SMART HOME

-CCIoT Project

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HOME AUTOMATION

Home automation or domotics is building automation for a home, called a smart home or smart house. A home automation system will control lighting, climate, entertainment systems, and appliances. It may also include home security such as access control and alarm systems.

The subparts of this project are:

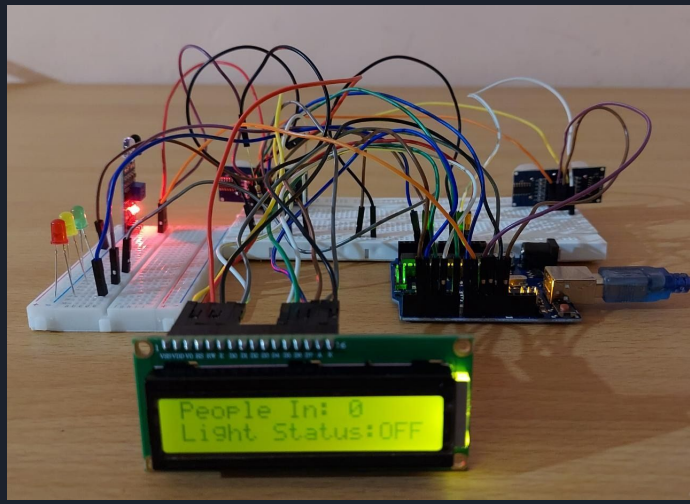
1. Bi-Directional Visitor Counter with Controlled Lighting of A Room
2. Smart Fan
3. Fire Alarm System

Bi-Directional Visitor Counter with Controlled Lighting Of A Room

The number of people entering/leaving a room through a door will be noted, finally giving the number of people in the room. This is achieved with the help of 2 ultrasonic sensors. The sequence of movement is observed by the sensors will help to know whether the person is entering or leaving.

If there are people present in the room the lights are on else they remain off. The lights can be manually switched on/off with an IR sensor. By placing the hand near it it will toggle the case of the lights. The lights used here are LEDs, but in real life this can be replaced with a light bulb powered on using a relay.

An LCD display is used to display the number of people inside the room currently and the status of the lights whether it is on/off.



Demonstration

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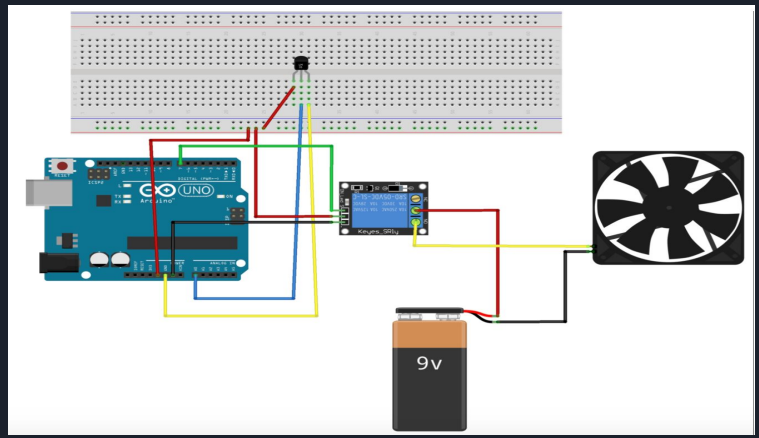
Smart Fan.

This part implements the switching on/off of a fan depending on the surrounding temperature.
The DHT-11 sensor determines the temperature of the room. If the temperature exceeds 25C, the fan switches on else it is off.
Here, a 12V fan which is powered by the Arduino using a relay and a 9V external source.



Demonstration

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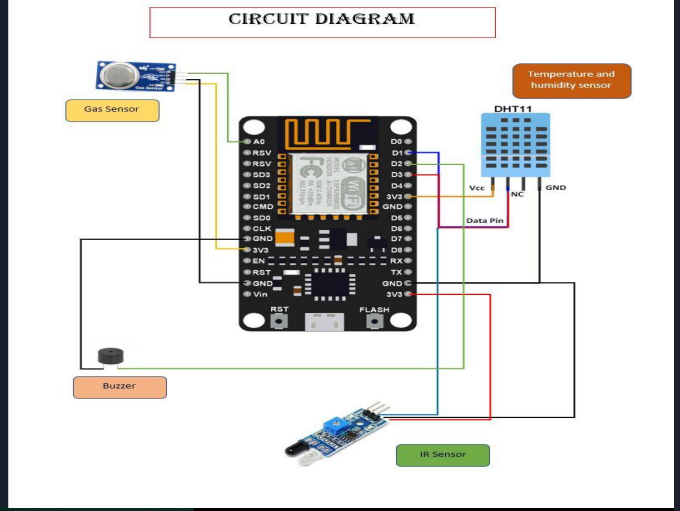
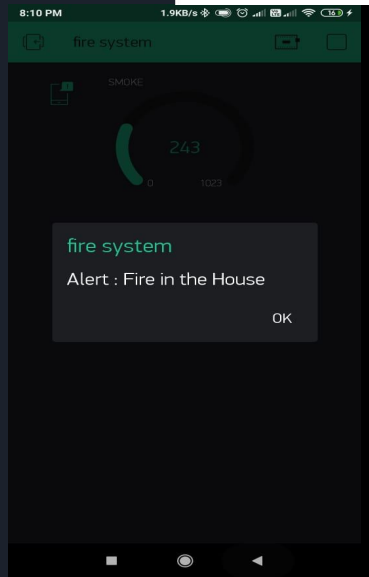
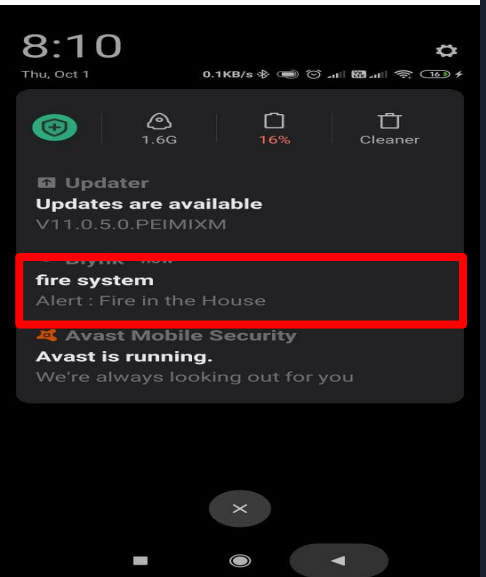
Fire Alarm System

We implement an elementary fire alarm system which involves following things:

1. Detects flames with I.R. sensor.
2. Detects smoke with MQ2 gas sensor.
3. Shows real time temperature and humidity with DHT-11 sensor and uploads the values on ThingSpeak server.
4. To warn the surroundings, an alarm is produced with a buzzer







Demonstration

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Thank You