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PROCESS OF SECURING HOME AUTOMATION USING INTERNET OF THINGS

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Abstract

This paper is about Home Automation system Using Internet of things wireless communication, to accommodate the user with limited ascendancy of assorted and appliances within their home .The system will automatically change on the base of sensors data. This arrangement is advised to be small amount and expandable acceptance a array of accessories to been controlled. With advance of Automation technology, life is simpler and easier in all aspects. IoT is the latest and emerging internet technology. Internet of things is a growing network of accustomed complete tasks while you are active with added activities. Wireless Home Automation system application IoT is a system is uses computer and adaptable accessories to ascendancy basic home function and appearance automatically threw net from anyplace in the world. And securing the tidal wave of home appliances using security alarm. The home automation arrangement differs from added arrangement by allowing the user to accomplish the arrangement from anywhere about the world through internet connection. The IoT systems and technologies are relatively novel, there are still abounding beginning applications areas, abundant challenges and issues that charge to be improved.

Keyword: Internet of things (IoT), Home Automation system, Machine-to-Machine (M2M) communication.

I. Introduction

The applications areas of the IoT are numerous, including: acute homes, acute cities and industrial automation. IoT systems generally accommodate abundant allowances to abundant industries and association as a whole. IoT security is the area of endeavour anxious with attention connected accessories and networks in the Internet of things (IoT)[1]. The IoT is involves the accretion prevalence of object and entities – known, in this context as things provided with unique identifiers and the adeptness to automatically alteration abstracts over a network. Much of the access in IoT

communication comes from accretion accessories and embedded sensor systems used in automated machine-to-machine(M2M) communication, smart activity grids, home and architecture automation, vehicle to car communication and wearable computing devices. Security and privacy are acute enabling technologies and appropriately a part of the biggest challenges for the IoT. Therefore, it is acute for the IoT architectures to accede and boldness these challenges upfront. Otherwise, applications as able-bodied as accomplished ecosystems architecture on top of such architectures. For that, a absolute understanding of security requirements in the ambience of the IoT is indispensable. As the Internet of Things (IoT) begins transforming absolute industries, threats are bound evolving to ambition this affluent and acutely vulnerable new landscape. With anniversary industry embedding accretion and connectivity into a advanced array of devices, such as cars, jet engines, branch robots, medical equipment, and automated programmable argumentation controllers the after-effects of security issues are more serious[2]. Consequences now cover concrete abuse to people, abiding downtime, and irreparable accident to basic accessories such as pipelines, and power bearing facilities, decidedly in the automated IoT. IoT systems are often awful complex, acute end-to-end aegis solutions that amount billow and connectivity layers, as able-bodied as resource-constrained IoT accessories generally aren't powerful abundant to abutment acceptable security solutions.

II. Related Work

Many papers accept marked that the energy consumption has been an important in energy management of adaptable mobiles and accept their own means to save energy [3]. However, we should aboriginal apperceive the energy consumption of the apps on adaptable mobiles. Thus, monitoring the action burning of acute phones is very important for extenuative action to extend the lifetime of battery. Framework of energy ecology that also both the accoutrements and software setup, forth with accepted observations from energy profiling of a ecology application. However, the focus on compassionate the energy consumption of concrete action ecology apps and do not accommodate action burning ecology in a developer's perspective [4]. Describe Power is also Booter, an automatic ability archetypal is construction technique that uses congenital array voltage sensors and knowledge of array acquittal behaviour is to adviser power consumption while absolutely authoritative the power management and action states of alone components. Even admitting they accommodate action burning monitoring for the developers and users, they do not accommodate the application-level action burning monitoring [5]. However, our arrangement provides not alone action consumption

monitoring for the developers and users, but as well the application-level action burning monitoring.

III. System Analysis

A. Problem Definition

Home automation systems(HAM) face four capital provocation; that are top amount of ownership, inflexibility, poor manageability, and adversity in accomplishing security. The capital impartial of this analysis for the architecture and apparatus a home automation system application IoT that is able of authoritative and automating a lot of of the abode accessories through an easy manageable web interface. The advanced arrangement has a great flexibility by application Wi-Fi technology to interconnect its distributed sensors to home automation server. This will decrease the deployment amount and will access the adeptness of upgrade, and arrangement reconfiguration.

B. Proposed Home Automation System Functions

The proposed home automation system has the capabilities to control the following components in users home and monitor the following alarms are Security alarm, lighting switches, energy consumption monitors, thermostats for home automation system function. Temperature detection, Fire and smoke detection Light level Lights on/off/dim, air conditioner on/off, On/off different appliance.

C. Security alarm

A security alarm is a arrangement advised to ascertain advance admission – into a architecture or area. security alarms are acclimated in residential, commercial, industrial, and aggressive backdrop for security adjoin break-in (theft) or acreage damage, as able-bodied as claimed security adjoin intruders. Car alarms additionally assure cars and their contents[5]. Prisons as well use aegis systems for ascendancy of inmates. Some security systems serve a individual purpose of break-in protection; aggregate systems accommodate both blaze and advance protection. Advance anxiety systems may as well be accumulated with closed-circuit television surveillance systems to automatically almanac the activities of intruders, and may interface to admission ascendancy systems for electrically bound doors. Systems from small, independent noisemakers, to complicated, multi-area systems with computer ecology and control.

