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Smart Pi Voice Controlled Personal Assistant

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Abstract *-- Smart pi voice controlled individual colleague, chips away at man-made brainpower which will help on client's voice direction as information dependent on which it will get to data from Wikipedia and other online sources and will give yield in an automated voice. It will take care of issue or to do errand continuously which improves human ability and profitability. We have additionally considered the security and observation which are the two critical angles in our framework, where it can likewise keep itself secure with the component of face location where it will enable just verified client to get to it. We are likewise concentrating on article recognition in our venture where it will assist the outwardly hindered people with identifying the items*

Keywords--- Artificial intelligence, Open CV and GTTs, Machine learning.

I. INTRODUCTION

In this day and age individuals are will in general use individual right hand for stimulation just as data (such as climate condition, news, and so on.) by giving directions according to assignment. As of not long-ago System presented in current innovation worldview incorporates voice acknowledgment to do commonplace errand for as a consistent wellspring of data throughout person's life. The from now on existing frameworks basically takes a shot at voice input given by client and can translate human discourse and reacts through blended voice. Clients can request that their associate control home computerization gadgets, media playback and oversee other essential assignments, for example, email, plan for the day, and date-books with verbal directions. The significant downside of existing colleagues is that they are not ready to retain the past discussions with the client which powers client to ask a similar thing over and over. With the expansion in database, outline emphasis is done which prompts moderate working of framework. Poor preparing won't permit to channel the outcome in time which can pester client. The proposed framework utilizes computerized reasoning on the stage of Machine Learning utilizing Raspberry-Pi, which will associate with client and will comprehend the undertaking by methods for voice correspondence, these assignments will be completed by means of Python language. This framework is verified through face location by means of Open CV.

II. LITERATURE SURVEY

The purpose of this paper is to illustrate the implementation of a Voice Command System as an Intelligent Personal Assistant (IPA) that can perform numerous tasks or services for an individual. These tasks or services are based on user input, location awareness, and the ability to access information from a variety of online sources [1]. The goal is to construct a model that can recognize the protest of indicated shading that make utilization of open source equipment and that chips away at the premise of visual information caught from an ordinary webcam which has a reasonable lucidity. Having a picture preparing calculation which distinguishes a protest first and after that tracks it the length of it is in the observable pathway of the camera [2]. This paper describes a simple and easy hardware implementation of face detection system using Raspberry Pi. The system is programmed using Python programming language. Both real time face detection and face detection from specific images, i.e. Object Recognition, is carried out and the proposed system is tested across various standard face databases, with and without noise and blurring effects [3]. Our aim is to build such a personal assistant that will make easy for blind to use computer and make task easier. To implement this, we are using java libraries and neural networks. Java libraries are used for speech recognition module whereas for learning ability we will use neural networks algorithms [4]. – The project aims to build an autonomous robot using raspberry pi as a processing chip. An HD camera is used to provide and detect the obstacle from the real world to the robot. The robot is capable of avoiding the obstacle occurring in its path using an obstacle detection algorithm and move in an obstacle free path [5].

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III. PROPOSED SYSTEM

The Raspberry pi based savvy Voice controlled help is highlighted with security utilizing face discovery as it gets opened when an approved individual stand before the camera. A capacity be called around then which will start the framework for discussion reason which incorporates discourse acknowledgment, discourse amalgamation, content extraction and the conveying it back to the client.

The discourse acknowledgment and amalgamation and substance extraction are finished by the PIP library in python and content to-discourse part is finished by Google text to speech converter. One of our primary difficulties is in the discourse acknowledgment part since client voice is the information and is to be identified legitimately utilizing discourse acknowledgment instrument. We will set some underlying directions for chatbot. When we will make inquiry to machine it will look through that question on web through the API which is given through python coding. Information will be given in voice structure and yield will be taken in voice structure. The most critical part in this procedure is bringing the data from API and giving the yield. Google content to discourse convert will be utilized for this procedure. Another component of this framework is object recognition which is done by catching pictures from camera module.

