Raspberry Pi Based Voice-Operated Personal Assistant

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Abstract:
Voice operated personal assistant is a voice controlled Processor with camera interacting with the conversion of image to text using Open CV and OCR algorithm for visually impaired. Infra Red sensors helps in recognizing the voice direction of the persons who converse with the visually Challenged. The captured pictures from the camera using the Open CV and OCR algorithm, these two algorithms recognise the letters present in picture or image and converted into audio. Then communicate consumer counterpart use the built-in voice. By including raspberry pi as a computing device it will help the disabled interact with the environment and minimize the stress by providing them exposure to insightful outlets. This stresses the reduction of screen-based engagement by the usage of contextual technology such as IOT and app IR-sensor, device Pi, Mic. Impaired people can capture the image of particular person, camera capture the person images and store in data set. When the camera capture image it convert into audio device with their names. Here, we can use pi face recognition, capture, encode faces using Python code.

Keywords: IoT, raspberry Pi B+, Sunglasses, robotic helper, OCR, Transparent cv, ir Reader, Voice Power.

I. INTRODUCTION

Basically, a Voice Command System suggests a process that handles language as a details, unravels or recognizes the meaning of that knowledge and generates a proper speech yield. Any structure for voice guidance requires three important parts to be addressed Converter material, Processor query and Converter book discourse. These days Speech has become a much needed item of communication. Since sound and voices are processed faster than written text, speech path systems are ubiquitous in PC gadgets henceforth. There were several Typically outstanding developments in the appreciation of debate. The utter latest innovations is attributed to the improvements and the heavy use of massive information and profound learning right now. These developments have credited to the innovation business utilizing profound learning technique in making and utilizing a portion of the discourse acknowledgment frameworks. Google had the option to diminish word blunder rate by 6% to 10% family member, for the framework that had the word mistake pace of 17% to 52% . Content to discourse transformation is the way toward changing over a machine perceived content into any language which could be distinguished by a speaker when the content is perused so anyone can hear. There are two types of stage which are separated into front end and back end. Initial section is responsible for transitioning to a written word community over numbers and simplified styles. It is often referred to as material standardization. The second portion contains the symbol for a justify one to be fitted. Discourse Recognition is the strength of machine for example a PC to get words and sentences communicated in any language. These words or sentences are then changed over to an arrangement that could be comprehended by the machine. Discourse acknowledgment is essentially actualized utilizing jargon frameworks. A discourse acknowledgment framework might Either a limited client-scale vocabulary system or a broad client-scale vocabulary system. This all inevitable possible by using Robotics or IoT. Apply autonomy is the part of innovation which deals with the improvement, structure, activity, and use with robotics. Our colleague is misleadingly smart and guided by the voice headings mentioned above. To find the clear route for a run it gets a predetermined indication from the IR sensor. It allows use of the Pi camera module to identify transcribed or printed material from the file, and uses an inherent speaker to describe it to the customer. It will measure the Arithmetic calculations. Reliant on voice instructions and giving back the prepared agreement through a voice and in addition look site subordinate to consumer inquiry and offering back the response through a voice with more natural inquiries on the hand.

II. REVIEW OF LITERATURE SURVEY

This paper present the study on menial helper: google aide, siri ,cortana, alexa. This innovation center in overall like advanced cell, PC, PC, and so forth. The point The aim of this paper is to check voice recognition and contextual communication between consumer and human relations. They're finishing this stage examinations on the voice acknowledgment and human cooperation. To perceive the voice, it was important to realize So the Virtual Assistant correctly grasped the terms that were referred to by the customers. The thought which provides a criticism or estimation. Attempted right now, to identify voices in computers and different Separations next to them Adjust the number of foundation clues. Google and Siri did more, as the sources have suggested. Google Help is a nice idea to learn the universal language, Alexa sounds and songs are appropriate, Alex is not clear about critical inquiries, the essence is not central. the ignored client was a genuine use case. In these uncommon conditions, the interruption capacity was a gigantic hindrance. At the point when they were given demands that they were approached to choose or choose a choice by hauling the touch screen utilizing the Learn from a clever computer assistive
device outwardly or by utilizing a chat. It effectively negotiated without taking control of the IVA’s paws, and was specifically thought to be radical in the situations, for example, driving. Holding the talk as important data and trying to communicate with each exercise through the association so that there ought to be a requirement for the fate of the ipa, with extra confirmation that the Hands Free Collaboration is completely performed and that activities do not conflict with the Amrita et al organized action process.

