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A Smart Door Security-Based Home Automation System: An Internet of Things

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Abstract

The recent advancement in smart technology design with integration of smart sensors and embedded components has rapidly improved human lives in so many areas which includes home automation, smart phones, smart healthcare, smart cars and so on. Therefore, smart home security demand serious attention and is indispensable in this era of internet of things communication over 6LowPAN model using IPv6 addresses for interconnectivities and end-to end links. In this paper, the access control, embedded sensors and alarm systems are used for safeguard the device facilities in the home automation for authentication or authorization and users management over the network. However, wireless technology (such as GSM, ultrasonic sensor, and Bluetooth low-power enable) was used for controlling and monitoring home entrance, user authentication, authorization and smart devices management. An android web application was also developed and integrate with the system for home user control remotely. This developed system was equipped with a strict access control and password security features for an intruder denial or violation and also keep the neighbor's alert of possible human attacks.

Keywords

Authorization; Human Attack; Smart Technology; Sensors; Security; 6lowpan

Introduction

The advent of intelligence home appliances based embedded sensors and wireless technology has improved the home livings with several domestic appliances which includes washing machines, cloth dryers, refrigerators, electric and gas cooking materials, dishwashers, sewing machines, television and home theater gadget [1, 2]. Therefore, security of life and property is a key responsibility of every citizen in a country where these social infrastructures based internet of things appliances are been implemented.

Security is described as countermeasure that resist or protection against any harmful attacker which are widely applicable to any vulnerable host or valuable asset in a network such as smart appliances, user data, and many others. One of the fastest emergent technologies in the universal network is home automation system which contains various domestic appliances for the user enjoyment and comfortability. The smart devices require adequate security for user data controlling, monitoring, management, and securing every device itself. Home automation is define by [3] as home-owner that contains many intelligence domestic appliances for users living comfortability and ease of achieving many system operations and control remotely. Home security is the most visible element in home computerization.