a spiritual being from a library or transfer associate in nursing existing image as shown in table [10].

List of tokens used in Scratch MIT:

Category	Notes	Category	Notes
Motion	Moves sprites, changes angles, and ..	Sensing	Sprites can interact with the surroundings
Looks	Controls the visuals of the sprite	Operators	Mathematical operators, comparisons
Sound	Plays <u>audio files</u> and effects	Variables	Variable and List usage and
Events	Event handler s	My Blocks	Custom procedures
Control	Conditionals and loops etc.		

By using these tokens we can create the blocks which are combined for making code of the project .for example in the looks token if we use a say hello block of code the chatbot greets the user by saying hello. The sprite used in this Scratch MIT can be moved to a random position and can be rotated using the blocks of codes present already in the list of tokens as shown in fig 4.1.



Online community:

On Scratch, members have the aptitude to share their comes and find feedback. [4]Comes are often uploaded directly from the event surroundings to the Scratch web site and any member of the community will transfer the total ASCII text file to review or to remix into new comes. Members also can produce project studios, comment, tag, different members to, visualize their comes and, activity, and share concepts. It comes to vary from games to animations to sensible tools. In addition, to encourage the creation and sharing amongst users, theweb site oft establishes “Scratch style Studio”.

The Massachusetts Institute of Technology Scratch Team works to make sure that this community maintains friendly and respectful surroundings[10].

III. HARDWARE

Foundation, [12] a UK charity that aims to teach folks in computing and make easier access to computing education[1].

The Raspberry Pi launched in 2012, and there are many iterations and variations free since then. The initial Pi had a single-core 700MHz central processor and simply 256MB RAM, and therefore the latest model features a quad-core one.4GHz central processor with 1GB RAM. The most worthy purpose for Raspberry Pi has continually been \$35 and every one models are \$35 or less, as well as the Pi Zero, that prices simply \$5[1].

All over the planet, folks use Raspberry Pis to find out programming skills, build hardware comes, do home automation, and even use them in industrial applications.

A. Raspberry pi 4:

The Raspberry Pi may be a series of tiny single-board computers developed within the UK by the Raspberry Pi Foundation to push the teaching of basic engineering science in colleges and in developing countries the first model became way more well-liked than anticipated, commercialism outside its target marketplace for uses like AI. It doesn’t embrace peripherals (such as keyboards and mice) or cases. However, some accessories are enclosed in many official and unofficial bundles[10].

The organization behind the Raspberry Pi consists of 2 arms. The primary 2 models were developed by the Raspberry Pi Foundation. When the Pi Model B was discharged, the muse came upon Raspberry Pi commerce, with Eben Upton as a corporate executive, to develop the third model, the B+. Raspberry Pi commerce is to blame for developing the technology whereas the muse is an academic charity to push the teaching of basic engineering science in colleges and in developing countries.

According to the Raspberry Pi Foundation, quite five million Raspberry Pis were sold by Gregorian calendar

month 2015, creating it the popular British pc By Gregorian calendar month 2016 they'd sold eleven million units, and 12.5m by March 2017, creating it the third popular "general-purpose computer". In July 2017, sales reached nearly fifteen million. In March 2018, sales reached nineteen million.

Most Pis are created in a very Sony works in Pencoed, Wales. Some are created in China and Japan.

Raspberry Pi is that the name of a series of single-board computers created by the Raspberry Pi[11]. The Raspberry Pi could be an all-time low pc that runs the UNIX system, however, it conjointly provides a collection of GPIO (general purpose input/output) pins that enable you to manage electronic elements for physical computing and explore the web of Things (IoT)[3].

B. HDMI cable:

HDMI (High-Definition transmission Interface) could be a proprietary audio/video interface for transmittal uncompressed video information associate degree compressed or uncompressed alphanumeric, audio information

HDMI-compliant supply device, like a show controller, to a compatible laptop monitor, video projector, digital tv, or digital audio device. HDMI could be a digital replacement for analog video standards[12].

HDMI implements the EIA/CEA-861 standards, that outline video formats and waveforms, transport of compressed and uncompressed LPCM audio, auxiliary information, and implementations of the [13]VESA EDID(p. III) CEA-861 signals carried by the HDMI area unit electrically compatible with the CEA-861 signals utilized by the Digital Visual Interface (DVI). No signal conversion is important, neither is there a loss of video quality once a DVI-to-HDMI adapter is employed. The CEC (Consumer natural philosophy Control) capability permits HDMI devices to regulate one another once necessary and permits the user to control multiple devices with one hand-held device[14].

Several versions of HDMI are developed and deployed since the initial unharness of the technology, however, all use identical cable and connexion. Apart from improved audio and video capability, performance, resolution and color areas, newer versions have elective advanced options like 3D, LAN information association, and CEC (Consumer natural philosophy Control) extensions[8].

