Wireless 4 Channel RF Remote Control Home Automation System

About This Project:

With the advancement of technology, number of equipment and modern household appliances increases to make life easier and comfort. Operating them manually is a tedious job and again hectic sometimes. If one can control devices like TV, fan, light or a music system with a remote from a distance place just by pressing the button, life will become simpler. Home automation is becoming very common these days as technology advances to reduce manual work. To switch on or off the devices one has to move to the switch board which is inconvenient even for an able person. If all this manual work is replaced by a single remote control even the aged and disable person can do the task like a normal person. This work presented here is to controlled independent home electrical appliances through RF based remote system. From any place without any line of sight around the house, RF based wireless remote control system can change the state of the electrical appliances either in on state or off state. The controlling circuit is built around RF transmitter and RF Receiver modules which are operating at 433 MHZ. The main objective of this work is to build the circuit with little programming skill and to make it work without line of sight requirement using the RF technology. The main object of this project is to develop a home automation system with a four button key for transmitter by using RF (Radio Frequency) technology. Nowadays, houses are gradually shifting from normal switches to centralized control system, involving a remote control transmitter. This technology is not only easy to use but also helps to prevent missuses of energy. Remote control (key fob) transmitter is small and very light weight, which will work from a decent distance. In order to achieve this, a RF remote(Key fob) is interfaced to the microcontroller on transmitter side which sends ON/OFF commands to the receiver where loads are connected. By operating the specified remote switch on the transmitter, the loads can be turned ON/OFF remotely through wireless technology. Arduino IDE software has been used to compile some programs related to the microcontroller ATmega328.

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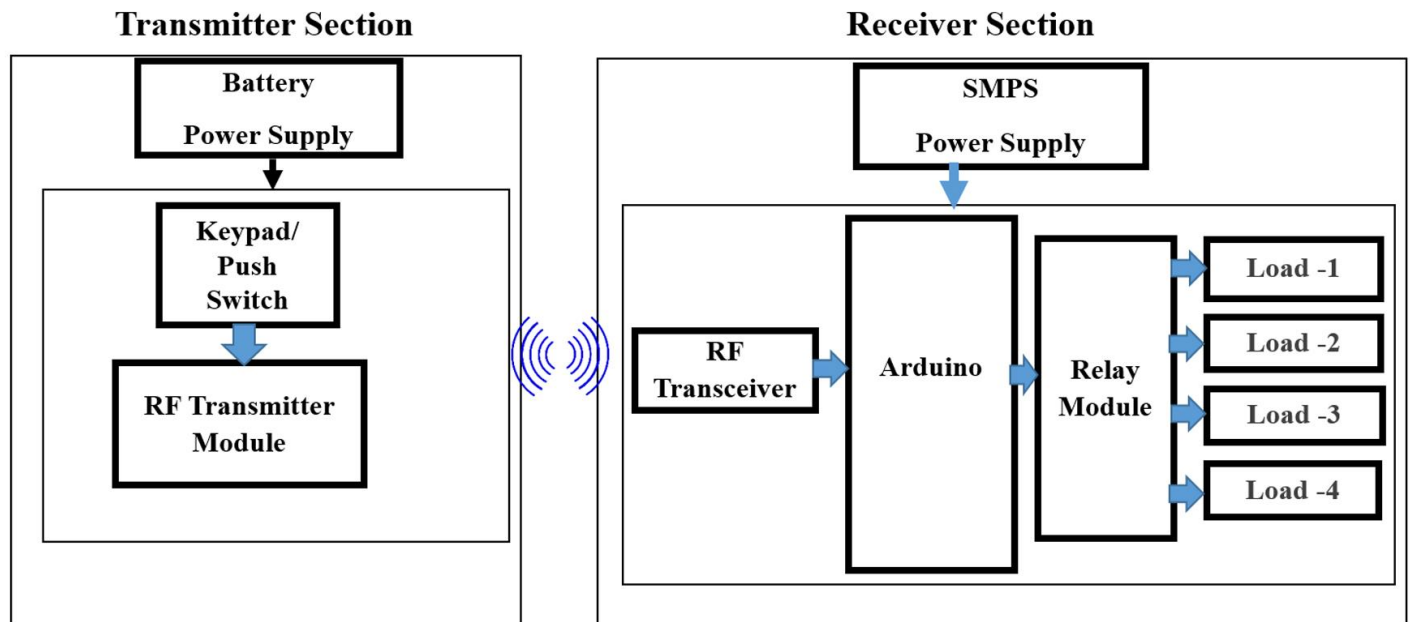01676 99 80 99
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Block Diagram:

Figure: Block Diagram of Wireless 4 Channel RF Remote Control Home Automation System

Required Instruments:

- SMPS
- Arduino Nano
- 4-Channel 433MHz Wireless RF Remote Control (Transmitter + Receiver) Transceiver Module
- Transistor BC547
- Relay
- PCB Board
- Wires for connection

Advantages:

There are many advantages of our project because of its accuracy. Some of the advantages are pointed out below:

- Our project is fully automatic and user-friendly.
- Requires no skill at all to operate the thing.
- The project is compact so takes up less space.

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- The products used in our project development are easy to find in the market so maintenance is not a big concern.
- Helps to reduce human efforts.
- Good for people with physical disabilities
- Less maintenance required

Applications:

The application areas for this project in this modern and practical world are huge and some of these are given below:

- The system can be used in houses, shopping malls etc.
- It can be effectively used by people with various physical disabilities
- The project can used in industries, factories, hospitals as well.
- The system can be used anywhere to reduce power wastage

N.B: *Any modification of this project can be done as per your requirement. We will make the project according to your needs. Contact us with your any innovative engineering projects idea. We will help you to implement your project.*