Chan Zhen Yue et al incorporates voice actuated savvy home structure and execution. The point of this paper is to plan and actualize a quality home right hand that can be constrained by voice and content directions. Sound directions are caught by the Amazon Voice Service, otherwise called alexia, is prepared through Amazon Developer Console. Prior to arriving at the control terminal, Alexa aptitudes and Ngrok administrations can get to and deal with these administrations by means of raspberry pi client Amazon Developer Console.

Achal S Kaundinva et al present voice empowered home mechanization utilizing Amazon reverberation. Home Automation empowered current paper with Amazon Paper utilizing Amazon Echo. Right now, explore centers around how to make a heartily, affordable framework with the most recent advancements accessible, and brilliant non-keen and huge scale applications. Amazon Power N is utilized. What's more, to give savvy highlights to the advanced mobile phone, Raspberry Pi3 is utilized as an equipment segment. They portray various parts of their item and work successfully to switch their frameworks and shut down applications.

G.Ashwini et al examined a brilliant home framework will be required sooner rather than later, with consistently improved Google landing page and Amazon Echo. This paper presents the plan and usage of a minimal effort Voice Active Smart Home framework that can be joined with numerous essential subsystems and individual needs can be met. With Alexa Skills Kits and Raspberry Pi, every gadget can be controlled anywhere without associating legitimately with them. It is full with the probability of creating straightforward and easy to use Alexa Skills Kit and Amazon Web Services. Future undertakings for updating Smart Home frameworks should be possible to oblige enormous quantities of clients.

Nidhi Singh et al present savvy aide for controlling IoT gadget The propose of this paper is to structure and improvement of keen colleague control framework by utilizing bylnk application. This paper depicts the usage and arrangement of smart partners for household use as a blend of cloud organizing and mechanical controllers. This undertaking utilizes BNE application which uses cloud systems administration and remote correspondence connectors with the goal that the client has an assortment of phones, blended electrical applications and sensors, different data, stickiness, temperature, dampness, gas proportional.

Nidhi Singh et al present the voice controlled individual associate utilizing raspberry pi. The reason for this paper can fill numerous as the need of executing the voice direction framework as a canny individual partner. Right now client began the framework and utilized the amplifier to send it to the information. At that point clients get input and the PC is given it for additional handling, at that point the info volume is passed on to the Text converter, which switches the PC's sound knowledge material and instead analyzes and looks at the watchwords of that matter, pursues the text to organize the structure term and, when the catchphrase is organized, provides the necessary yield. This yield is structured in terms of substance and then modified to yield discourse utilizing discourse.

VetonKepuskaet al present the up and coming age of menial helper Microsoft cortana, apple siri, amazon alexa and google home. The purpose of this paper is to understand daily human and google discourse, machine for this reason multimodal is utilized. Multimodal exchange framework which procedure toe or more mix of For eg, consumer feedback modes, image, photo, touch, head and body creation to schedule and age VPAS model. This framework can support to wide scope of utilization, for example, business ventures, instruction, government, human services. Right now, Amazon Voice Service, likewise called Alexa isn't it Voice acknowledgment work just right now, however the cerebrums of a large number of apparatuses Amazon Eco - Smart Home Device has created Amazon utilizes the proposed Smart Home System Amazon Because of its voice acknowledgment framework and the estimation of proto composing, voice administrations. We have a general comprehension of individual associates. An individual (or operator) who can give explicit assistance with regards to given time and given activity. Othman et al After the different examination and writing overview, correspondence framework is one of the dynamic parts Companies use to plan and improve their new framework. As indicated by CMM Research, 2030, a huge number of individuals utilizing "voice" to communicate with the machine and to voice-have Smart telephones will become impact and bits of advanced mobile phones Specs, Home Centers, Kitchen Appliances, TVs, Game Console.

