

APPLICATION OF AI IN DAILY LIFE: A SURVEY

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Abstract :

Artificial Intelligence (AI) is becoming an important part of everyday life. Tools like Google Assistant, Siri, and ChatGPT are widely used on mobile phones, smart devices, and computers. They use technologies such as Natural Language Processing (NLP) and machine learning to understand commands, answer questions, and help users with daily tasks. Google Assistant and Siri are mostly used for voice-based tasks like calling, searching, or controlling smart devices, while ChatGPT is useful for text-based conversations, learning, and problem solving. These tools improve work, education, health, and communication. However, issues like privacy, security, and limited support for local languages remain challenges. This paper studies their role, compares their features, and discusses future improvements for safe and inclusive AI systems.

Keywords : Artificial Intelligence, Google Assistant, Siri, ChatGPT, Natural Language Processing.

Introduction :

Artificial Intelligence (AI) is rapidly transforming human–computer interaction and the way people perform daily activities. Unlike traditional software, AI can learn from data, adapt to user needs, and provide intelligent solutions in real time. Intelligent personal assistants (IPAs) such as Google Assistant, Siri, and ChatGPT demonstrate the practical application of AI in everyday life. Google Assistant and Siri focus primarily on voice-based commands and seamless integration with smartphones, smart speakers, and other devices, while ChatGPT employs large language models to enable advanced, context-aware text-based conversations. These systems are increasingly used in domains such as education, healthcare, business, and smart homes, providing benefits in productivity, efficiency, and convenience. Despite these advantages, challenges persist, including privacy concerns, ethical issues, dependence on internet connectivity, and limited support for regional languages. This paper explores the technologies, applications, comparative strengths, and limitations of these AI assistants, and highlights future directions for inclusive, secure, and reliable AI systems.

Literature review :

Artificial Intelligence (AI) has become an integral part of modern life, influencing how humans interact with technology and perform daily activities. One of the most prominent applications of AI is intelligent personal assistants (IPAs) such as Google Assistant, Siri, and ChatGPT. These systems leverage machine learning (ML), natural



language processing (NLP), and large language models (LLMs) to provide context-aware, adaptive, and intelligent support in education, healthcare, business, and smart home environments. This section reviews the evolution, applications, comparative studies, challenges, and research gaps related to AI assistants.

Evolution of intelligent personal assistants :

Early AI systems, including IBM ViaVoice and Microsoft Clippy, provided limited functionality and predefined responses without the ability to adapt to context or learn from users [1]. The launch of Apple's Siri in 2011 marked a significant advancement, integrating NLP, cloud computing, and voice recognition to provide natural, context-aware interactions [2]. Google Assistant, introduced in 2016, expanded these capabilities with Google's Knowledge Graph, personalized responses, and real-time analytics [3]. OpenAI's ChatGPT represents a further evolution, utilizing transformer-based LLMs to enable complex, multi-turn, and human-like text conversations [4].

Natural language processing and conversational AI :

The effectiveness of AI assistants heavily relies on Natural Language Processing (NLP), which enables machines to comprehend, interpret, and appropriately respond to human language. NLP

processes such as tokenization, syntactic and semantic analysis, and intent recognition are critical in translating human commands into actionable tasks [5]. Voice-based assistants like Google Assistant and Siri combine speech recognition with NLP to execute tasks, control devices, and answer questions [6].

ChatGPT employs large transformer models to understand extended context, generate coherent responses, and maintain multi-turn dialogues [7]. Research shows that transformer architectures with attention mechanisms significantly improve the accuracy and flexibility of AI assistants [8].

Applications in Daily Life :

AI assistants are used across multiple domains :

Education : AI tools support students with explanations, problem-solving, and homework assistance. ChatGPT provides detailed responses and guidance, enabling self-directed learning [9].

Healthcare : Assistants offer medication reminders, symptom tracking, and preliminary diagnostics. They also provide mental health support through conversational engagement [10].

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Siri and Google Assistant depend on Automatic Speech Recognition (ASR) to convert spoken words into text and use Text-to-Speech (TTS) technology to produce natural-sounding voice responses [34], [37]. Deep neural networks, including recurrent neural networks (RNNs) and transformers, improve recognition accuracy and speech naturalness [38].

Cloud Computing and Integration :

Cloud platforms allow AI assistants to perform large-scale computations, access real-time data, and integrate with devices and IoT ecosystems [39]. Google Assistant queries cloud-hosted Knowledge Graphs [27], while ChatGPT relies on cloud servers for pre-trained models [29]. Cloud integration enables adaptive learning, device synchronization, and scalability [40].

Context Awareness and Personalization :

AI assistants incorporate context such as location, previous interactions, and device settings to provide personalized responses [41]. Continuous learning and user profiling enable tailored recommendations, reminders, and task management, enhancing user experience and efficiency [42].

Security and Privacy :

To protect user data, AI assistants implement encryption, secure communication, and access controls [43]. Emerging techniques like federated learning and anonymization help maintain privacy while allowing models to learn and adapt from user interactions [44].

Conclusion :

Artificial Intelligence (AI) assistants such as Google Assistant, Siri, and ChatGPT have emerged as transformative technologies in modern society, enabling seamless interaction between humans and machines. By leveraging advancements in machine learning, natural language processing, transformer architectures, and cloud integration, these systems provide personalized, context-aware services that enhance daily productivity, communication, and decision-making. Their applications span diverse domains including education, healthcare, business, and smart environments, highlighting their role as indispensable digital companions.

However, the research also emphasizes persistent challenges, including data privacy, algorithmic bias, language inclusivity, and dependence on internet connectivity. While federated learning, on-device AI, and ethical frameworks present promising solutions, continuous innovation and regulation will be necessary to ensure secure and equitable use.

The future scope of AI assistants lies in multimodal interaction, integration with IoT and 5G/6G networks, explainable AI, and deeper human AI collaboration. These advancements will not only expand the accessibility of intelligent assistants but also establish them as proactive partners in decision-making and creative processes.

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