#include<LiquidCrystal.h>

LiquidCrystal lcd(13,11,5,4,3,2);

#define MAX\_LIMIT 40 //Maximum number of persons allowed in the hall or room

#define in 8 //IR Sensor 1

#define out 7 //IR sensor 2

#define buz 9 //Buzzer pin

int count=0, pos=0;

//Function to Display the count on LCD

void displayCount(int num){

char str[6]; //To hold count to be displayed

int i, rem, len = 0, n;

/\*Convert integer (count) to string for displaying on LCD\*/

n = num;

while (n != 0){

len++;

n /= 10;

}

for (i = 0; i < len; i++){

rem = num % 10;

num = num / 10;

str[len - (i + 1)] = rem + '0';

}

str[len] = '\0'; //Put NULL character to end the string

/\*If count in room or hall is less than maximum limit of the hall or room,

then display the message on LCD to print Number of persons in room \*/

if(count < MAX\_LIMIT){

lcd.clear();

lcd.setCursor(0,0);

lcd.print("No. of Persons");

lcd.setCursor(0,1);

lcd.print("in Room: ");

}

/\*If number of persons in room is equal to MAX\_LIMIT of the room,

then display the message as Room Full \*/

if(count==15){

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Room Full ");

lcd.setCursor(0,1);

lcd.print("No.of Persons:");

}

/\*If number of persons in room is greater than MAX\_LIMIT,

then display the message as Over Crowded Room and also turn on Buzzer\*/

if(count>15){

digitalWrite(buz, HIGH); //Buzzer made ON

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Over CrowdedRoom");

lcd.setCursor(0,1);

lcd.print("No.of Persons:");

}

else{ //If count is less than or equal to MAX\_LIMIT, the turnoff buzzer

digitalWrite(buz, LOW);

}

//Display the count on LCD

lcd.print(str);

}

//Setup function for initial setup

void setup(){

//IR sensor pins are made as input pins

pinMode(in, INPUT);

pinMode(out, INPUT);

//Buzzer pin is made as output pin

pinMode(buz, OUTPUT);

// Buzzer made ON for small duration to indicate start of the counting

digitalWrite(buz,HIGH);

delay(1000);

digitalWrite(buz,LOW);

delay(50);

//Initial Message on LCD

lcd.begin(16,2);

lcd.print("Visitor Counter");

delay(100);

lcd.setCursor(0,1);

lcd.print("TechKnowLogyPark");

delay(100);

}

//Loop function

void loop(){

if((digitalRead(in))==0){

delay(20);

while((digitalRead(in))==0);

/\*

Arrangement or placing of sensors: while entering the room from outside, sensor1 will be

encounterd first and sensor2 will be next.

pos will tell the position of a person, entering/leaving the room

If pos=0, default value; No person is entering/leaving the room/hall

If pos=1, person is entering the room and crossed sensor1 (in)

If pos=2, person has entered the room after crossing both the sensors

If pos=3, person is going out of the room and crossed the sensor2 (out)

If pos=4, person has gone out of the room after crossing both the sensors

\*/

if(pos==0)

pos=1;

else if(pos==3)

pos=4;

}

if(pos==4 && count!=0){

count--; //person has left the room, decrement the count

displayCount(count);

pos=0;

}

if((digitalRead(out))==0){

delay(20);

while((digitalRead(out))==0);

if(pos==1)

pos=2;

else if(pos==0)

pos=3;

}

if(pos==2){

count++; //person has entered the room, increment the count

displayCount(count);

pos=0;

}

else if(pos==4 && count!=0){

count--; //person has left the room, decrement the count

displayCount(count);

pos=0;

}

delay(50);

}