# Home Automation and Personal Assistance

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**Abstract:** *The rapid growth of Internet of Things (IoT) technologies and Artificial Intelligence (AI) has significantly transformed traditional homes into intelligent living environments. This paper presents the design and implementation of a unified Home Automation and Personal Assistant system that integrates smart devices, edge computing, and secure communication protocols into a centralized platform. The proposed system enables voice, text, and application-based control of appliances while ensuring interoperability using open standards such as Connectivity Standards Alliance's Matter protocol and MQTT.*
*Unlike conventional cloud-dependent solutions such as Amazon Alexa and Google Assistant, the system emphasizes local processing to reduce latency and enhance privacy. The architecture integrates sensors, actuators, microcontrollers, and AI-driven natural language processing to provide context-aware automation and personalized routines. The proposed solution aims to improve convenience, security, energy efficiency, and scalability while addressing privacy and interoperability challenges in modern smart homes..*

**Keywords:** Home Automation, Internet of Things (IoT), Personal Assistant, Edge Computing, Matter Protocol, MQTT, Smart Home Security, Artificial Intelligence, Voice Assistant, Interoperability