

# **AI ASSISTANT**

**Project submitted in the  
fulfilment**

**Of**

**Elective IV - Artificial Intelligence**

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**Aim:** To study on Artificial Intelligence based Project and give brief about AI project.

### **Theory:**

#### **a. Benefits of Artificial Intelligence**

Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to think and act like humans. AI makes it possible for machines to learn from experience, adjust to new inputs and perform human like tasks. It is basically automation of intelligent behavior. It is becoming very important in today's time as it can solve complex problems in an efficient manner. It makes our life comfortable and fast.

Some of the applications of AI are:-

- E-Commerce-Personalized Shopping, AI assistant and Fraud Prevention
- Navigation
- Robotics
- Gaming
- Agriculture
- Healthcare
- Space Exploration
- Automobile, and many more...

Benefits of Artificial Intelligence are as follows:-

1. Artificial intelligence can benefit the economy by enhancing the capabilities of doing tasks. The combination of man and machine will be unstoppable. With deep learning and machine learning techniques AI has become faster and smarter which will increase the business efficiency and productivity.
2. Artificial intelligence enhances users' lifestyle choices by using search algorithms that provide targeted information. AI will handle all mundane tasks, such as data entry and answering emails. AI-powered smart homes can cut down on energy use and provide better security. Artificial intelligence can significantly expand human creativity by handling tedious tasks. People will have more time to learn, experiment and explore.
3. Developing AI technologies has led to Automation. Automation not only leads to higher production rates and increased productivity but also allows more efficient use of raw materials, improved product quality, reduced lead time and safety in industrial sectors. Automation can also help to free resources that can be used for more important things.
4. AI in business not only helps company make critical decisions but also prepares for emergency situations as risk management heavily relies on data management and analysis in today's time. AI and machine learning can help to plan out a speedy disaster recovery strategy.
5. AI powered robotic process automation tools can automate interactions between different business systems which will in turn help to manage the repetitive tasks (which if not taken care of can be time consuming and can lead to lower efficiency.)
6. AI-powered solutions can help businesses to respond to customer queries and grievances 24/7 and address the situations efficiently with the help of chatbots and AI assistants using natural language processing. It also helps to reduce the strain from customer service staff thereby increasing their productivity.
7. With the help of machine learning and deep learning techniques it can be used to solve complex issues like fraud detection and pattern recognition to medical diagnosis.

Some of the other small scale benefits are as follows:-

- ✓ Saves time and money by automating and optimising routine processes and tasks
- ✓ Make faster business decisions based on outputs from cognitive technologies
- ✓ Avoid mistakes and 'human error' as the machine learns from its input or any previous experience
- ✓ Use insight to predict customer preferences and give them recommendations based on these preferences

## **b. Role of AI in various domain**

Role of AI in various domains are as follows:-

- 1) E-Commerce- AI is reshaping how business carry out their digital marketing activities. Success in an online business depends on the type of marketing strategy used. The marketing strategy evolves with user perceptive. One of the most helpful ways that AI is transforming business is in managing digital assets for E-commerce businesses. AI can help in optimizing the E-Commerce site. The user experience can be enhanced with the help of AI technology.

Some of the aspects are as follows:-

- Personalized Shopping Experience -Personalizing e-commerce website with user preference which enhances the user engagement with the platform. To give personalized experience AI collects and tracks the user's online activities and identifies their likes.
  - Chatbots can assist the customer queries and provide better user experience
  - Product Recommendations-With the help of AI technology the purchase, search history and browsing activities of users are learnt and with this understanding , recommendations and offers are crafted according to different users which takes them to the respective e-commerce sites to buy their favorite products.
  - AI can also help in generating catchy subject lines for e-commerce marketing strategy
- 2) Healthcare- AI is becoming more advantageous for the healthcare industry in the recent years and is going to have a significant impact on this industry. Healthcare Industries are applying AI to make a better and faster diagnosis than humans. It can help doctors with diagnoses and can inform when patients are worsening so that medical help can reach to the patient before hospitalization.
  - 3) Gaming-AI can be used for gaming purpose. The AI machines can play strategic games like chess, where the machine needs to think of a large number of possible places.
  - 4) Finance-The finance industry is implementing automation, chatbot, adaptive intelligence, algorithm trading, and machine learning into financial processes.
  - 5) Data Security- The security of data is crucial for every company and cyber-attacks are growing very rapidly in the digital world. AI can be used to keep the data more safe and secure. Also with the help of AI techniques fraud detection, image and pattern recognition can be implemented.

- 6) Transport- AI is capable of doing various travel related works such as from making travel arrangement to suggesting the hotels, flights, and best routes to the customers. Travel industries are using AI-powered chatbots which can make human-like interaction with customers for better and fast response.
- 7) Automotive Industry-Some Automotive industries are using AI to provide virtual assistant to their user for better performance. Such as Tesla has introduced TeslaBot, an intelligent virtual assistant.  
Various Industries are currently working for developing self-driven cars which can make the journey more safe and secure.
- 8) Robotics- Artificial Intelligence has a remarkable role in Robotics. Usually, general robots are programmed such that they can perform some repetitive task, but with the help of AI, we can create intelligent robots which can perform tasks with their own experiences without pre-programmed. Humanoid Robots are best examples for AI in robotics.
- 9) Entertainment-We are currently using some AI based applications in our daily life with some entertainment services such as Netflix or Amazon. With the help of ML/AI algorithms, these services show the recommendations for programs or shows.
- 10) Education-AI can automate grading so that the tutor can have more time to teach. It is also implemented in online proctoring so that the examinations can be fair. AI chatbot can communicate with students as a teaching assistant.

