

Home Automation using Family Voice Control

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Abstract: *This paper presents a voice-controlled home automation system designed specifically for use within a family environment. The system utilizes an ESP32 microcontroller in conjunction with Python, Arduino IDE, and voice recognition apis to provide contactless control over home appliances. Uniquely, the system supports multiple authorized users by implementing speaker-dependent voice authentication using Python libraries and apis such as Picovoice Eagle and Hugging Face. Through the integration of hardware components and software logic, the system processes user speech, verifies speaker identity, transcribes commands, and activates devices via serial communication. The prototype demonstrates practical application of iot, embedded systems, and speech processing, aiming to provide a secure, user-friendly, and scalable solution for smart home automation.*

Keywords: Home Automation, Voice Recognition, ESP32, iot, Python, Speaker Authentication, Smart Homes

