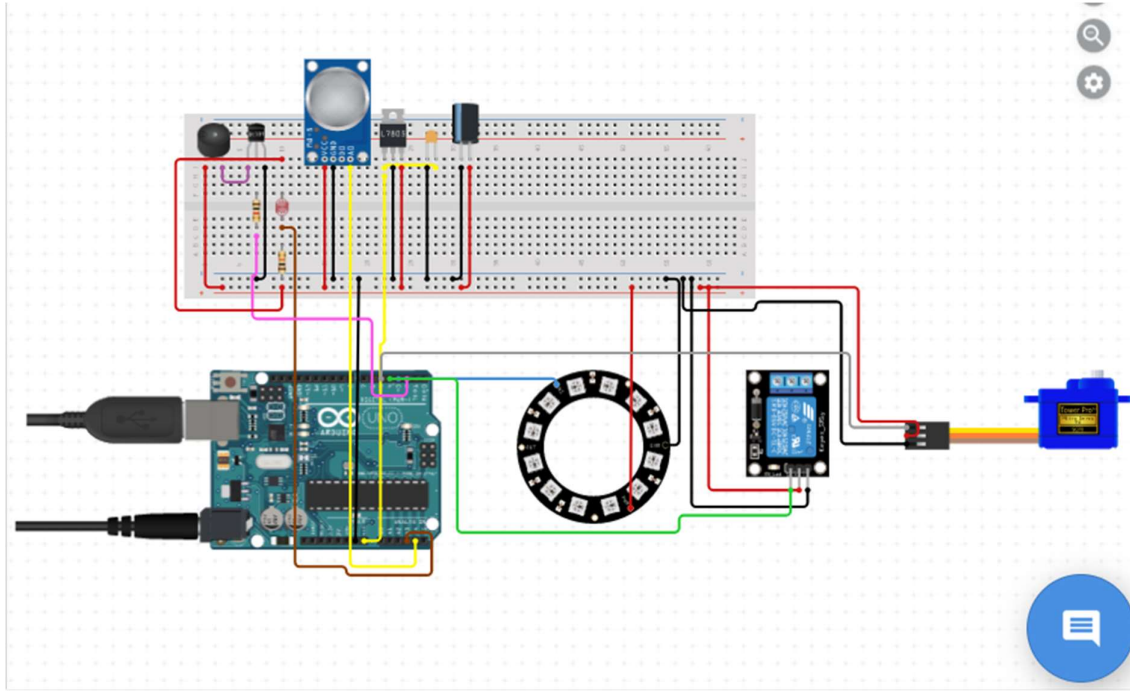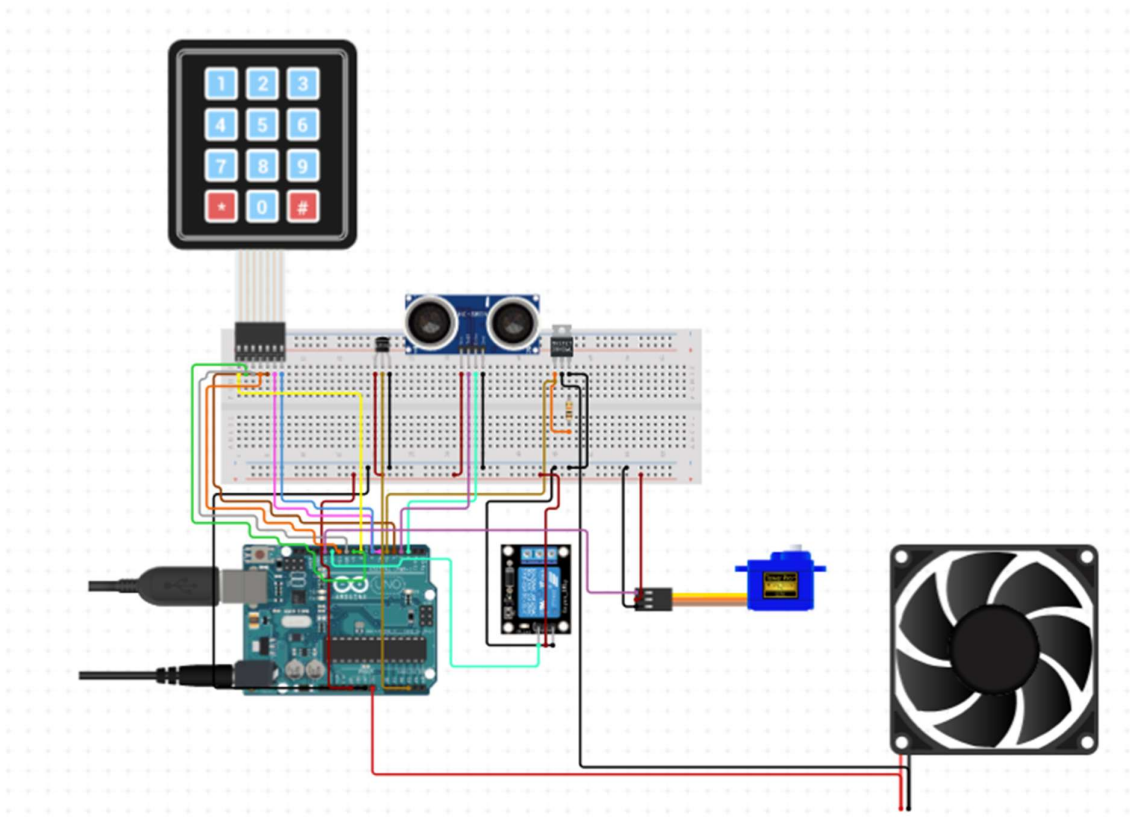# Smart Home Model

