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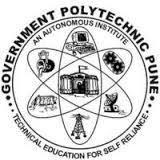
**Seminar Report**

**On**

**Personal AI Assistant**

**By**

**Shubhankar Karajkhede– 1903030**

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**DEPARTMENT OF ELECTRONICS AND**

**TELECOMMUNICATION ENGINEERING**

**GOVERNMENT POLYTECHNIC, PUNE**

Ganesh Khind, Shivaji Nagar, Pune-16

**Academic Year 2021-2022**

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**Seminar Report**

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**In partial fulfilment of requirements for the Diploma in**

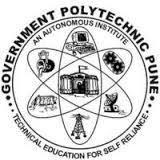
**ELECTRONICS AND**

**TELECOMMUNICATION ENGINEERING**

**SUBMITTED BY:**

**Shubhankar Karajkhede 1903030**

**Under the Guidance of**

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**DEPARTMENT OF ELECTRONICS AND**

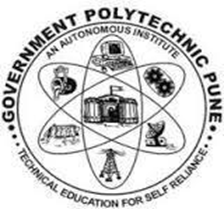
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**-CERTIFICATE-**

Certified that seminar work entitled **“Personal AI Assist”** is a bonafide  work carried out in the fifth semester by **“Shubhankar Karajkehde 1903030”** in partial fulfilment  for the award of Diploma in Electronics and Telecommunication Engineering from Government  Polytechnic Pune, during the academic year 2020- 2021

**Ms. Pallavi Lengare                                                     Dr. Narote**

Signature and Name of the Signature of  HOD

Guide   
Date: ………………………                              Date:………………………

**ACKNOWLEDGEMENT**

We are over helmed in all humbleness and gratefulness to acknowledge our depth to all those who have helped us to put these ideas, well above the level of simplicity and into something concrete.

We would like to express our special thanks of gratitude to our guide Mrs.Pallavli Lengare Ma’am as well as our principal who gave us the golden opportunity to do this wonderful seminar on the topic (Personal AI Assistant), which also helped us in doing a lot of Research and we came to know about so many new things. I am really thankful to them.

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**ABSTRACT**

The justiﬁcation of an algorithm’s outcomes is important in many domains and in particular in the law. However, previous research has shown that machine learning systems can make the right decisions for the wrong reasons: despite

High accuracies, not all of the conditions that deﬁne the domain of the training data are learned.

In this study, we investigate what the system does learn, using state-of-the-art explainable AI techniques. With the use of SHAP and LIME, we are able to show which features impact the decision making process and how the impact

Changes with different distributions of the training data. However, our results also show that even high accuracy and good relevant feature detection are no guarantee for a sound rationale.

Hence these state-of-the-art explainable AI techniques can-not be used to fully expose unsound rationales, further advocating the need for a separate method for rationale evaluation.

**INTRODUCTION**

AI assist is program like Google or Amazon that is capable of listening; Searching and follow the command.AI assistant or digital assistant, is an application program that understands natural language voice commands and completes tasks for the user.

A simple AI assist is one of the most common software used in any mobile or PC.Many state-of-the-art AI systems, however, are black-box systems that reason with-out transparency. As long as they cannot explain their decision making, they are inherently unsuitable in the context of AI & law. This is unfortunate, as the performance of in particular deep learning systems is often second to none when it comes to tasks such as image, speech or text classiﬁcation.

The subﬁeld of Explainable AI (XAI) aims to bridge the gap that black-box machine learning systems have created, by providing explanations for these opaque systems. We are introducing the basic concepts of AI assist.

**PROBLEM STATEMENT**

Unlike the name, artificial intelligence is not complicated as it is expressed by many. The only fact according to the study from CompTIA found surprisingly low awareness of the technology among US business and IT executives about the term AI only 58% of the total survey members knew about it which surprising. AI can be very helpful the in future generations as it can be the future of the automation sector of many industries. Our aim in this project is to build our personal AI assistant by some simple python knowledge which will perform some daily life acitivies.

**PROJECT MOTIVATION**

> Daily working schedule of every human being is getting tight day-by-day. The daily task which we perform like every day are increasing. Besides this we all need some time for our other things.

> So the basic idea of the Personal AI assistant is to do these daily tasks for us.

> By a single click we can automate many of our daily tasks like sending emails, what’s-app messages, listening songs, opening websites like MIS, YouTube, Google, etc.

> We can also say that we got motivation from the movies like Chappie, Iron-Man, books like life 3.0 which simply are the basically based on the fiction and fun but the concepts in them are now possible with modern technology

> So, we tried to work on this project under the guidance of our expert college faculty to make a AI PERSONAL ASSISTANT.

**AIMS AND OBJECTIVES**

The basic objective of AI (also called heuristic programming, machine intelligence, or the simulation of cognitive behaviour) is to enable computers to perform such intellectual tasks as decision making, problem solving, perception, understanding human communication (in any language, and translate among them), and the like.

Proof of this objective is the blind test suggested by Alan Turing in the 1930s: if an observer who cannot see the actors (computer and human) cannot tell the difference between them, the objective is satisfied.

**LITERATURE SURVEY**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr.No | Reference Name (Write Paper Title)/Publication Year | Seed Idea/ Work description | Problems found | Any other criteria |
| 1. | Artificial intelligence that understands object relationships  November 29, 2021 | A new machine-learning model could enable robots to understand interactions in the world in the way humans do.  How AI can recognize the shapes and its respective colours | ---------- | ------ |
| 2. | Mind-controlled robots now one step closer | Researchers teamed up to develop a machine-learning program that can be connected to a human brain and used to command a robot. The program adjusts the robot's movements based on electrical signals from the brain. The hope is that with this invention, tetraplegic patients will be able to carry out more day-to-day activities on their own. | Complex Algorithm for thoughts control | Mind controlled wheel chair for proposed by this initiative |

**THEORY**

*Wikipedia*

*Songs*

*Emails*

*Web Surfing*

Above mentioned are some daily tasks which a college student will probably perform every day. Besides this there are many things we usually do in our day-to-day life which can be automated to save our time. The AI can be the solution for this whole mess of daily routine.

