

VIRTUAL GYM ASSISTANT

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Abstract - Everything in the twenty-first century is automated, including items we use every day like bus doors, air conditioning system, and turning everything on with a single click, among other things. The current study provides a newer notion of voice-controlled gadget that detects one's speech, processes the request, and details of other associated information in this fast-paced environment. We need to develop gadget with built-in speech recognition that can recognize a person's speech even in a crowded environment as well as a facial recognition system. We thought making a Digital Gym assistant in python would be fun. The device will take sounds through the device's microphone, process the human's query which is related to workout, and respond to the human with the necessary results. For example, if you ask the gadget to how can i lose weight then it will tell you tips and method. Another example, if you ask the gadget about any workout, then it will tell you all this details, proper form of workout, advantages etc. The Python Speech Recognition module can be used to do speech recognition. Because of its high quality, we use the Google Speech API.

1. INTRODUCTION

The concept of a smart assistant has become widely known and popular over the last decade. Commercial devices such as Amazon Alexa, Google Home, and Mycroft can interact with users through speech recognition and synthesis, provide a variety of network-based services, and can interface with smart home automation systems, providing them with an advanced user interface. The availability of a large number of network services and an increasing number of additional skills, or capabilities that can be easily added to smart assistants is driving the spread of such speech-enabled smart assistants. Their potential is still limited, however, by their inability to extract real-time visual information from video data, either concerning the user or the environment Spoken dialogue systems are intelligent agents that can assist users in completing tasks more efficiently through spoken interactions. Personal assistants, also known as virtual personal assistants, intelligent personal assistants, digital personal assistants, or voice assistants, are devices that help people. Personal assistant agents are a new type of software that acts on the user's behalf to find and filter information, negotiate for services, easily automate complex tasks, and collaborate with other software agents to solve complex problems. If the laptop/desktop has the ability to learn and adapt to the user's behavior, this can be developed.

The laptop/desktop must collect training data from a user's daily activities and apply machine learning techniques to the data. The model is created would be able to all your health and fitness needs. The diet and fitness section gives information about how you can control your daily diet, and how you can workout and exercise to lead a healthier, better and well-rounded lifestyle. The goal of this system is to provide a personal trainer which suggests a diet plan and workout plan for a particular type of training that is selected.

2. MOTIVATION

There are large amount of applications or model for workout, weight and diet management. Although, applications or model for these management are not experimented and checked in many contents as well as there is no support for accuracy. Efficiency, improvements, quality are important in their own aspects. There are handsome, less, few amount of examples of food systems and diet systems that provide to the users nutritional information about proper diet and proper workout plan. We propose Virtual Gym Assistant, a recommender system to improve the quality of life of obese people, healthy people and individuals affected by chronic diet-related diseases. The proposed system is able to build a user's health profile, and provides individualized nutritional recommendation according to the health profile as well as list of exercises to be done in order to lead a healthier life.

Most people lack the knowledge on how to get a good workout. Going to gym frequently, people don't have any support and the information to get proper results. Virtual Gym Assistant, will get a customized workout with a clear focus on users goals and results. It pairs the user with a Personal Trainer that is made using machine learning along with diet and workout sessions to be carried out. There is very few gyms in world which is digital gym and it is touch screen type not voice type. So, our main goal is make normal gym to digital gym.

The main goal is to improve the efficiency of the Virtual Gym Assistant application by giving the agent the ability to learn. Because the agent typically performs a large number of repetitive activities, previous experiences can be applied to similar future scenarios. We propose a learn-by-doing agent that will aid the user in completing tasks. The task at hand is to manage the user's desktop or laptop

profile. Every user has a daily schedule that requires them to place their desktop or laptop at a distance for a period of time.