Production of shopper HDMI product started in late 2003. In Europe, either DVI-HDCP or HDMI is enclosed within the HD prepared in-store asbian specification for TV sets for TV, developed by EICTA with SES Astra in 2005. HDMI began to look at shopper HDTVs in 2004 and camcorders and digital still cameras in 2006. As of January

6, 2015 (twelve years when the discharge of the primary HDMI specification), over four billion HDMI devices are sold-out.[8]

The HDMI detail characterizes the conventions, signals, electrical interfaces and mechanical prerequisites of the standard The most extreme pixel clock rate for HDMI 1.0 is 165 MHz, which is adequate to permit 1080p and WUXGA (1920×1200) at 60 Hz. HDMI 1.3

builds that to 340 MHz, which takes into account higher goals, (for example, WQXGA, 2560×1600) over a solitary computerized link.A HDMI association can either be single-interface (type A/C/D) or double connection (type B) and can have a video pixel pace of 25 MHz to 340 MHz (for a solitary connection association) or 25 MHz to 680 MHz (for a double connection association). Video positions with rates underneath 25 MHz (e.g., 13.5 MHz for 480i/NTSC) are transmitted utilizing a pixel-reiteration scheme[2].

C. Sound/video:

HDMI 1.0 to HDMI 1.2a uses the EIA/CEA-861-B video standard, HDMI 1.3 uses the CEA-861-D video standard, and HDMI 1.4 uses the CEA-861-E video standard.(p. III) The CEA-861-E report characterizes "video arrangements and waveforms; colorimetry and quantization; transport of packed and uncompressed LPCM sound; carriage of helper information; and usage of the Video Electronics Standards[11] Association (VESA) Enhanced Extended Display Identification Data Standard (E-EDID)". On July 15, 2013, the CEA declared the distribution of CEA-861-F, a standard that can be utilized by interfaces, for example, DVI, HDMI, and LVDS. CEA-861-F adds the capacity to transmit a few Ultra HD video positions and extra shading spaces[4].

To guarantee gauge similarity between various HDMI sources and shows (just as in reverse similarity with the electrically perfect DVI standard) all HDMI gadgets must execute the sRGB shading space at 8 bits for every component. The ability to utilize the Y'CBCR shading space and higher shading profundities ("profound shading") is discretionary. HDMI grants sRGB chroma subsampling (8–16 bits for every part), xvYCC chroma subsampling (8–16 bits for each segment), Y'CBCR 4:4:4 chroma subsampling (8–16 bits for every segment), or Y'CBCR 4:2:2 chroma subsampling (8–12 bits for each segment). The shading spaces that can be utilized by HDMI are ITU-R BT.601, ITU-R BT.709-5 and IEC 61966-2-4[5].

For computerized sound, if an HDMI gadget has sound, [11] it is required to actualize the standard organization: stereo (uncompressed) PCM. Different designs are discretionary, with HDMI permitting up to 8 channels of uncompressed sound at test sizes of 16- piece, 20-piece

and 24-piece, with test paces of 32 kHz,

44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz and 192 kHz HDMI likewise conveys any IEC 61937-consistent packed sound stream, for example, Dolby Digital and DTS, and up to 8 channels of one-piece DSD sound (utilized on Super Audio CDs) at rates up to multiple times that of Super Audio CD.[5] With form 1.3, HDMI permits lossless compacted sound streams Dolby TrueHD and DTS-HD Master Audio. As with the Y'CBCR video, sound capacity is discretionary. Sound return station (ARC) is a component presented in the HDMI

1.4 standard. "Return" alludes to the situation where the sound originates from the TV and can be sent "upstream" to the AV beneficiary utilizing the HDMI link associated with the AV receiver. A model given on the HDMI site is that a TV that straightforwardly gets an earthbound/satellite communicate, or has a video source worked in, sends the sound "upstream" to the AV receiver[13]

The HDMI standard was not intended to pass shut inscription information (for instance, captions) to the TV for decoding. As such, any shut subtitle stream must be decoded and included as a picture in the video stream(s) preceding transmission over an HDMI link to show up on the DTV. This constrains the subtitle style (in any event, for computerized inscriptions) to just that decoded at the source preceding HDMI transmission. This likewise avoids shut inscriptions when transmission over HDMI is required for upconversion. For instance, a DVD player that sends an upscaled 720p/1080i arrangement through HDMI to an HDTV has no real way to pass Closed Captioning information with the goal that the HDTV can decipher it, as there is no line 21 VBI in that configuration[5].

D. Ethernet:

Ethernet is a group of PC organizing advancements ordinarily utilized in the Raspbian hood (LAN), metropolitan region systems (MAN) and wide territory systems (WAN). It was industrially presented in 1980 and first institutionalized in 1983 as IEEE 802.3, and has since held a decent arrangement of in reverse similarity and been refined to help higher piece rates and longer connection separations. After some time, Ethernet has to a great extent supplanted contending wired LAN innovations, for example, Token Ring, FDDI, and ARCNET[7].