**1. Voice setup and voice recognition**:

The basic thing AI can do is to speak. If it does not respond to our command how it will be any use for use?

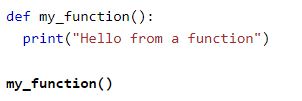
To do so, we have a feature in nearly all our computer system which is named as ‘Sapi5’. The Speech Application Programming Interface or SAPI is an API developed by Microsoft to allow the use of speech recognition and speech synthesis within Windows applications.

We have used a sapi voice named ‘Anna’ which is a female voice and it’s a very suitable for the speak function. By the use of pyttsx3 module in python we have used this voice for text to speech purpose.

Voice or speaker recognition is the ability of a machine or program to receive and interpret dictation or to understand and carry out spoken commands. ... Voice recognition systems enable consumers to interact with technology simply by speaking to it, enabling hands-free requests, reminders and other simple tasks.

**2. Function definition:**

For the AI we have to assign all the function which we want to carry out. The syntax for defining functions is explained by the following example:



We have different functions like wishMe, speak,takeCommand, Date\_Time, send\_mail,read\_mail,Wikipedia,switch,etc which perfroms specific task.

1. wishMe = Greet user and tells about itself
2. Speak = Simply speaks argument which will be provided as a string through a variable called query.
3. takeCommand = Recognizes the command said by the user and converts it into a text format(string).
4. Date\_Time = Tell the user current date and time
5. Send\_mail = Send an email to the particular mail ID said by the user along with message.
6. Read\_mail = Reads the mail inbox the user
7. Wikipedia = Gives information about anything asked by user from the Wikipedia
8. Switch = Allows arduino to turn on and off any electronic device(ex. Turning on lights)

**3. User input and accurate response:**

All the functions defined above are set in the way that they will behave like two way conversation where the user will pass a query like **‘Turn on the lights please’** and in response AI will respond like **‘TURNING On lights!’** and will carry out the task of turning on lights.

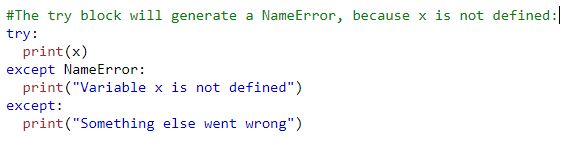
User must say the query otherwise program wouldn’t get any command which will be applicable for the functions. Also the defined functions will be carried out and other will get a specific response otherwise it will throw an error and who wants their assistant with errors!

Each time the program will listen and recognize the query correctly. By any means it fails to recognizing the query AI shouldn’t stop instead it will ask user to say the query again.

**4. Error Handling**

Error handling is the most crucial part of any code. In this project error handling is the most important part as we don’t want our AI to throw any irrelevant errors which will stop our code in between two functions or loops.

To avoid this we can simply use the try and except which are used specially for handling error. The syntax and explanation will be clear by the following example

****

**5. Final Result:**

Finally the user get their command execute perfectly. The AI assistant can do anything which we defined earlier in the functions. Also with the help of arduino uno its abilities are extend beyond the expectations as it can easily control the household electronic devices. Errors can be headache for sometimes but in which way we handle the errors will improvise the code which will directly give the user best experience of personal AI assistant.

**H/W, S/W REQUIREMENTS & SPECIFICATIONS**

1. Arduino uno:

Arduino is an open source electronic platform based on easy to use hardware and software. Arduino boards are able to read input such as light on sensor, finger  on button and turn it into an output like activating a motor, turning on an LED etc.Arduino is the single board microcontroller and the software used for Arduino is Arduino IDE.

1. Relay board:

Relay boards are computer boards with an array of relays and switches. They have input and output terminals and are designed to control the voltage supply. Relay boards provide independently programmable, real-time control for each of several onboard relay channels. Relay boards with opto-isolators provide isolation between control signals and output controls.  Most relay boards have 2, 4, 8 or 10 channels.

1. Python :

Python is the core of this project as it is main coding language of the project. Also libraries like Wikipedia, date time, speech recognition, email, OS, web-browser, firmata, etc. helps a lot by reducing the coding efforts.AI cannot perform something unless we said to it. In other words we need to create the output for every possible input like fetching info, household light switching, sending mails, etc. To control the arduino using python is a tough thing to do but by this we can nearly control every electronic device which come under (220v 10A) ratings.

**ADVANTAGES AND LIMITATIONS**

**Advantages of our Project are:**

* AI is making it easier for people to do things every day, whether it's searching for photos of loved ones, breaking down language barriers in Google Translate, typing emails and more.
* AI is powering many inventions in almost every domain which will help humans solve the majority of complex problems.
* Using artificial intelligence we can productively automate these mundane tasks and can even remove “boring” tasks for humans
* using AI we can make machines work 24x7 without any breaks

**Limitations:**

## 1.  No one-size-fits-all solution

## 2.  Requires Supervision

## 3.  Can't Think for Itself

## 4. Cost and Maintenance

## **5. Lack of Creativity.**

**CONCLUSION**

Al is at the centre of a new enterprise to build computational models of intelligence. This small prototype with some advance modifications and proper guidelines can be turned out to very successful product because in the field of artificial intelligence 'sky is the only limit'

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