III. EXISTING SYSTEM
Existing framework built up an individual colleague for ordinary individuals which uses voice directions to control the framework and it can change over coherent record (like books) into editable content document. The existing systems are suffering the ill effects of the drawback that only predefined voices are feasible and that they can store restricted voices only. The company can't lucidly access the full details from now on.

IV. MATERIALS AND METHODS
Blind people can survive anywhere without others help. Inherit the OCR Technology and Open CV and combined it with facial recognition This can take less time to complete the task.

V. PROPOSED SYSTEM
The new structure is capable of overcoming the drawback of the existing system with the end target. Project setup requires debate content. Here whatever the structure gets as a input after the way the yield gets as debate implies expression. In the proposed framework, Processing of voice directions set aside long effort to execute given errand. With regards to subject of outwardly tested individuals caused them to feel much entangled. We
acquire the OCR innovation from existing framework and consolidated it with facial acknowledgment. It requires some investment to finish task when contrasted with existing framework.

**Figure 1. Architecture diagram**

Right now, Headphone and USB camera associated with Raspberry Pi. Here we are utilizing Google firebase constant distributed storage to store pictures. At the point when the framework distinguishes faces it can insinuate client by means of connected earphone and utilizations android portable to peruse books out loud.

**VI. METHODOLOGY**

**6.1. RASPBERRY PI**

The raspberry pi is a evolution of the little single board PC developed by the raspberry pi Project in the United Kingdom to promote the education in practical software development in schools and nation-building. The raspberry pi is slower than a state-of - the-art workstation or laptop and is nevertheless a true Linux PC that can have all the same functionality at low power utilization level.

**Figure 2. Raspberry Pi**

The raspberry pi is an insignificant exertion, visa assessed pc that interfaces with a PC or TV. It is a capable little gadget that gives capacity to people of all ages to investigate processing and to make sense of Learn to program Scratch and Python in Lingos. This can do anything you'd want a PC to do, from perusing the internet and enjoying first-class footage to spreadsheets, text processing and replay.

**6.2. CAMERA**

Web camera is a camcorder that feeds or streams its picture continuously, Webcams are known for their low assembling cost and their high adaptability, making them the least cost type of video communication. It will in general be used To take photos with high quality footage and, respectively, stills. This allows, and also captures, the display modes 1080p30, 720p60, and VGA90. It affixes on the Raspberry Pi by methods for a 15 cm trim link to the CSI tube.

**Figure 3. Pi camera**

**6.3. HEAD PHONE**

It is used to take signal information from the ear. This sound knowledge should be searched for watchwords as it goes on into the process. Such catchphrases are central to the working of the voice order system, as our modules chip away from the content of watchword scanning and yield by organizing catchphrases.

**VII. RESULT AND DISCUSSION**

Raspberry Pi Based Voice-Operated Personal Assistant. In this paper, it is discussed about design & development of an IOT system that includes Person Detection and Listening voice .It is based on use of Python code for the automation system.

**Figure 4. Output**

**VIII. CONCLUSION**

The Voice Command System takes a shot at the idea, and the logic for which it was designed. Our own companion makes use of the capture to accept an order. That of the instructions given to it is synchronized with the module names written in the code of the project. In the case that the address name fits From that stage, with some arrangement of catchphrases, the Voice
Command System shall carry out the arrangement of operations. The mission was effectively coordinated and analyzed from now on. Supported AI and the knowledge passed Investigation utilizing the google assistant api develops the ability of the partner to form a proactive and redundant consumer partnership. The suggested voice-worked human associate focused on raspberry pi gives more ease and effortlessness to the disabled individuals.

IX. REFERENCES


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