iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** V **Month of publication:** May 2021

DOI: https://doi.org/10.22214/ijraset.2021.34757

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue V May 2021- Available at www.ijraset.com

Intelligent Virtual Assistant - VISION

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Abstract: ***An Intelligent Virtual Assistant (IVA) or Intelligent Personal Assistant (IPA) is a software agent that can perform tasks or services for an individual based on commands or questions.***
In future all the electronic gadgets are operated by using virtual assistant which is anything but difficult to get to yet it needs in security. Project aims to provide security for virtual Assistant (VA) through facial recognition. The framework enables just approved users to access voice commands.
By this we can get protection and security for virtual assistant (VA). Users can ask their help addresses like time, date and climate and find solution to the inquiries.
This virtual assistant causes us to send email through voice commands and it also takes notes from voice commands with security. It gives access to the unapproved user to enlist with the required consent from the administrator. It is can exchange the pictures and documents just by using voice commands.
It will take photographs using camera when we use the fitting voice commands. Various users in a family can get access to the virtual Assistant by facial recognition module.
Keywords: Virtual Assistant, Personal Assistant, Facial Recognition, Voice Recognition, Security

I. INTRODUCTION

In Today's advanced crisp market for artificial intelligence could be a key unlocking the users of tomorrow. Man-made brain power is as of now all around the user.
Many depend on it every day as per Gartner about 38% of consumers have utilized virtual assistant benefits on their smart devices as of late numerous enterprises receiving AI to convey the logical conversational consistent and customized home administrations now is the ideal time to be natural and proactive.
Users like to associate with the machines using voice commands which are conceivable through the virtual assistant, gadgets for example, smart phones, smart TV' sand car navigation systems and so forth. The virtual assistants can support a wide scope for all users in business enterprises, education, government, medicinal services and diversion. The main organizations planned their own virtual assistants, for example, Microsoft's Cortana, Apple's Siri, Amazon's Alexa Samsung's Voice, and Google Text to speech, manufactured talking face and dialog management.
The virtual assistant is improved by giving Facial Recognition framework. The facial recognition framework for virtual assistant using AI strategies to detect and recognize faces.
They are two kinds of users like approved clients and unapproved users. The user stands before the camera which takes different pictures of the user. The captured pictures experience the face detection process. In this procedure it identifies faces in the picture sand enables access to the virtual assistant for the approved users.

II. LITERATURE REVIEW

Intelligent personal assistant (IPA) is a software agent performing tasks on behalf of an human or individual I based on commands or questions which are similar to chat bots.
They are also referred as Intelligent Virtual Assistant which interprets human speech and respond via synthesized voices. IPAs and IVAs finds their usage in various applications such as home automation, manage to-do tasks and media playback through voice. This project aims to propose speech recognition systems and dealing with creating a virtual personal assistant.
In future all the electronic gadgets are operated by using virtual assistant which is anything but difficult to get to yet it needs in security.
Project aims to provide security for virtual Assistant (VA) through facial recognition. The framework enables just approved users to access voice commands. By this we can get protection and security for virtual assistant (VA).

