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#include<SoftwareSerial.h>

SoftwareSerial Serial1(2,3);

#include<LiquidCrystal.h>

LiquidCrystal lcd(14,15,16,17,18,19);

int led=12;

int flag=0;

String str="";

#define sensor 7

void setup()

{

    lcd.begin(16,2);

    Serial1.begin(9600);

    Serial.begin(9600);

    pinMode(led, OUTPUT);

    pinMode(sensor, INPUT_PULLUP);

    lcd.print("Smart AC system");

    lcd.setCursor(4,1);

    delay(5000);

    lcd.clear();

    lcd.print("Welcome");

    lcd.setCursor(0,1);

    lcd.print("Hi!!!!");

    delay(5000);

    gsmInit();

    lcd.clear();

    lcd.print("Air Monitor System Ready");

}

void loop()

{

    lcd.setCursor(0,0);
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lcd.print("activate Mode  ");
if(digitalRead(sensor)==1 && flag==0)
{
    delay(1000);
    if(digitalRead(sensor)==1)
    {
        digitalWrite(led, LOW);
        sendSMS("Air Quality is Normal. Security system turned OFF");
        lcd.begin(16,2);
        lcd.setCursor(0,1);
        lcd.print("Alarm off  ");
        delay(2000);
        flag=1;
    }
}
else if(digitalRead(sensor)==0 && flag==1)
{
    delay(1000);
    if(digitalRead(sensor)==0)
    {
        digitalWrite(led, HIGH);
        sendSMS("Alert, gas leakage detected. Security system turned ON");
        lcd.begin(16,2);
        lcd.print("Alarm on");
        lcd.setCursor(0,1);
        lcd.print("Alarm On");
        delay(2000);
        flag=0;
    }
}
}

```

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void sendSMS(String msg)
{
    lcd.clear();
    lcd.print("Sending SMS");
    Serial1.println("AT+CMGF=1");
    delay(500);
    Serial1.print("AT+CMGS=");
    Serial1.print("");
    Serial1.print("+91xxxxxxxxxx"); // number
    Serial1.print("");
    Serial1.println();
    delay(500);
    Serial1.println(msg);
    delay(500);
    Serial1.write(26);
    delay(1000);
    lcd.clear();
    lcd.print("SMS Sent");
    delay(1000);
    lcd.begin(16,2);
}

void gsmlnit()
{
    lcd.clear();
    lcd.print("Finding Module..");
    boolean at_flag=1;
    while(at_flag)
    {
        Serial1.println("AT");
        while(Serial1.available()>0)
        {

```

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    if(Serial1.find("OK"))
        at_flag=0;
    }
    delay(1000);
}
Serial1.println("ATE0");
lcd.clear();
lcd.print("Finding Network..");
boolean net_flag=1;
while(net_flag)
{
    Serial1.println("AT+CPIN?");
    while(Serial1.available()>0)
    {
        if(Serial1.find("READY"))
            net_flag=0;
        break;
    }
    delay(1000);
}
Serial1.println("AT+CNMI=2,2,0,0,0");
delay(1000);
Serial1.println("AT+CMGF=1");
delay(1000);
Serial1.println("AT+CSMP=17,167,0,0");
lcd.clear();
Serial1.flush();
}

```