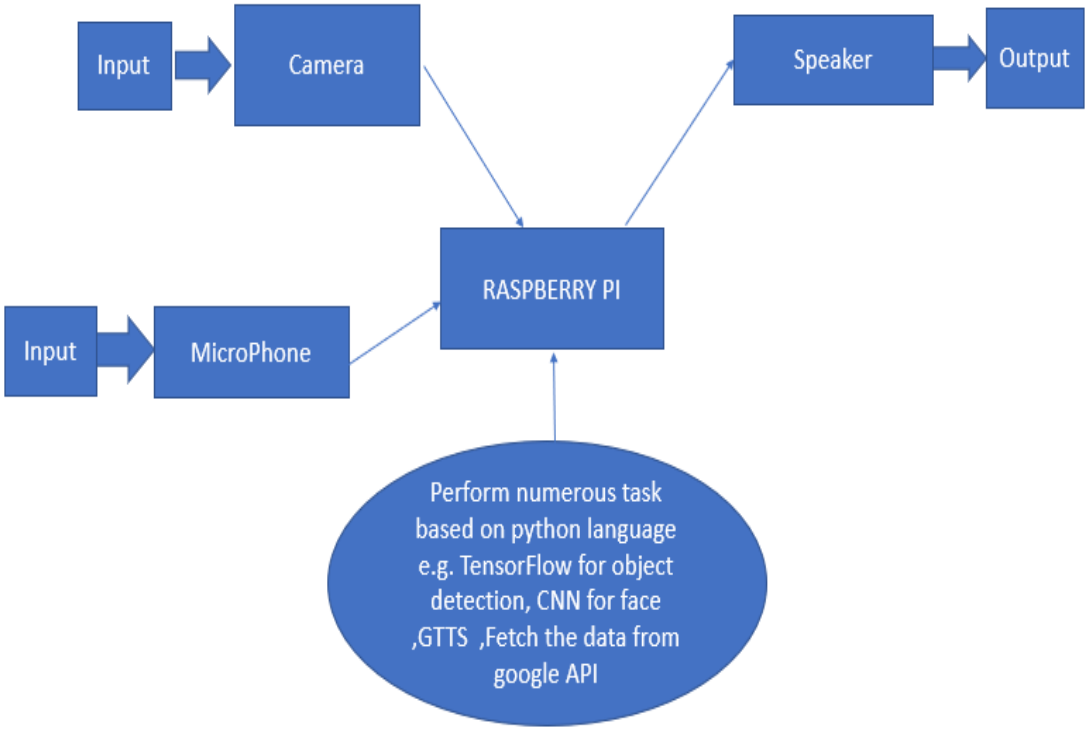

Fig 1. Block diagram of smart pi voice controlled personal assistant

Usage of item location is partitioned in two stages: a) Programming stage: Here we build up a program for article recognition in python language utilizing open cv library. b) Image preparing: (I) Object recognition: For recognizing the article we can give the item to the bot in two different ways initially direct by means of programing, second by camera. (ii) Feature extraction: After recognizing the item the assignment to be done is to separate the element. To separating the highlights the picture taken by camera module is changed from BGR to dark picture. By contrasting the testing information and preparing information result can be discovered. Article Detection utilizing highlight-based course classifiers is a compelling item and face discovery technique. It is a machine learning based methodology where a course work is prepared from a great deal of positive and negative pictures.

At first, the calculation needs a ton of positive (pictures of appearances) and negative (pictures without countenances) to prepare the classifier. At that point we have to extricate highlights from it. For this, highlights appeared underneath picture are utilized.

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They are much the same as our convolution part. Each element is a solitary esteem gotten by subtracting aggregate of pixels under white square shape from entirety of pixels under dark square shape. We select the highlights with least blunder rate, which implies they are the highlights that best characterizes the face and non-face pictures. Course classifier is utilized to apply the highlights on picture. The camera module is associated with raspberry pi utilizing flex link which is embedded into the connected among Ethernet and HDMI Ports, with the silver connectors confronting the HDMI port. As raspberry pi has its inbuilt Bluetooth gadget in it which is utilized to associate raspberry pi to Bluetooth speaker. Voice input is given through receiver.