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III. SYSTEM ARCHITECTURE

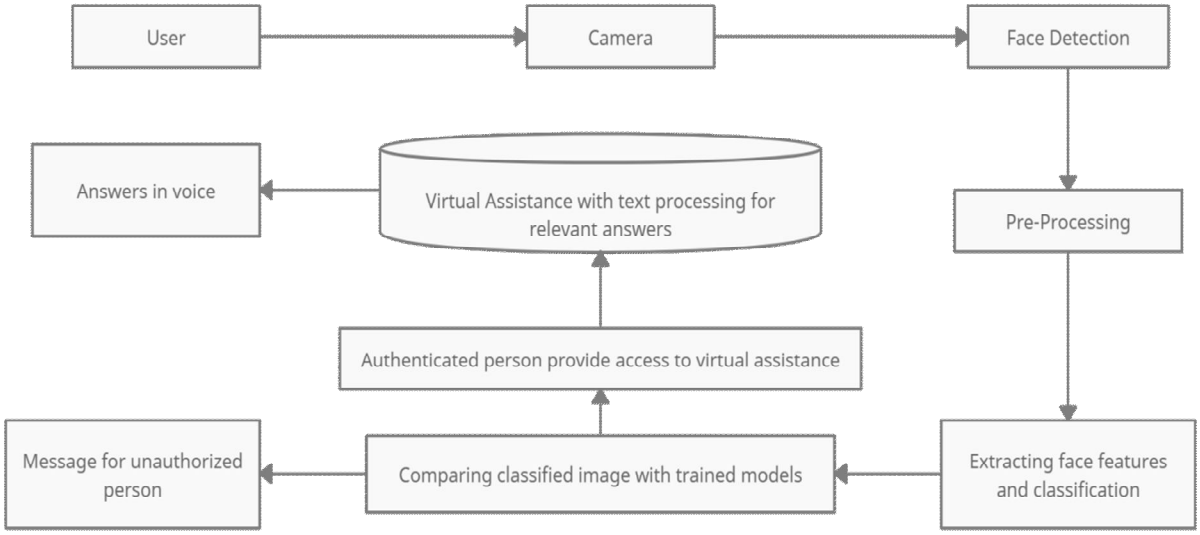

Fig.1 System Architecture

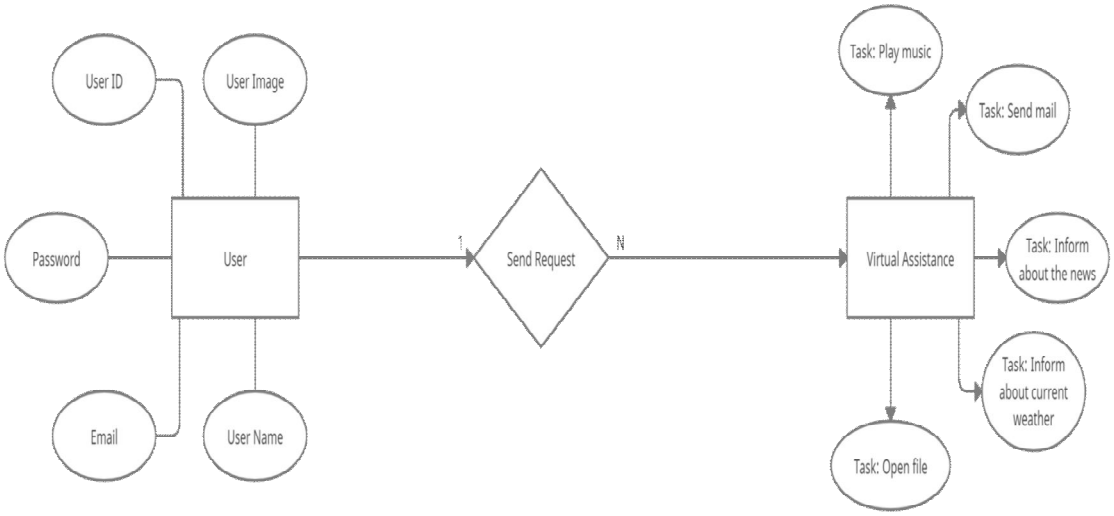

Fig.2 ER Diagram

A. Front End

Python provides various options for developing graphical user interfaces (GUIs). Most important are listed below.

1) *Tkinter:* Tkinter is the Python interface to the Tk GUI toolkit shipped with Python. We would look this option in this chapter.
2) *wxPython:*This is an open-source Python interface for wxWindows.
3) *JPython:* JPython is a Python port for Java which gives Python scripts seamless access to Java class libraries on the local machine.

There are many other interfaces available, which you can find them on the net.

Why we use Tkinter?

Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit.

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B. Back End

As we know Python is a suitable language for script writers and developers. Python can also write a script for Voice Assistant using Python. The query for the assistant can be manipulated as per the user's need.

Speech recognition is the process of converting audio into text. This is commonly used in voice assistants like Alexa, Siri, etc. Python provides an API called SpeechRecognition to allow us to convert audio into text for further processing. In this article, we will look at converting large or long audio files into text using the SpeechRecognition API in python.

The main objective of this project is to build a safe and secure Virtual Assistant. Face recognition is used for user authentication. It is developed using the OpenCV library which uses computer vision for face recognition. OpenCV is developed in many languages but here we are using Python for developing the face recognition module.

The user can register his face. A trainer is used to train these faces and finally when the camera detects a face which will compare it with the list of faces. So only the authenticated individuals can use the personal assistant. The incorporation of face recognition works in a similar way of a security system. Hence making the user's VA safe and secure from theft and intruders. The whole system is developed using the Python programming language. Python provides a ton of libraries that can be used to make programming more simple and efficient.

IV. PROPOSED METHODOLOGY

We have created a Desktop Virtual Assistant for Windows OS Users. Anyone using Windows 7 or above can use this virtual assistant.

So the System Components & its Uses and Info are as follows:

A. Face Detection

For Face detection we use Haar Cascade algorithm which involves in the following steps:

1) In the Haar Cascade algorithm is based on Cascade classifiers which consists of Haar features which are in Haar file helps for the detection of the face.

2) The cascade classifiers are the combination of asset of weak classifiers used to create a strong classifier.

B. Recognize Face

1) This involves in two parts. They are Creating Face Recognizer and to use Face Recognizer on the camera stream.

2) Part1: This involves in training the images in which are stored in the datasets. Create two lists which consist of images and their corresponding names. Loop the image and their id for each and every subdirectory in the dataset. Then create a numpy array common for both the lists. OpenCv helps to train models for images with respective their id using train function.

