

MEMS BASED HOME APPLIANCES CONTROL

AIM:

Design and Development of MEMS based home appliances control.

PURPOSE:

Lot of home appliances control systems is available in market. Like GSM, RF, WIFI and Zigbee wireless technologies are widely used for home appliances control systems. There are no gesture control systems are available in market. We want to design and develop this kind of system using Arduino, MEMS and RF. Using RF we can make this system to wireless communication. The project title is MEMS based home appliances control using Arduino.

DESCRIPTION:

This project has two parts. One is transmitter and another one is receiver. Transmitter part has Arduino, RF and MEMS sensor. RF transmitter module connected to Arduino digital pins. MEMS sensor interfaced with Arduino I2c port. Receiver part has Arduino, RF and two relays with fan and light. Two relays has connection with Arduino digital pins and can control light and fan based on commands from Arduino.

WORKING:

MEMS sensor can detect motions in X-axis and Y-axis. When we move in front direction then Arduino generates “Fan ON” command and send to RF transmitter. This RF command is in 4 bit mode. Receiver side RF module received this command and controls corresponding Load like Fan ON. Like this Fan OFF, Light ON, Light OFF will be done through MEMS gestures or moments. Fan and Light status will be displayed on 16x2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
MEMS – Accelerometer	:	ADXL335/345
Relays	:	12V DC
Wireless Module	:	RF 433Mhz
Power Source	:	12V 1 amp Adaptor

SOFTWARE:

Arduino IDE
Proteus based circuit diagram

APPLICATIONS:

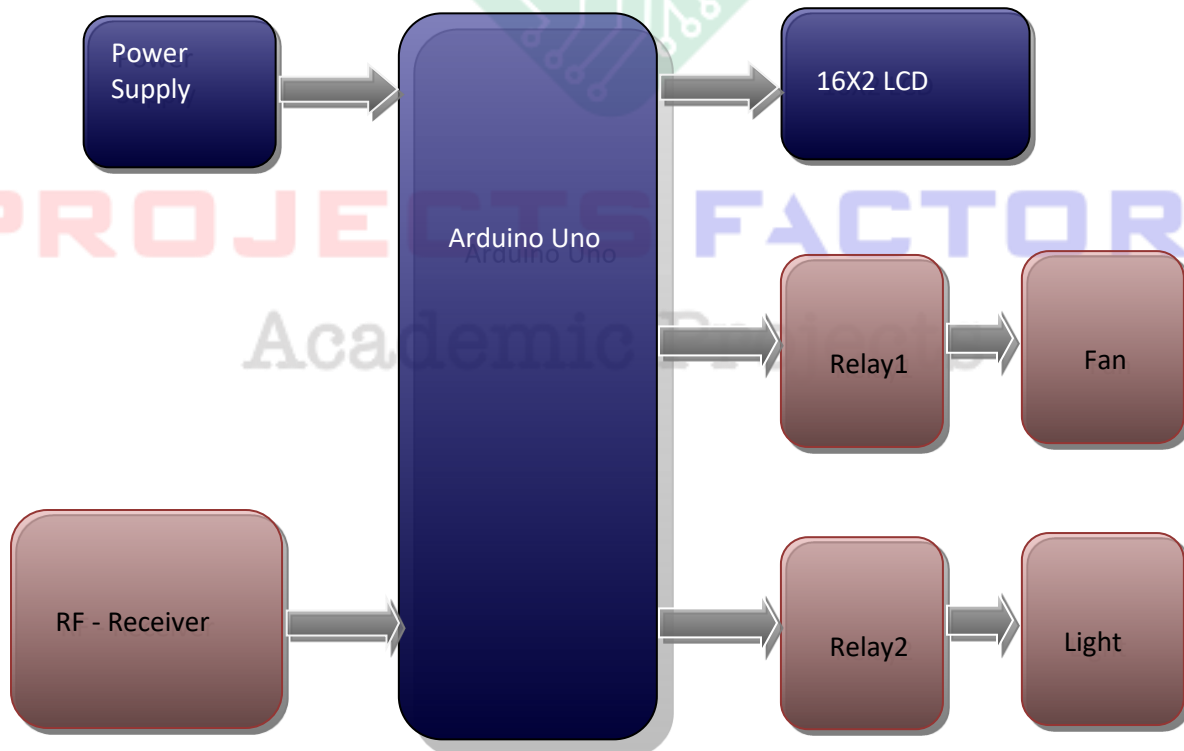
- Home Appliances control
- Smart Homes
- Industrial Appliances control

BLOCK DIAGRAM:

Transmitter:



Receiver:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered MEMS sensor Interface
- RF module and relays interface



PROJECTS FACTORY
Academic Projects