

## IoT based Smart Home Mobile Assistant for Optimizing the Energy Consumption

06 Nov.

ET19

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Increment of energy consumption and population growth create a grave need to conserve energy in all possible way. As a result, home automation is becoming popular due to numerous benefits. Home automation refers to control the home appliances and domestic features by local networking or remote control. The current commercial home automation systems are general and does not consist of a specific design for the Sri Lankan context. Therefore, we designed a smart home automation system by keeping the Sri Lankan electricity tariff and practices in mind. This project involved the design and construction of an individual control home appliance using Raspberry pi 3, Arduino and Windows 10 IoT core. This system can perform the basic home automation functions by using numerous sensors, particularly the project offers Windows application for operating several devices from single device remotely where users can control lights, temperature of heaters, speed of fan, and switches from one place. In case of lights, system will turn on the lights if motion sensor is active and natural light is below the required density. Similarly, fan speed is automatically controlled on the basis of room temperature. It gives suggestions and how the electricity tariff system works for the users and how the user can optimize their power consumption. The system mainly consists of the control of the home appliances, reduce energy consumption and provide awareness. Using the system, the public can obtain piece of knowledge regarding Sri Lankan tariff system.

**Keywords:** Raspberry Pi, Arduino, smart home automation, power measurement, IoT