Programming:

**VirtualWire.h " header file" :**

VirtualWire is a library for Arduino, that provides features to send short messages, without addressing, retransmit or acknowledgment, a bit like UDP over wireless, using ASK (amplitude shift keying). Supports a number of inexpensive radio transmitters and receivers.

**SoftwareSerial.h " header file":**

**/We could use both Serial and SoftwareSerial at the same time, since we used different digital pins to send/receive data at the same time.**

**by default the arduino pins 0 and 1 are used for the serial communication. but if in case we want to use other pins for serial communication then we use SoftwareSerial head file.**

**#include <VirtualWire.h>**

**#include <SoftwareSerial.h>**

**SoftwareSerial Xbee(2, 3);**

**// over hear the softwareSerial is used to define pin2 and pin3 of the arduino to send and //receive data serially through Xbee.**

**int outputpin= 0; // for reading temperature**

**int relay = 13; // an ac load will be connected here**

**int relay2 = 12; // an ac load will be connected here**

**int intensity = 7; // light intensity circuit is connected here.**

**// the void setup() is a function having now arguments. this function excutes only once when //the controller is turned on. this function is used for the basic setting like specifying the baud rates or pins etc.**

**void setup()**

**{**

**Serial.begin(9600); // baud rate**

**pinMode(intensity , INPUT); // declared as input pin**

**pinMode(relay, OUTPUT); // as output pin**

**pinMode(relay2, OUTPUT);**

**digitalWrite(relay, LOW);**

**}**

**//main loop it executes again and again forever.**

**void loop()**

**{**

**int rawvoltage= analogRead(outputpin); // reading the temperature sensor.**

**float millivolts= (rawvoltage/1024.0) \* 5000;**

**float celsius= millivolts/10;**

**Serial.print(celsius);**

**//Serial.print() function is used to send data to the computer screen for the debugging //purposes.**

**Serial.print(" degrees Celsius, ");**

**Serial.print((celsius \* 9)/5 + 32); // formula for the temperature to display in Fahrenheit**

**Serial.println(" degrees Fahrenheit");**

**delay(1000); // 1 sec delay. as 1000 msec is qual to 1 sec**

**if( celsius > 30) // condition for temperature. if the temperature is greater then 30 it will //send " 1 " as a signal to the remote Xbee module and at meanwhile will also //turn on the load for the indication.**

**{**

**Xbee.write('1');**

**digitalWrite(relay, HIGH);**

**}**