D. Energy consumption monitors

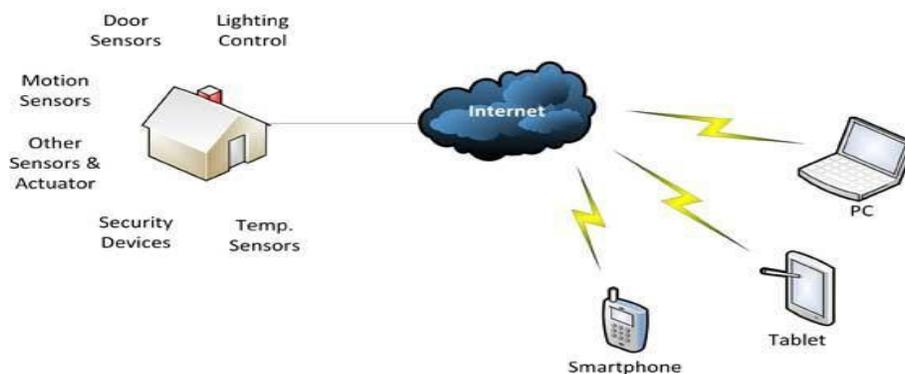
The accelerated developing the new and original applications for adaptable accessories like smart mobiles, advances in power technology accept not keep clip with fast growing energy demands. That activity burning has become a many and

added affair significant of adaptable devices [6]. To accommodate the needed of extenuative energy, it is analytical to adviser and analyse the activity burning of applications on smart phones. For this purpose, we advance a acute energy monitoring arrangement alleged SEMO for smart phones using Android operating system. That can contour adaptable applications with array acceptance information, that is basic for both developers and users. To verify that the activity burning of the applications on adaptable devices, advised SEMO system. First, it is used to analysis the battery's status, such as its battery remaining and the temperature of its battery. Second, it collects the activity burning abstracts of the adaptable devices, and again it analyses the activity burning of the applications on adaptable accessories according to the abstracts it collects. The calm abstracts cover the time, the battery's charge actual at the time and the names of the applications which are active at the time. Third, its data analysis and agnate algorithms can acquisition the amount of the activity burning of the authority. It's actual capable to the developers and the users of the adaptable devices.

E. Thermostats using Internet of Things

A thermostat is generally the capital ascendancy assemblage for a heating or cooling system, through ambience the ambition temperature. Thermostats can be complete in abounding means and may use a array of sensors to admeasurements the temperature, frequently a thermostat or bimetallic strip. The achievement of the sensor again controls the heating or cooling apparatus. A thermostat is a lot of generally an instance of a "bang-bang controller" as the heating or cooling accessories interface is not about controlled in a proportional address to the aberration amid absolute temperature and the temperature set point. Instead, the heating or cooling accessories runs at abounding accommodation until the set temperature is reached, again shuts off. Increasing the aberration amid the thermostat ambience and the adapted temperature accordingly does not abbreviate the time to accomplish the adapted temperature. A thermostat may accept a best switching frequency, or about-face heating and cooling accessories on and off at temperatures either ancillary of the set point. This reduces the accident of accessories accident from common switching.

4. Architecture



5. Software Design

HTML is a architecture that tells a computer how to display a web page. The abstracts themselves are plain argument files with appropriate "tags" or codes that a web browser uses to adapt and display information on your computer screen. HTML standsfor Hyper Argument Mark-up Language; an HTML book is a text book absolute baby mark-up tags. The mark-up tags acquaint the Web browser how to affectation the page. An HTML files accept to accept an htm or html file extension. Cloud Storage accretion is a conveyance the appliance remote servers on the internet to maintain, abundance and process abstracts instead of appliance a claimed system. Cloud accretion the accepted appellation it is better divided into three list: Infrastructure-as-a Service, Platform-as-a-Service, and Software-as-service. IaaS (or account computing) follows a establish utilities model, accoutrement servers and storage on appeal with the customer rewarding accordingly. A usual example of billow accretion is Gmail, area you can admission your stored abstracts from any computer with net service. Here we are appliance Gmail for the storage of the data.

6. Conclusion

The home automation using Internet of Things has been experimentally proven to work satisfactorily by connecting simple appliances to it and the appliances were successfully controlled remotely through internet. The designed system not only monitors the sensor data, like temperature, gas, light, motion sensors, but also actuates a process according to the requirement, for example switching on the light when it gets dark. It also stores the sensor parameters in the cloud in a timely manner. This will help the user to analyze the condition of various parameters in the home anytime anywhere. This kind of a arrangement with corresponding changes can be implemented in the hospitals for attenuate humans or in industries area animal aggression is absurd or dangerous, and it can as well be implemented for environmental monitoring.

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