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Smart Home Automation System Using IoT:

Code:

```
//call lcd method
#include <LiquidCrystal.h>
//decleration inputs and outputs
int Temperature = A0;
int GasSensor = A1;
int WhiteLed = 8;
int YellowLed = 9;
int BlueLed = 10;
int Fan = 11;
int Speaker = 12;
int UltraSonic = 13;
float time = 0, distance = 0;
LiquidCrystal lcd(2, 3, 4, 5, 6, 7);

void setup() {
//lcd setup
  Serial.begin(9600);
  lcd.begin(16, 2);
//wellcome message
  lcd.print("wait please...");
  delay(1000);
  lcd.clear();
  lcd.print("Completed");
  delay(1000);
  lcd.clear();
```

```arduino
  lcd.print("Hi, Sir");
  lcd.setCursor(0, 1);
  lcd.print("Ready to go");
  delay(1000);
  lcd.clear();
//define outputs
  pinMode(WhiteLed, OUTPUT);
  pinMode(YellowLed, OUTPUT);
  pinMode(BlueLed, OUTPUT);
  pinMode(Speaker, OUTPUT);
  pinMode(UltraSonic, OUTPUT);
  pinMode(Fan, OUTPUT);
}

void loop() {
//take temperature sensor input value
  int ts = analogRead(Temperature);
  float Temp = ts * 500.0 / 1023.0;
//print the temp
  lcd.print("Temp = ");
  lcd.print(Temp);
//condition of the two cases
  if (Temp > 37){
    digitalWrite(Fan, HIGH);
    digitalWrite(WhiteLed, HIGH);
    lcd.setCursor(0, 1);
    lcd.print("Danger in Temp");
    delay(2000);
    lcd.clear();
    lcd.print("Fan is on");
    delay(2000);
    lcd.clear();
```

```arduino
  }
  else {
    digitalWrite(Fan, LOW);
    digitalWrite(WhiteLed, LOW);
    lcd.setCursor(0, 1);
    lcd.print("Temp is fine");
    delay(2000);
    lcd.clear();
    lcd.print("Fan is off");
    delay(2000);
    lcd.clear();
  }
//take gas sensor input value
  int gs = analogRead(GasSensor);
//print the temp
  lcd.print("Gas rate = ");
  lcd.print(gs);
//condition of the two cases
  if (gs > 35){
    digitalWrite(Fan, HIGH);
    digitalWrite(YellowLed, HIGH);
    lcd.setCursor(0, 1);
    lcd.print("Gas rate Danger!");
    delay(2000);
    lcd.clear();
    lcd.print("Fan is on");
    delay(2000);
    lcd.clear();
  }
  else {
    digitalWrite(Fan, LOW);
    digitalWrite(YellowLed, LOW);
```

```
    lcd.setCursor(0, 1);

    lcd.print("Gas rate fine");

    delay(2000);

    lcd.clear();

    lcd.print("Fan is off");

    delay(2000);

    lcd.clear();

   }
  //take the time of transfer from low to high
  pinMode(UltraSonic,OUTPUT);
  digitalWrite(UltraSonic, LOW);
  delay(0.1);
  digitalWrite(UltraSonic, HIGH);
  delay(0.1);
  digitalWrite(UltraSonic, LOW);
  delay(0.1);
  pinMode(UltraSonic, INPUT);
  time = pulseIn(UltraSonic, HIGH);
//transfer time to distance
  distance = (time)/29 /2 ;
//print results
  lcd.print("Distance = ");
  lcd.print(distance);
  lcd.print("cm");
//condition of the two cases
  if (distance <= 100){
    tone(Speaker,  220, 10000000);
    digitalWrite(BlueLed, HIGH);
    lcd.setCursor(0, 1);
    lcd.print("Object Danger!");
    delay(2000);
    lcd.clear();
```

```
      lcd.print("Speaker is on");
      delay(2000);
      lcd.clear();
    }
   else {
    digitalWrite(BlueLed, LOW);
    noTone(Speaker);
    lcd.setCursor(0, 1);
    lcd.print("No One in range");
    delay(2000);
    lcd.clear();
    lcd.print("Speaker is off");
    delay(2000);
    lcd.clear();
    }
}
```