

APPLIANCE AUTOMATION

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Abstract : Recent years the IOT {Internet of Things} has been accepted and used as in lab and other environment widely. In this we have appliances automation the Propose of IOT appliance is challenging of remote access and monitoring system which supports data transmission. Smart home is one of the applications of Internet of Things. Faster growth in the technology and improvements in architecture cause many problems how to manage and control the whole system in the environment, Security at server, labs, security in smart homes, etc. An approach to incorporate high security in arrangement of IOT for smart home, together with consideration given users easier access in operating system. GPRS gateway is used as the main node of the network to perform the systems initial configuration. It is further responsible for accessing the information between IOT devices also in providing a mean for the user to plan, for access and control system through a Website and Android used mobile device running the appropriate application program.

Technology is constant process. To design a product using current automation that will be favourable to the life of others is a huge addition to the group. The paper presents here design and execution of a low cost but pliable and secure mobile phone dependent lab automation system. The implementation is based on a Arduino BT board and the device are connected to the input/output harbor of this board via relays. The interaction between cell phones and the Arduino board is wireless. Our system is planned to be low cost and extensible, allowing variation of devices to be controlled with least changes to its key. Password protection is used only to allow permitted users from accessing the appliances from any locations.

Introduction

In present world of technology, all the things are going computerized and automated from machinery to simple paperwork every process and system has to do something with computer, i.e. they are in some or the other way connected to computers. Keeping that in our mind we are designing our project 'Appliances Automation' which will be a small working model of an automated and mobile controlled system.

It will demonstrate how we can control devices and control all the operations through mobile. It will become more managed and automated due to comfort it supply, especially when installed in a private lab. The device automation is a means that give users access to control appliances. Many well-accepted lab automation systems are based on wired network.

Wireless systems can be of great importance for automation systems. With the wireless practical application such technology as Wi-Fi, networking in recent past years, Wi-Fi systems are used everywhere.

LITERATURE REVIEW

2.1 Existing System

There are four products in the market that are utilised for door lock, which are: Lockitron, Unikey Kevo, August Smart Lock, as given below:

1: Lockitron

Lockitron is very similar to this project which is already accessible in the market. Firstly, Lockitron replaced deadbolt, but now it is applied on door lock from inert part, therefore it can be easily abolish and established anywhere. An issue can be there that, there are various types of door lock, hence the user can use a duplicate if Lockitron would fix on the door, which they eager to be able to evaluate. The accumulator can last only for one year, and can send a warning when they will be running low.

2: The UniKey Kevo

This Kevo application uses Location Services and Bluetooth low energy to detect when the user is near the door when to lock and unlock the door depending on the touch of the user. The application is only available for iPhone4 and iPhone5. UniKey also provides a Kevo Fob for users who don't have compatible phone. This Kevo Fob is a short security hardware device which has built in access mechanisms. With which the user can run locks, and send, damage or delete automatic keys. Family, friends can also have the electronic keys.

3: August Smart Lock

The August Smart Lock uses only Bluetooth 4.0, therefore the device itself is not attached to the user's house network, or to the internet, it is also not connected to any power source . The advantage is, if the Wi-Fi network or the power at the user's home is down, the August Smart Lock purpose usually. Hence it uses 4-AA batteries, with a life-span of 6 months-1 year, and notifies the user when the power cell are running low .

2.2 Disadvantages of Existing System

- Researchers can't self operate all the working in their labs for a variation of cause.
- A student from Punjab university, India, noted he would like to automate the preparation of growth medium for experiments, but there is lack of equipment's to be available.
- Other limitations is because of intrinsic system issues some of the older apparatus can't be automated due to the conflicting and older operating system interface connections.
- Expenses are always a problem as well, even when the lab computerised systems are available.