The first 10 BASE5 Ethernet utilizes a coaxial link as a common medium, while the more current Ethernet variations utilize bent pair and fiber optic connections related to switches. Through the span of its history, Ethernet information move rates have been expanded from the first 2.94 megabits every second (Mbit/s) to the most recent 400 gigabits for each second (Gbit/s). The Ethernet models include a few wiring and flagging variations of the

OSI physical layer being used with Ethernet.

Frameworks imparting over Ethernet separate a surge of information into shorter pieces called outlines. Each edge contains source and goal locations, and mistake checking the information so harmed edges can be distinguished and disposed of; frequently, higher-layer conventions trigger retransmission of lost outlines.[9] According to the OSI model, Ethernet gives benefits up to and including the information interface layer. The 48- piece MAC address was embraced by other IEEE 802 systems administration gauges, including IEEE 802.11 Wi-Fi, just as by FDDI, and EtherType values are likewise utilized in Subnetwork Access Protocol (SNAP) headers.

Ethernet is broadly utilized in homes and industry. The Internet Protocol is regularly continued Ethernet thus it is viewed as one of the key advancements that make up the Internet.

E. 3.0 Amps power supply:

The raspberry pi 4 requires 3 amps continuous power supply for working It may be given by raspberry adapter or any other power supply source which has 3 amps output current[1]

IV. WORKING PROCEDURE

STEP 1: Download the Raspbian buster with the desktop recommended software

STEP 2: Extract the file downloaded with 7zip STEP 3: Use etcher to move the file to SD card

STEP 4: Place the SD card in Raspberry Pi

STEP 5: Connect the power supply to Raspberry Pi

STEP 6: Connect the ethernet port of Raspberry Pi to laptop

STEP 7: Use the advanced IP scanner to know the IP address of the Raspberry Pi

STEP 8: Open putty and enter the IP address of the Raspberry Pi

STEP 9: The Raspberry Pi with Raspbian OS will be opened in the laptop

STEP 10: It can also be connected to the monitor using micro HDMI to HDMI cable

STEP 11: Now the Raspberry Pi with Raspbian OS will be displayed on the monitor

STEP 12: Connect the Raspberry Pi to wifi

STEP 13: Now enjoy Raspberry Pi and go ahead with your project

STEP 14: Open Scratch MIT and click on the file and create a new project

STEP 15: Create a sprite of your choice

STEP 16: In scratch MIT the code tab has the following events

- a) *Motion*
- b) *Looks*
- c) *Sound*
- d) *Events*
- e) *Control*
- f) *Sensing*
- g) *Operators*
- h) *Variables*
- i) *Myblocks*

STEP 17: We have to create a code of events as per the requirements of chatbot is scratch MIT project page and the executed file is dumped into Raspberry Pi using media transfer

STEP 18: Open the file dumped in the Raspbian OS using scratch tool present in the application of Raspberry Pi home

STEP 19: While executing the program the extension with '.sb3' is then converted into HTML and then the chatbot can be accessed by any device

STEP 20: Check the working of chatbot from the designated laptop

V. CONCLUSION

F. CONCLUSION:

In today's world computers play an important role in our society? Computers give us information; they entertain us and help us in lots of manners. A chatbot is a program designed to counterfeit smart communication on a text or spoken ground[9].

But this paper is based on the text-only chatbot. Chatbot recognizes the user input as well as by using pattern matching, access information to provide a predefined acknowledgment. Some chatbots use sophisticated natural language processing systems, but many simpler ones scan for keywords within the input, then pull a reply with the most matching keywords, or the most similar wording pattern, from a database.

Hence in this project we are designing a chatbot service assistance for students who are looking for engineering colleges that meet their criteria by creating a interactive environment between the student and chatbot. The student can clarify the doubts regarding the course summary, course fees, timings, cutoff marks, etc and the student can choose the college meeting his choices[9].

Chatbot applications streamline interactions between people and services, enhancing customer experience. At the same time, they offer companies new opportunities to improve the customers engagement process and operational efficiency by reducing the typical cost of customer service.

To be successful, a chatbot solution should be able to effectively perform both of these tasks. Human support plays a key role here: Regardless of the kind of approach and the platform, human intervention is crucial in configuring, training and optimizing the chatbot system[1].

G. FUTURE SCOPE:

There are different approaches and tools that you can use to develop a chatbot. Depending on the use case you want to address, some chatbot technologies are more appropriate than others. In order to achieve the desired results, the combination of different AI forms such as natural language processing, machine learning and semantic understanding may be the best option.

In upcoming posts, we will give you an overview of the main chatbot applications so you can evaluate them based on your specific needs and desired goals[1].

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