3. LITERATURE SURVEY

There have been some significant advancements or innovations in the field of virtual Gym assistants or virtual assistance with speech recognition. This is primarily due to its popularity in devices such as smart watches or fitness bands, speakers, bluetooth, earphones, mobile phones, laptops or desktop computers, televisions, and so on. Almost all digital devices on the market today include voice assistants that allow users to control the device solely through speech recognition. A new set of techniques is constantly being developed to improve the performance of voice automated search. As the amount of data increases exponentially, now known as Big Data, the best way to improve the results of virtual Gym Assistants is to incorporate machine learning into our assistants and train our devices based on their uses. Other major techniques that are equally important include Artificial Intelligence, the Internet of Things, Big Data access and management, and so forth. We can easily automate the task with the use of voice assistants; simply provide the input to the machine in the form of speech, and it will perform all of the tasks, from converting your speech into text form to extracting keywords from that text and executing the query to return results to the user.

Artificial Intelligence is a subset of Machine Learning. This has become one of the most beneficial technological advances. We were the ones who upgraded technology prior to AI. Perform a mission, but now the computer is capable of counteracting new tasks. And solve it without the need for humans to be involved in the evolution process. This has proven to be beneficial in everyday life. These assistants are in high demand for automating tasks and growing productivity in everything from cell phones to personal computers to technical industries.



4. SYSTEM ARCHITECTURE

```
import speech_recognition as sr
import datetime
import wikipedia
import pyttsx3
import webbrowser
import random
import os
```

Modules imported:-

- Speech_recognition** : - The speech recognition module made use of the Google Speech Recognition API, which can be imported into Python with the command "import speech recognition as sr." This module is used to recognize the voice inquiry that the user has provided as input. This is a Google-provided and supported API that is available for free. This is a small API that aids in the compression of our application.
- Datetime** : - To support date and time formats, the date and time module was imported. The Datetime module contains classes for manipulating dates and times. These classes offer a variety of capabilities for working with dates, times, and time intervals. In Python, date and datetime are objects. The user may, for example, want to know the current date and time or schedule a task for a specific time. In short this module supports classes to manipulate date and time and perform operations according to it only.
- Pyttsx3** : - The pywhatkit module is a Python module. It is in charge of playing everything you wish to search for on YouTube. For example, if a user wants to play a song from YouTube, they can say "play song ms dhoni" and the song will be played immediately.
- Web Browser** : - This module enables the system to show information from the internet. It is a Python built-in module that provides every assistance to the user in obtaining information from the internet. For example, if a user says "open youtube," the query is processed through the webbroser module, and youtube is opened.
- Random** : - The random module is a built-in module that is used to produce pseudo-random variables. It may be used to do random actions such as generating a random integer, picking random elements from a list, and shuffling elements at random. As an example, import random random.seed(2)

• **OS** : - The OS module in Python provides functions for communicate with the operating system. OS comes under Python’s standard utility modules. This module provides a portable way of using os-dependent functionality. The *os* and *os.path* modules include many functions to interact with the file system. For example if you want to current directory: os.getcwd () If you want open some application simple you do this: os.startfile (adobe.exe)

5. PROPOSED SYSTEM ARCHITECTURE

While working on data-intensive apps, I frequently run across input/output (I/O) issues, which are the bottleneck for any performance-critical programme. With the growing number of data stored, it is necessary to store data on discs in order to compensate for a lack of RAM by loading data from disc to RAM and vice versa. When it comes to processing financial data or other scientific data, I/O activities are therefore critical. Python provides built-in facilities for storing objects on disc and reading them from disc into RAM. As a result, Python is capable of handling both text files and SQL databases. The Pandas library includes many classes and methods for reading and writing files in a variety of formats.

6. METHODOLOGY

This system works using various modules listed below. Refer fig. 1.0 given below shows various modules in the system and the relationship that exists between them.

