

## Implementation of Arduino based Internet of Things Home Automation Systems in Sri Lanka

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### Abstract

The deployment of microcontroller-based Internet of Things (IoT) home automation systems in Sri Lanka is examined in this review paper, with an emphasis on the subtopics of home automation, irrigation automation, waste management and healthcare automation. By offering a thorough review of IoT and home automation systems, this research intends to close a gap in the existing literature. It is a helpful tool for researchers looking to gain a thorough understanding of the subject and provides information on the significance of the difficulties facing these systems. A thorough evaluation of the literature on Arduino-based IoT home automation systems is undertaken, spanning system design, communication protocols, sensor integration, energy efficiency, user interface and security issues. The paper investigates the uses of Arduino-based IoT solutions in the context of home automation and includes case studies and implementation examples. The studied literature is compared to evaluate the effectiveness and efficiency of Arduino-based IoT solutions across the subtopics. In addition, the evaluation reveals gaps and issues in the field. The paper finishes with recommendations for future research directions and emerging trends based on the review's results. It focuses on developments in home automation technology, prospective applications in Sri Lanka, research opportunities and difficulties. Overall, this review is an excellent resource for researchers and practitioners interested in deploying Arduino-based IoT home automation systems in Sri Lanka, providing insights into the present status of the field and guiding future research.

**Keywords:** *Arduino, IoT, Home automation*