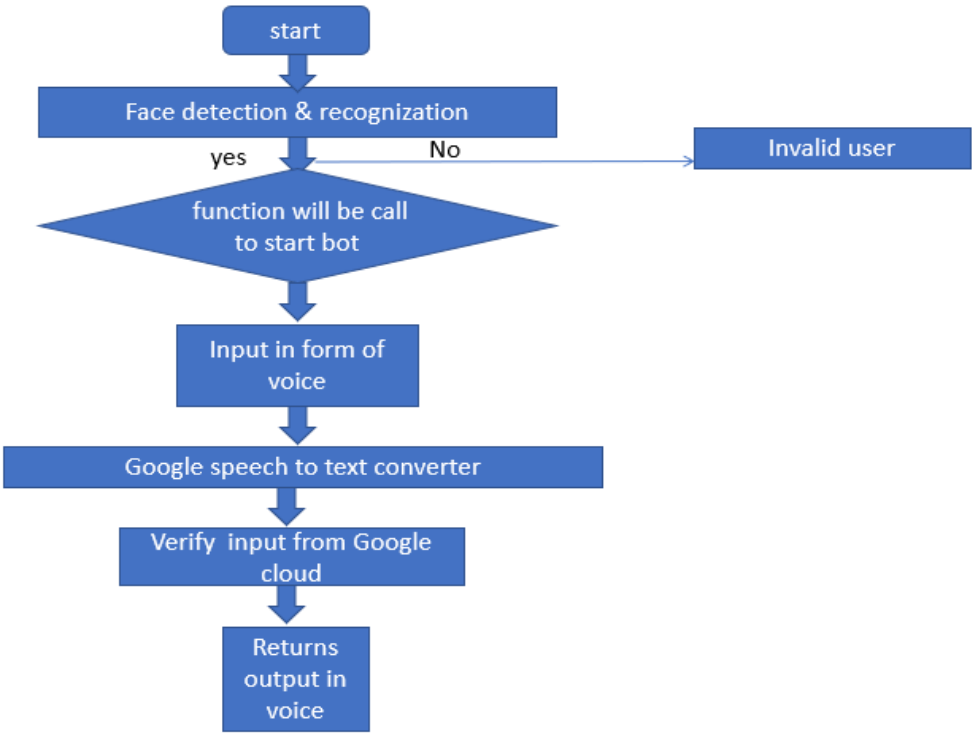

Fig 2. Flow chart

IV. RESULT

Fig.3 output

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first, we have booted raspberry pi with raspberries OS. Then we worked on voice to text conversion and vice versa which help our assistant to understand human voice and to process it. We did that with help of GTTS (google text to speech convertor). After that we worked on our core subject of project i.e. making a personal assistant which can interact with us through speech. We used python coding in to make that happen. If we want information about anything just for example say Sachin Tendulkar, then we have to say" tell me about Sachin Tendulkar" and our personal assistant will google that information and read first few lines from first link. If we want to play song, just name it. It can perform numerous tasks as personal assistant, as setting alarm, writing reminders, information about weather. We are making our personal assistant interactive with everyone means anyone can ask questions but only person can access to it. This means first face reorganization should be run by assistance, if it is authorized person then only person assistance will start or else not. For face detection we have already created database at back end. Also, we have involved image detection of particular which is still in process. We are thinking about some mechanical parts for bot which makes it attractive and moveable.

V. CONCLUSION

Since we are moving to the modern age where everything is now digitalized and we're associated with the web wherever we go so we need a right hand or PC to take the necessary steps for us. So, we present Smart pi voice controlled individual partner which will be intuitive and canny as the correspondence will be bi-directional that is from the product side just as it will likewise react back by addressing the client. Face and article identification are at present a functioning examination region. A portion of the more calculations are still excessively computationally shabby to be relevant for continuous handling. Different processors are costlier than Raspberry Pi alongside huge memory, precision and speed. Utilizing Python and Open CV in Raspberry Pi, made our venture adaptable.

REFERENCES

[1] Prof.Emad S. Othman, "Voice Controlled Personal Assistant Using Raspberry Pi", International Journal of Scientific & Engineering Research Volume 8, Issue 11 November-2017
[2] Onkar R. Kirpan, "Object Detection on Raspberry Pi", Department of Computer Science and Engineering, Rajiv Gandhi College of Engineering and Research 2017
[3] Divya Subramaniyan, "Personal assistant and intelligent home assistant via Artificial intelligence algorithms-(raspberry pi/pineapple) "International Journal of Research in Engineering & Technology, Vol. 4, Issue 6, Jun 2016, 9-14
[4] Mayuri Dahake," Implementation of Raspberry Pi for Human Face Detection & Recognition", Technical Research Paper Competition for Students (TRPCS-2K17)23 March 2017
[5] Aditya sinha," Intelligent Personal Assistant "International Journal of Informative & Futuristic Research, Volume 4, Issue 8, April 2017
[6] Mayuri Dahake," Implementation of Raspberry Pi for Human Face Detection & Recognition", Technical Research Paper Competition for Students (TRPCS-2K17)23 March 2017
[7] Rohan Killedar"Study of Voice Controlled Personal Assistant Device ", International Journal of Computer Trends and Technology (IJCTT) – Volume 42 Number 1 – December 2016
[8] Amos Azaria,"Intractable Intelligent Personal Agent ", Machine Learning Department, Carnegie Mellon University, Pittsburgh, PA 15213
[9] Gaurav J. Sawale,"Effective learning with intelligent personal assistant ", International Journal of Advance Research, Ideas and Innovations in Technology, Volume 4, Issue 3
[10] Shubham Oulkar," Voice Controlled Home Automation Using Raspberry Pi 3", scientific journal impact factor-3.605 by SGIF
[11] Sameera A. Abdul-kader," Survey on Chatbot Design Techniques in Speech Conversation Systems", International Journal of Advanced Computer Science and Applications Vol.6, no.7,2015