1. User - This module of the system describes the different views the system will provide. As shown in there will be two views. They are:

a) Registered User - This view will be provided by the system to the authenticated user who has successfully registered into the system. Only the registered user will be allowed to experience further functionality (i.e to obtain customized diet plan and workout routine) of the system. Moreover registered user can also use different health and fitness calculating tools like food fat calculator, BMI calculator, daily protein requirement calculator etc

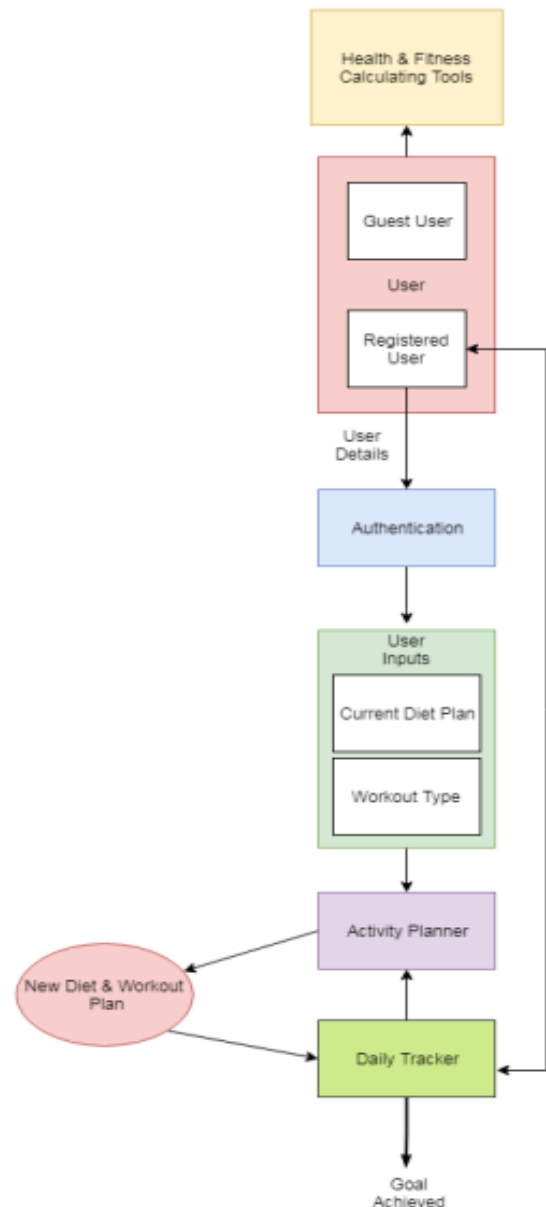
b) Guest User - This view will be provided by the system to the guest user. Guest user can use different health and fitness tools, but cannot use other important functionality of the system.

2. Authentication – This module deals with authenticating and verifying whether the user is registered user or not. The user gets to user other privileges once successfully authenticated.

3. User Input – This module of the system deals with taking inputs from the user. The users have to enter their current diet routine and the workout type they want along

with some basic user information like height, weight, disease/disorder etc.

4. Activity Planner - This module receives the input from user input module. This basically comprises of machine learning algorithm which are trained using the training data provided and verified by various dieticians and gym trainers.



7. FUTURE SCOPE

Virtual Gym Assistants or Virtual Assistant are now available and are quick and responsive, but there is still a long way to go. The current systems' understanding and reliability need to be greatly enhanced. In crucial situations, the helpers available now are still unreliable. Virtual Gym

Assistants will be merged with Artificial Intelligence, such as Machine Learning, Neural Networks, and IoT, in the future of these assistants. We will be able to reach new heights by incorporating these technology. What virtual assistants can accomplish is far beyond what we have accomplished thus far. Although Jarvis, a voice-activated virtual assistant created by Iron Man, is fictional, it has set new expectations for what we can achieve with voice-activated virtual assistants.

8. CONCLUSION

The Virtual Gym Assistant will help each user get started on the right track by first evaluating them and determining baseline fitness levels. This information is important to better design a customized workout for each user. To create a System which will accept the parameters as mentioned in the definition, goals, methodology provided in this paper. Machine Learning algorithm will evaluate the data and it predict appropriate workout and diet plan as per the inputs provided by the user. The correct schedule is then returned to the System which is seen by the user as a workout plan and diet routine to be followed in order to achieve his goal.

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