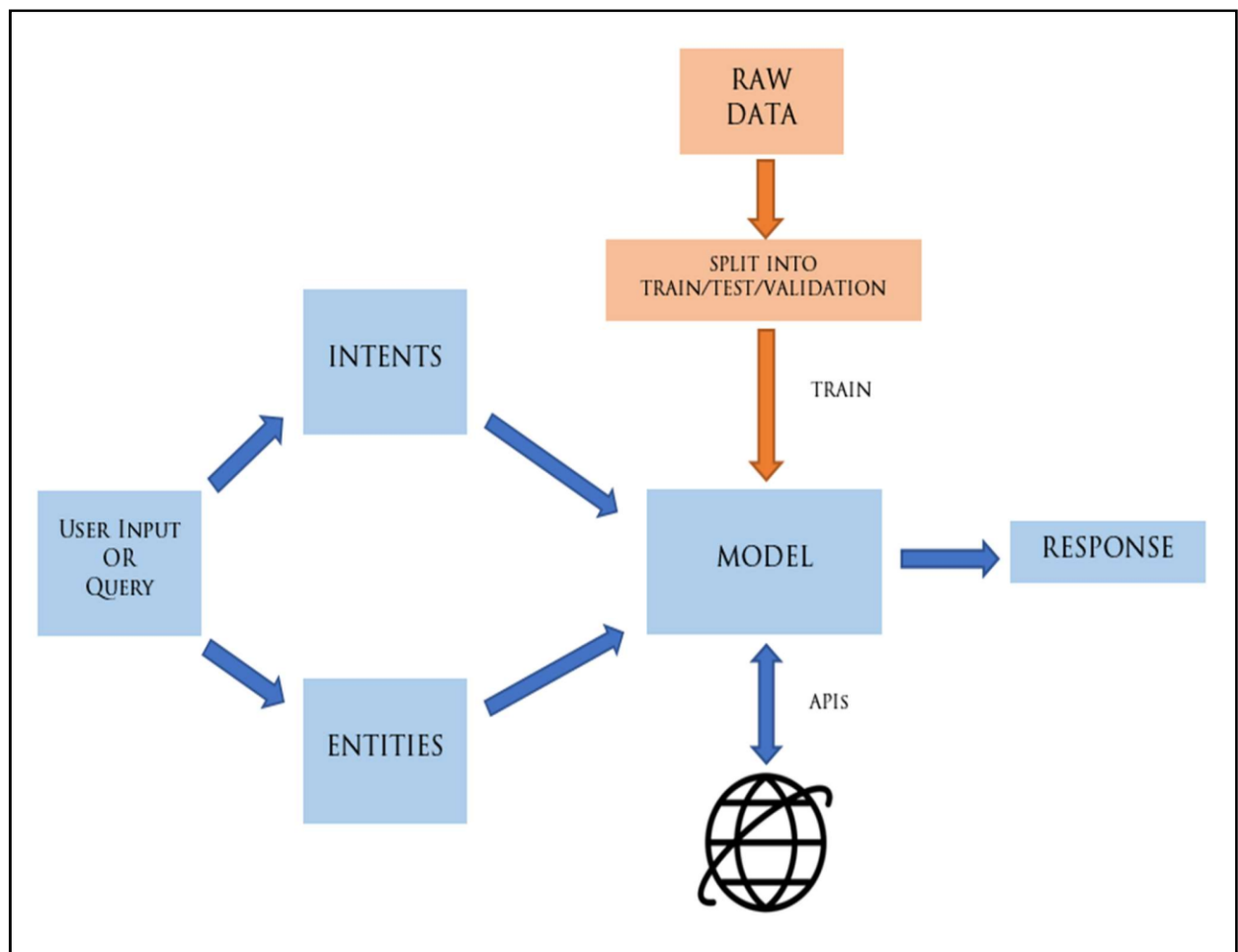
### **c. Project Topic and block diagram**

#### **AI ASSISTANT-**

This project revolves around the domain of Deep Learning and the creation of a small artificial mind to handle basic queries in the form of a chatbot. A chatbot has varied applications throughout different domains and plays a vital role in cut shorting the human workforce where it is minimal. At times, along with much better features, a chatbot acts as a personal assistant who almost has everything we need to know. The services used for building the assistant are pytorch and natural language processing toolkit. Also we have connected our AI Assistant to the internet via APIs which substantially increases its knowledge base. The domain of our AI Assistant is Deep Learning. Deep learning is an AI function that mimics the workings of the human brain

in processing data for use in detecting objects, recognizing speech, translating languages, and making decisions. A deep learning chatbot learns everything right from scratch, from its data and human-to-human dialogue. Nowadays, every industry engages in promoting their business online for better reachability and handling huge amounts of queries/requests merely by humans would lead to wastage in time and energy. Also, the majority of queries are fundamental which would not require human interaction, leaving just a small amount to be handled by humans.

**Block Diagram-**



*Fig 1: Schematic Diagram of AI Assistant*

**Conclusion** : In this project based experiment we learnt about the basics of Artificial Intelligence, role of AI in various domains, its applications and benefits. AI makes it possible for machines to learn from experience, adjust to new inputs and perform human like tasks. We then decided to utilize our theoretical knowledge and apply the same to real life applications by developing a customer service chatbot which is useful to handle basic queries of the customers. We used pytorch and natural language processing toolkit for building the AI assistant. We also connected our AI Assistant to the internet via APIs which substantially increases its knowledge base. This project revolves around the domain of deep learning.