PROPOSED WORK

3.1 Problem Definition

Appliance automation systems has many challenges, they are inflexibility, big cost of possession, poor managing ability, and security achieving difficulty. The main objectives of this system is to device existing automation systems using IOT, which is capable to control and automate most of the lab equipments through an trouble-free mesh interface. The proposed system has pliability by using wireless technology to conjugate its disseminated sensors to appliance automation server. This will decrease the formation cost and will increment the system reconfiguration and the capability of upgrading.

3.2 Need for System

We require a latest more collaborative or integrated way to deal with software. The Internet of Things will re-structure software and releases into a cycle. An IOT platform typically has four components sensors, application, network communication and a back-end database. In an IOT platform we are using sensors and devices which will cover hardware embedded sensors and software response on current temperature and humidity with time and performance.

3.3 Proposed Work

The proposed work aims at designing smart devices that facilitates remote monitoring and control of the devices using mobile application. . In this, each device is interfaced with a data acquisition module that is an IOT object with a unique IP address resulting in wireless network of devices. The data acquisition System on Chip (SOC) module collects energy consumption data from each device and transmits the data to a centralized server for processing and analysis. All appliances in the laboratory use MQTT (Message Queuing Telemetry Transport) protocol for communication.

Our project consist of two automated systems they are as follows :

1 : Security Service System:

A sensor is placed near the keyhole at rear side of the door for detection. When the sensor finds a detection it sends an “Alert message” to the user. An infrared proximity sensor fulfills the purpose of detection.

Proximity Sensor : Proximity Sensors detect the objects without touching it. No contacts are used to produce output, so the Sensor has a longer service life. Proximity Sensors provide high-speed response. If it finds any object comes in the path of the infrared its sends the message.



Fig : Proximity Sensor

2 : Curtain Control System :

You can close and open your curtains directly from the mobile. You can choose for one or two curtains and even set how far they should be opened. We can also set timers to open and close them at a fixed time. If you want to, you can always continue to open and close them manually.

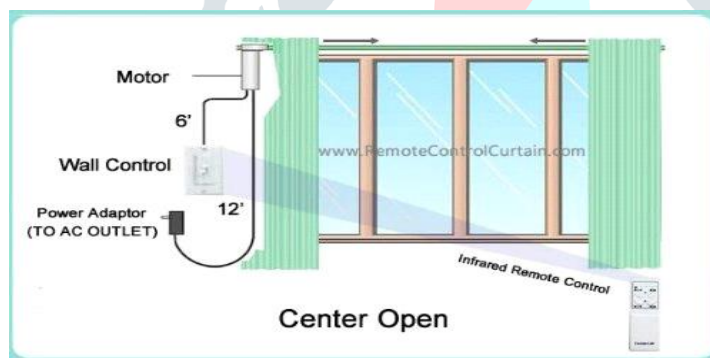


Fig : Curtain Control System

MOTOR DRIVER CIRCUIT

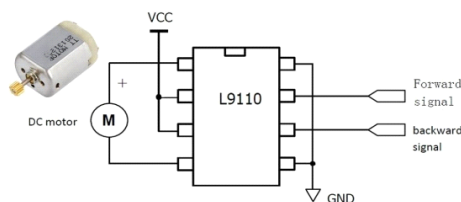


Fig: Motor Driver Circuit



Fig: DC Motor Clamp.

Motor Driver Circuit : L293D IC is a typical Motor Driver IC which allows the DC motor to drive on any direction.

DC Motor Clamp: A DC motor clamp is used to mount the motor tightly on any solid surface. Hence it increases the usability of the motor & makes motor mounting very convenient.



Fig: Pulley

Pulley : A pulley is a wheel on axle or shaft that is designed to support movement, change of direction of a taut cable or belt, or transfer of power between the shaft and cable or belt.

CONCLUSION

Our system which is based on remote Appliances Automation control which is emerging wireless communication technology, implement hardware and the device can be placed anywhere in the room as we are preparing an IOT board. This is a solution which will consume less power and less energy conservation.

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