**Arduino uno controlled Home Automation system.**



Ever wanted to make your home automated..? Wanted to control the lights, fan and other appliances from your smartphone...? Or wanted a tutorial about connected devices and getting started with it..? Home Automation will show you how to make your home automated using an android smartphone. This requires you to have no experience of android programming at all, as a free application is included for you to develop. Using this android application you will be able to control your lights, air conditioning, door locks ,etc all from your smartphone. This system uses bluetooth to connect with your device and control the various appliances in your home. Have fun with this tutorial!

What are the stuff required to do this project..?

Hardware :

* Arduino / Arduino Clone or make your own custom arduino board.
* 2A 5v TTL -UART bluetooth module like : JY-MCU BT\_BOARD (Cheaper) or Bluesmirf Gold/Silver.
* Five 5V SPDT relays like : 5V relay.
* Prototype board or breadboard.
* Connecting wires.

Software :

* Arduino IDE : Arduino .
* Android phone with Smart-Home Application

So how does it work..?

The Android Home Automation project comes with a free application called “SmartHome” . This application controls the various appliances connected to your arduino and relays. When the toggle buttons on the application are pressed, corresponding bluetooth signals are sent from your android phone to the bluetooth module you have hooked up to your arduino. The arduino finds out which signal was sent and compares it to the predefined signals assigned for each appliance. When it identifies that signal, then the arduino activates the relay hooked up to its digital pin by passing 5V through it. Thus the relay is switched ON and the corresponding appliance connected to the relay is turned ON as well. To switch it OFF , arduino passes a 0V or logic low to its digital pin.



Step 1 : Setting up the connections for the DIY Android Home Automation project



The connection diagram for arduino is as shown. For setting up this system , wiring connections have to be made between the arduino and bluetooth module and also with the relays. Here, the bluetooth module’s Tx is connected to arduino Rx (digital pin 0) and the module’s Rx to arduino Tx (digital pin 1). 5V and GND of the module is connected to the arduino’s 5V and GND.



Step 2 : Connecting your appliance to the relay



5V SPDT Relay

In a normal SPDT relay, whose pin out is shown in the above step, pins 2 and 4 act identical to the two terminals of a switch. When digital HIGH voltage is applied from the arduino to the relay, switch turns ON, when the voltage is withdrawn it turns OFF. You can attach this system you made to a normal switchboard by extending the wires from behind the switches in the board to your relay. As seen in the connection diagram in the above step, you have to connect a power AC line to the common terminal of all the relays. Then, you have to extend the wires from behind the switchboard of the corresponding lights/lamps you wish to control. Each of these wires are connected to the “NO”(Normally Open) terminal of the relays (pin no 4 in step no 1’s relay pin out diagram). NOTE : If you wish to control door locks, you may use door lock solenoids , which can be purchased and connected to your system and turned ON/OFF using the same way. The picture below shows how you can attach the system to your switchboard (keep in mind, this is just to show you the arrangement, it is not the original system being described here):

"Or You can Use the Arduino Relay Sheld"

Step 3 : Loading the arduino software



The code is really simple, here it checks the incoming bluetooth signal via the bluetooth module and then compares (ASCII values) using an “if” statement with previously defined values. If it matches the value, relay is activated using “digitalWrite(pin,HIGH)” command , which passes 5V to the arduino digital pin.PLEASE NOTE : SINCE THE BLUETOOTH MODULE IS CONNECTED TO THE RX AND TX PINS OF THE ARDUINO, THE MODULE SHOULD BE REMOVED WHILE UPLOADING THE CODE FROM PC TO THE ARDUINO. THE MODULE SHOULD BE CONNECTED ONCE THE UPLOAD IS COMPLETE. Upload the code to your arduino board , then follow step 5.

Step 5 : Downloading the android application and setting up bluetooth



Be sure to check “Allow installation of non-Market apps” in the Security tab under settings. Once you have installed the application, before opening it you need to pair and connect with your bluetooth module. For this, you need to power the arduino and bluetooth module and then turn ON the bluetooth of your phone and make it visible to other devices. After that, search for new devices in bluetooth, select your bluetooth module from the list, enter the pairing code when prompted , it is usually ’1234′ or ’0000′ .

Note the name of your device , in this case it is “HC-06″. After pairing with the system, go to the “SmartHome” application and enter the name of your bluetooth module you noted earlier (case-sensitive) and click “OK”. After that the phone will get connected to your system , and on clicking the respective buttons, the appliances turn ON/OFF. Have fun with your new DIY Android Home Automation system!

video :- <https://www.youtube.com/watch?v=KCmGfwlDmI4>

THANKS.....!

by

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