



**SAVEETHA SCHOOL OF ENGINEERING
SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL
SCIENCES
CSA17 – Artificial Intelligence**



Course Code: CSA1748	Course Name: Artificial Intelligence for Neural Network Applications	
Branch: CSE	Max. Marks: 100 M	Year: COMMON TO ALL

Capstone Project
Team Number

Student Register number and name

- 1.
- 2.
- 3.

Developing a User Manageable Virtual Assistance for PC Using Natural Language Processing and CNN Algorithm.

Key Highlights:

1. Intelligent Natural Language Processing (NLP): JARVIS leverages advanced NLP algorithms to interpret user queries in everyday language, making human-computer interaction seamless. It understands a wide variety of commands, from system controls to web navigation.
2. Interactive Voice Integration: Equipped with voice synthesis, JARVIS speaks back to users, providing dynamic feedback for every command, creating an immersive, hands-free user experience.
3. Full System Control: JARVIS can execute key system operations, such as shutting down, restarting, putting the system to sleep, and launching popular applications like Notepad, Excel, and PowerPoint, enabling users to control their devices with simple voice commands.
4. Automated Web Navigation: With JARVIS, accessing websites like Google, YouTube, Instagram, and Gmail is effortless. Just issue a voice command, and JARVIS takes you there in an instant.
5. Task Automation & Personalization: Whether it's playing your favorite movie, setting reminders, or managing files, JARVIS handles tasks efficiently, tailoring its services to meet user preferences and needs.

Abstract:

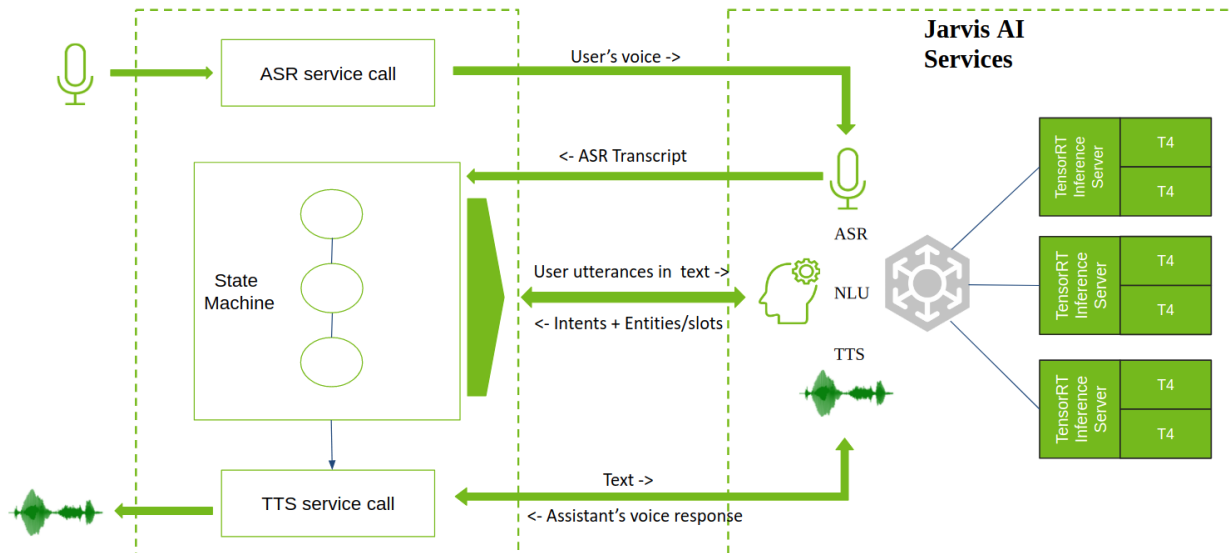
The "JARVIS" project introduces a cutting-edge virtual assistant designed to revolutionize PC user interactions by utilizing state-of-the-art Natural Language Processing (NLP) and voice technology. JARVIS transforms user commands into executable system tasks, offering an intelligent, hands-free solution for managing everyday activities. From opening applications to playing media, browsing the web, or even setting calendar reminders, JARVIS ensures that users can navigate their devices through simple, intuitive voice or text commands. This project explores the integration of AI-based techniques, potentially incorporating Convolutional Neural Networks (CNNs) to enhance interaction further and open up future possibilities, such as object detection for visual input. JARVIS not only improves productivity but also provides an enhanced, personalized user experience.

Key Modules:

1. Natural Language Understanding (NLU) Module:
 - This module serves as JARVIS's brain, interpreting user commands and converting them into executable actions. Advanced NLP algorithms ensure that the assistant understands context and can handle a wide variety of tasks.
2. Voice Interaction & Synthesis Module:
 - Powered by text-to-speech (TTS) technology, JARVIS responds to user queries with human-like verbal responses, offering an engaging and interactive interface. Future iterations could integrate speech recognition for even more seamless input handling.
3. System Management Module:
 - Handles all system-level commands, enabling JARVIS to manage operations like shutdown, restart, sleep mode, and opening files or applications on the user's behalf, turning the assistant into a powerful tool for automating daily tasks.
4. Web Navigation & Automation Module:
 - JARVIS simplifies browsing by automating web tasks, such as opening URLs and performing searches across platforms like Google, YouTube, and social media. This module ensures swift and hassle-free access to online resources.
5. Reminder & Scheduling Module:
 - Designed for personal task management, this module allows users to set reminders, schedule events, and sync with their calendars. JARVIS can prompt reminders or important appointments in real time.
6. Media Playback Module:
 - Whether it's streaming a movie or playing local media files, JARVIS integrates with VLC and other media players to offer instant entertainment at your command.
7. File Management Module:
 - JARVIS can efficiently handle file operations, such as opening, creating, and organizing files on your system, providing greater control over document management without the need for manual intervention.
8. Security & Access Control Module:
 - User security is paramount, and this module ensures that only authorized users can access JARVIS's capabilities. Through password protection and future support for biometric systems, JARVIS provides secure interaction.

Architecture Diagram:

NVIDIA JARVIS - Virtual Assistant



Jarvis-RASA Virtual Assistant Architecture

Jarvis ASR + Jarvis TTS + Rasa NLU + Rasa DM

