

# Smart House Automation System through Internet of Things

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**Abstract**— In this paper, we have shown you how to make your home a centrifuge by using sensors using a wireless network in the present age we are trying to explain how we can control the lights, fan, T.V in the house using an automated system. It uses a very simple graphical user interface that is easy for the user to understand.

**Keywords:** Smart Home, Home Automation, Internet of Thing, PHP

## I. INTRODUCTION

Automation is one of the applications of control systems and information technologies to cut back the necessary works for humans in the assembly of products and services. In the field of industrialization, automation could be a step beyond mechanization. Whereas mechanization provided human operators with machinery to assist them with the muscular.

Automation technology is made up of some devices that are capable of operating machines and objects automatically. In automation technology, a user can complete a task repeatedly without human intervention. This system uses less energy thus saving the energy of the users and the user can turn on or off a device as per his requirement.

The project builds a system that contains some household items that we can use using wireless technology. The user can use the device as per his need and by using GUI the user can access it anytime and anywhere.

## II. RELATED WORK

A lot of important work has been done in this area. Automation is about how we can do home automation using internet technology. Surveys based on smart house systems using the internet show how we can build the best automation system using the least amount of energy. The device will be designed in such a way that it can do as much as the user wants.

Each switch module has a transceiver set up which is connected to your central controller and the smartphone controller has a microcontroller set up. This allows the automation device to work as the user wishes.

## III. PROPOSED SYSTEM

You can control/handle automated working devices using a smartphone as shone in a block diagram.

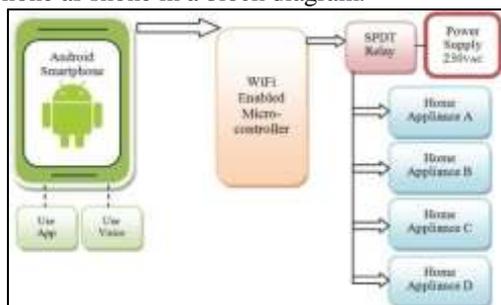


Fig. 1: Block diagram of home automation system

Among these, in smartphones, you can give input by crossing the smartphone automation app or security sensor voice. This is given to the microcontroller you set up then your system is turned on by supplying power and you get the output you want. We can automate and reuse appliances like fans, T.V, lights, etc.

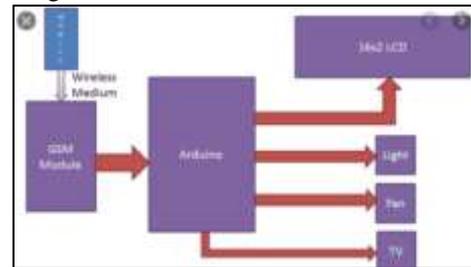


Fig. 2: output and input of the system

In the given figure 2 the wireless device that is a mobile phone is used as the role of input. Wireless mobile phone are connected to GSM module are connected to Arduino and this Arduino is control the LCD, Lights, Fans, and T.V



Fig. 3: Arduino

Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started... You can tinker with your Uno without worrying too much about doing something wrong, in the scenario you can replace the chip for a few dollars and start over again.

A. A Detailed Explanation of the SPDT Relay Used In the System:

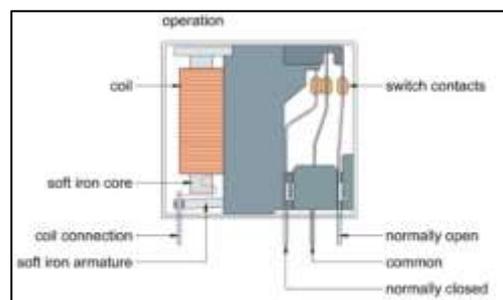


Fig. 4: Internal structure of SPDT relay

Why do we want to use a relay and do we need to? Anytime you want to switch on/off a device that draws more current or works with a high voltage, you'll need to use a relay. That is to say, the relay is "a high voltage or current switch controlled by low voltage". The coil of an SPDT relay that we most commonly use draws very little current. Now, with this 30A relay, you can control much more high-current switch devices such as headlights, parking lights, horns, etc. You may see that the common terminal and the normally closed terminal have continuity when the coil of the relay is at rest. But when the coil is energized, the common terminal and the normally open terminal will have continuity.

B. Why you use sensor:



Fig 5: Temperature sensor

Temperature sensors measure the amount of heat energy in a source, allowing them to detect temperature changes and convert these changes to data. First, you need smart devices able to turn themselves on and off. And then you need sensors that tell them when to do it. Metaphorically speaking, smart sensors are the sense organs of the Internet of Things (IoT). They "hear" noise, "see" motion, "smell" smoke, and "feel" heat, humidity, and dampness or low air quality. Here is a rundown of 8 sensors that you can deploy in your home to help ensure you are safe from the storm.

#### IV. WEB PAGE DESIGNING

In this project, we have used PHP file Python file database, and text file for web designing. In this, we have designed an app in which we have created two buttons to turn the device or off.

#### V. WORKING

As mentioned all the devices will be automatic. The user can use these devices using his smartphone and computer. The use of a temperature sensor measures the temperature of a house or a room and determines whether the user should use an automation system. Using this sensor allows us to capture images of intruders in the camera when there is no one in the house. All this is designed on a web page and also has the option to back up the data so that the user can get the data he wants.

#### VI. OUTCOME

In today's fast-paced modern world automation is an alternative way. The home automation system is designed to make your home more comfortable. You can use the internet of things to control some of your tasks at home.

In today's fast-paced and hectic life we often forget to turn off the T.V, and water tap in the house. This time we use the home automation system the control. this item.

#### VII. ADVANTAGES

- 1) Managing all of your home devices from one place.
- 2) Flexibility for new devices and appliances.
- 3) Maximizing home security.
- 4) Remote control of home functions.
- 5) Increase energy efficiency.
- 6) Improved appliance functionality.
- 7) Home management insight.

#### VIII. DISADVANTAGES

1) *Initial cost:*

The price of the home automation installation is still very high. The initial investment that must be made is very important since the entire home must be wired.

2) *Maintenance:*

In the event of some type of breakdown, its repair can be complex and expensive. In addition to this, it is possible that an important part of the system will be blocked and more functions will be canceled. Therefore, the cost of any type of breakdown can be very high.

3) *Data transmission speed:*

Depending on the number of systems that are connected, when transferring a large amount of data, the network can become congested and decrease the transmission speed, causing the functions to slow down.

4) *Ring connection:*

When the information is connected in the form of a ring, there may be some delay that will also depend on the number of points that are connected to the network, which gives little reliability to the system.

#### IX. FUTURE SCOPE

The Future scope for the home automation systems involves making homes even smarter. The system can be integrated closely with home security solutions to allow greater control and safety for the next step would be to extend this system to automate a large-scale environment, such as offices and factories.

- 1) several new technologies can become a part of the home
- 2) Increased efficiency, control, and customization: Artificial intelligence is set to make you lazy shortly soon
- 3) Integration of Smart home devices. One can command it to control small things of home through voice and Smartphones.
- 4) Smart spaces outside homes. Smart parking through sensors will help to recognize whether the parking is available or not.
- 5) Development of smart appliances. The devices which we use to use like television, refrigerator and even the mirror is getting smarter today with the evolution of technology

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