Design of Smart Home Automation System using Android Application: A Literature Review

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Abstract
Today's life depends upon the concept of automation. The automated things are said to be of new era since they diminish the human endeavor. By using home automation system communication between human and objects is possible. The existing framework utilizes Blue tooth as a remote association convention to actualize security framework utilizing Android cell phones. The new generation is based on smart people using smart technology. A smart technology makes human life easy and updated. There is various home automation system implemented before. The proposed home automation system is designed that provides some increased functionalities which use Wi-Fi as an Internet connection protocol. The system implements applications those are, Alarm based smart door locking, detecting the state of home appliances from remote Location, Mosquito sensing, smart water tank.

Keywords: *Alarm, door lock system, internet of things, intel galileo gen 2, mosquito sensor*

INTRODUCTION

Nowadays, everyone wants to do smart things. To strive in this smarter world we have to do our daily things in smart way. IOT and Home automation are the smart ways by which we can do daily things in a smarter way. We have to reduce the human exertion, time and cost.

In the event if it is conceivable then just individuals craving to utilize these advancements. IOT (Internet of things) is the correspondence between the people and protests. Items can be of any sort like home apparatuses and other household things. In IOT distance never matters. This is the motivation behind why we are utilizing this innovation in our venture. By utilizing IOT we are outlining Smart home which has four applications that uses an advanced mobile phone to offer examination to the proprietor of the house.

HOME AUTOMATION AS PART OF INTERNET OF THINGS

Home computerization is the idea of controlling home apparatuses naturally by utilizing different control framework methods. There are many different techniques to control home appliances. At the point when IOT is enlarged with sensors and actuators, the innovation gets to be on occurrence of the more broad class of digital physical frameworks, which additionally incorporates advances, for example, smart grid, smart homes, insightful transportation and brilliant urban communities.

Properties of Home Automation
1. The system is easy to use.
2. It reduces the human efforts.
3. It also reduces the power consumption.
4. It is Real time.
5. It is Secure.
6. It is remotely accessible.

LITERATURE REVIEW

In this segment talked about the distinctive home automation systems that are actualized before and furthermore the advances, highlights, future work of those frameworks.

In the paper [1], The HAS in which Intrusion detection system and OTP is used to provide security to the locking system of home. At the point when the owner is not present in the house and if the security of entryway bolt gets traded off then, the data of the rupture is sent to the enrolled number. It will also alert the society about the breakdown of security. To produce the locking design microcontroller is used. The Arduino IDE is used to program the microcontroller board. The issue of this framework is a direct result of system disappointments OTPs may get deferred. Different innovations can be utilized like advanced mobile phones and cameras to offer authorization to visitors.

In the Paper [2], the remote LAN module is settled on the board that gets the transmitted flag and sends to the microcontroller. The microcontroller exchanges the information to the servo engine to play out the operations on the Door.

The paper [3] depicts the framework that contains an advanced door lock, a Raspberry Pi control board which is put in the bolt, and the client's Smartphone. One of the features of system is, it has impact detection and alarm facility. This is to detect an intruder who tries applying physical force to the lock. Second is, it has an image transfer feature. Generally, an attacker who does not know the password will make more than one of attempts and easily recognized by the system.
Third, all incoming and outgoing records are stored in the database. Fourth, the framework can open the entryway secure

continuous subsequent to approving a guest's picture. If a visitor forgets the password, he can type a code into the door lock; then, the door lock system sends his image to the owner of the house. The client can remotely control the entryway bolt subsequent to watching the picture.

Paper [4] proposed the framework that utilizes different devices to discover and devastate the water from the stagnated destinations. The system is a less costly decision to extreme establishment progression gets ready for leakage.

In the paper [5] the system to build up an advanced mobile phone application and sensors that judges if the condition of water is perilous is given. The water tank framework, comprise of three parts and those are the valve, pump and tank. The framework is valuable to identify the water level in the tanks of our home by utilizing sensors.

In the paper [6], two RF transceivers and a controller placed in the tank and sump is used. Yet, the issue in this framework is that sensors utilized are completely wired and it is conceivable to substitute them by remote.

In the paper [7], the system is implemented which is used to monitor the environmental parameters in the home like temperature, humidity so that if the gases are leaked in the home then it is detected by the sensors. This system is extensible and can be developed for many more applications.

In the paper [8], the wireless sensor networks (WSNs) and power line communications (PLCs) are used to develop a control network for smart home. The goals are to reduce the unwanted energy consumption of a smart home. A WSN with one facilitator, which is incorporated into the PLC handset, is

plotted in each room. The organizer is in charge of sending natural parameters got by WSNs to the administration station. The control messages for home appliances are directly sent using PLCs instead of WSNs.

In the paper [9], the motion of the human will be captured from the camera and the user will be detected and then only he will get a key to lock or unlock. This system helps in providing the security by locking mechanism.

In the paper [10], designing of water level and temperature monitoring system based on GSM is implemented. It will monitor the water level of the tank which is connected to the industry. Also monitor the tank temperature status. For this purpose, LM35 sensor is used which defines the parameters of the temperature sensor is. Through a process of signal conditioning Analogue output of LM35 is amplified, where to amplify the signal OP-741 is used. The amplified signal is fed into an ADC for obtaining digital data. This digital data is transferred to an LCD for displaying result. PIC micro controller is used for this purpose.

Evolution of system

Raspberry Pi
The raspberry pi is the small single-board computers. It is implemented by Raspberry pi foundation in the UK. The first generation of raspberry pi was released in 2012.It was followed by a simpler model Model A. In 2014, the foundation released a improved design board in Raspberry pi 1 Model B+.As of January 2017, Raspberry Pi 3 Model B is the latest version of Raspberry Pi.

Arduino
The Italian company was produced the original Arduino hardware. Many Arduino-compatible and Arduino-derived boards are in existence. Functionally of some are same as an Arduino. Many enhance the basic Arduino by adding output drivers, often for use in college-level education, to simplify making buggies and small robots.

Galileo Gen 2
The first Arduino-certified development board based on Intel X86 architectures is Intel Galileo Gen2 is. It is designed for the educational communities. Intel Galileo has more functionality over the single arduino board. It has the pocky Linux as default operating system.

CONCLUSION
Here we have discussed about the design of the Smart Home Automation System. The proposed system is able to provide automation as well as better security to the home. By using this system home appliances can be remote controlled and monitored. The system makes possible to monitor and control the things in the home from any remote location through internet. It makes the human life comfortable. The proposed system will reduce time and energy. Also the health of people in the house will be maintained.

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