3) Part 2: In this the Face Recognizer helps to recognize the face on camera stream. First it will detect the face in front of the camera using haar file. The detected face is converted into black and white image. Use gray and resize functions for modification of the captured image.

4) The trained model gives the prediction value for the captured image the minimum limit of the prediction value is five hundred. If the prediction value is less than five hundred then the person is authenticated else the person is unauthenticated.

C. Get Access to Voice Command

If the person is authenticated then he or she will get access to voice commands. This voice commands are revived via microphone. The system microphone is automatically connected to the virtual assistant. The received data through attachment was examined through conditions given and offer response to the regarded individual.

V. CONCLUSION

This project will help to demonstrate that virtual assistant is attacked by third party and gives a solution to the problem. In this the virtual assistant is improvised with Facial Recognition. The facial recognition system for virtual assistant using Machine learning strategies to detect and recognize faces. After recognizing the face, the users can access the virtual assistant. If the person is third party then it will say unauthenticated person. The unauthenticated person can get access to virtual assistance with administer permission. This Assistance can send email and take notes of some personal information only for the authorized person it also says some general information like time, date and weather.

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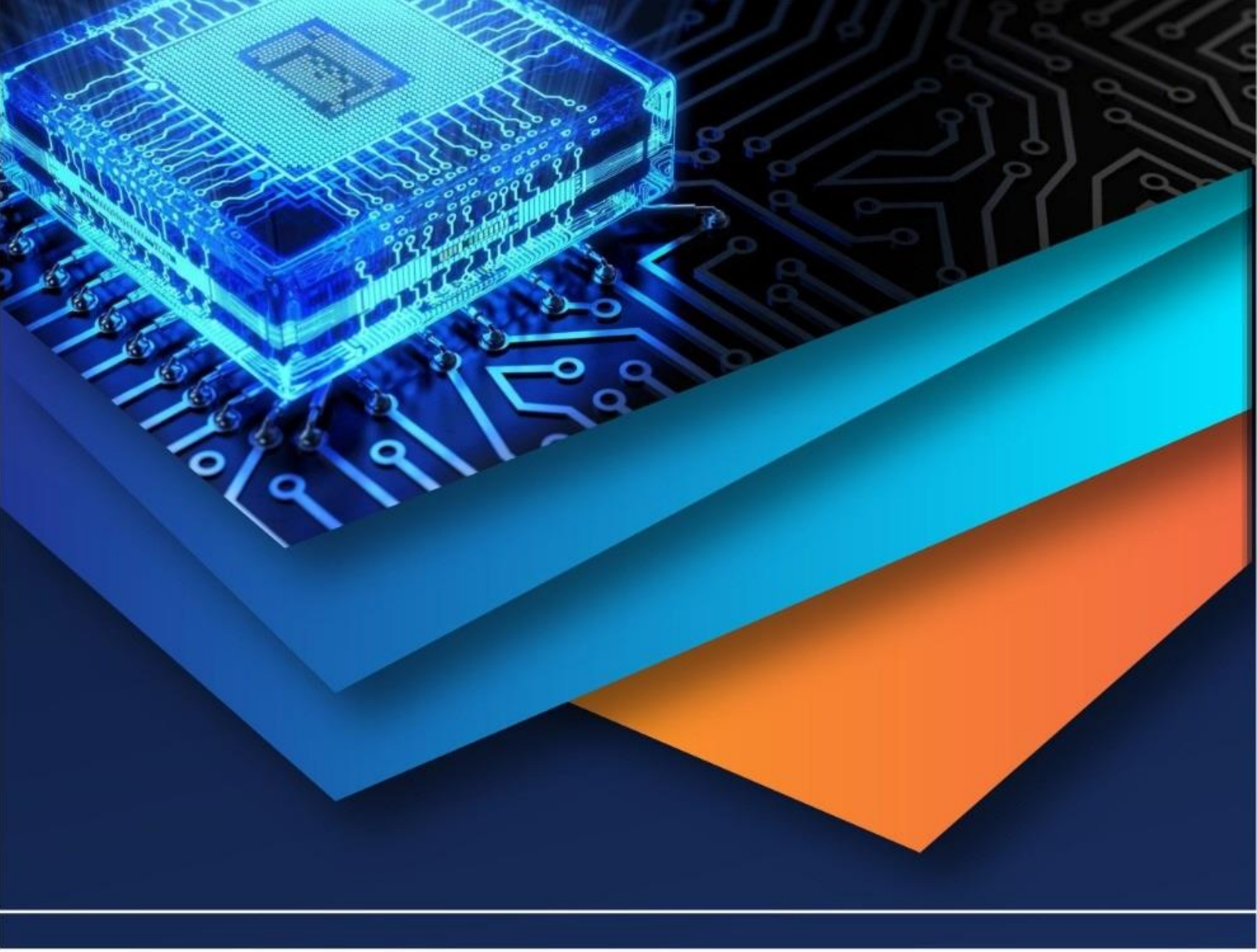

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