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#include
<LiquidCrystal.h>
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LiquidCrystal lcd(6, 7, 8, 9, 10, 11);
float gasPin = A0;
float gasLevel;
int ledPin = 2;
int buttonPin = 3;
int buzzPin = 4;
int buttonState;
int fan = 5;

void setup(){
    pinMode(ledPin, OUTPUT);
    pinMode(buttonPin, INPUT);
    pinMode(gasPin,INPUT);
    pinMode(fan,OUTPUT);
    Serial.begin(9600);
    lcd.begin(16, 2);
    lcd.setCursor(0,0);
    lcd.print(" Welcome");
    lcd.setCursor(0,2);
    lcd.print("GAS LEAKAGE SYSTEM");
    delay(500);
    lcd.clear();
}

void loop(){
    // Read the value from gas sensor and button
    gasLevel = analogRead(gasPin);
    buttonState = digitalRead(buttonPin);

    // call the function for gas detection and button work
    gasDetected(gasLevel);
    buzzer(gasLevel);
    exhaustFanOn(buttonState);
}

// Gas Leakage Detection & Automatic Alarm and Fan ON
void gasDetected(float gasLevel){
    if(gasLevel >= 300){
        digitalWrite(buzzPin,HIGH);
        digitalWrite(ledPin,HIGH);
        digitalWrite(fan,HIGH);
        lcd.setCursor(0,0);
        lcd.print("GAS:");
    }
}
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        lcd.print(gasLevel);
        lcd.setCursor(0,2);
        lcd.print("FAN ON");
        delay(1000);
        lcd.clear();
    }else{
        digitalWrite(ledPin,LOW);
        digitalWrite(buzzPin,LOW);
        digitalWrite(fan,LOW);
        lcd.setCursor(0,0);
        lcd.print("GAS:");
        lcd.print(gasLevel);
        lcd.setCursor(0,2);
        lcd.print("FAN OFF");
        delay(1000);
        lcd.clear();
    }
}

//BUZZER
void buzzer(float gasLevel){
    if(gasLevel>=300)
    {
        for(int i=0; i<=30; i=i+10)
        {
            tone(4,i);
            delay(400);
            noTone(4);
            delay(400);
        }
    }
}

// Manually Exhaust FAN ON
void exhaustFanOn(int buttonState){
    if(buttonState == HIGH){
        digitalWrite(fan,HIGH);
        lcd.setCursor(0,0);
        lcd.print("Button State:");
        lcd.print(buttonState);
        lcd.setCursor(0,2);
        lcd.print("FAN ON");
        delay(10000);
        lcd.clear();
    }
}

```