Circuit Diagram of Module 2

Circuit Diagram of Module 2

Project Details:

1. **LM35(temperature sensor):** We used this sensor to measure the temperature. According to the measured temperature our fan speed is controlled. We showed temperature reading in our screen.
2. **Fan:** We used 12V fan as a model. If temperature is above 40-degree, the fan speed is maximum. Else if temperature is above 30-degree fan will move slowly. And If temperature is under 30 then the fan is off.
3. **Motor Driver:** This works as relay and gives external power to our 12V fan.
4. **Arduino Nano:** This is used to handle fan and motor driver.
5. **LDR:** This is our photo resistor. This will measure light. If there is enough light our window and internal light is off. If there is slight light then only the window will open, but our internal light remains off. If there is not sufficient light then our window will open first, and then it is not yet sufficient light inside the room then our internal light will turn on.
6. **MQ5**(smoke detector and gas sensor): This will measure if there is smoke in the room or not.
7. Buzzer: If our smoke detector detects gas or smoke above our limit mentioned in code, then the buzzer will sound off.
8. **Key pad(4x4):** This keypad is used for password while entering the room.
9. **Sonar sensor:** While leaving the room the sonar sensor detects the person.
10. **Servo Motor:** One servo is used as window and another one is door. If one gives correct password or one want to leave the room, then the door will open.
11. **Arduino Uno:** One Uno is used to control the components 1,4, 5,6,7,10. Another one is used to control components 8-10.

Problems faced:

1. Arduino Nano was rotating the servo motor continuously. That was not expected. Then after switching with UNO then the servo motor works perfectly fine.
2. If there was a delay in code, then the fan was not moving. So we used Arduino Nano to move the fan.
3. Our temperature sensor was not functioning if we connect too many components with Arduino Uno.
4. The gas sensor sometimes shows unexpected behaviour.
5. We tried too much to use relay to control the light. But we ordered 5V relay but got 12V first time, and 24V second.
6. We wanted to use a manual override for light and fan. But when we push it, our Arduino got disconnected from power.
7. We tried so hard to show something on LCD. But our 4 pin LCD was not functioning. After so many time we noticed that the adapter connected with the main LCD was loose.

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