6.1 SAMPLE CODE:

```cpp
#include <Wire.h>

#include <LiquidCrystal_I2C.h>

#include <Servo.h>


// Define I2C address for the LCD

LiquidCrystal_I2C lcd(0x27, 16, 2);


// Define pins for IR sensors

const int IR_SENSOR_1_PIN = 14; // GPIO 14 (D5)

const int IR_SENSOR_2_PIN = 13; // GPIO 13 (D7)


// Define pin for the servo motor

const int SERVO_PIN = 2; // GPIO 12 (D4)

Servo servo;

// Variables to store in and out counts

int inCount = 0;

int outCount = 0;


// State variables

bool doorOpened = false;


void setup() {

  // Initialize Serial Monitor

Serial.begin(9600);

lcd.begin();

  // Initialize LCD

lcd.backlight();

lcd.setCursor(0, 0);

lcd.print("Welcome!");
```

```arduino
  // Initialize IR sensors
  pinMode(IR_SENSOR_1_PIN, INPUT);
  pinMode(IR_SENSOR_2_PIN, INPUT);

  // Initialize Servo
  servo.attach(SERVO_PIN);
  servo.write(90); // Start at neutral position (door closed)

  // Allow some time for setup display
  delay(2000);
}
void loop() {
  lcd.clear();
  lcd.setCursor(0, 0);
  lcd.print("Welcome!");
  lcd.setCursor(0, 1);
  lcd.print("In: ");
  lcd.print(inCount);
  lcd.print(" Out: ");
  lcd.print(outCount);
  Serial.println("Printed");

  // Read IR sensor states
  bool ir1Detected = digitalRead(IR_SENSOR_1_PIN) == LOW;
  bool ir2Detected = digitalRead(IR_SENSOR_2_PIN) == LOW;

  // Print IR sensor data to Serial Monitor
  Serial.print("IR1: ");
  Serial.print(ir1Detected);
  Serial.print(" IR2: ");
  Serial.println(ir2Detected);
```

```
  if (ir1Detected==1) {
    // IR sensor 1 detected, open the door
servo.write(0);
doorOpened = true;
inCount++;
delay(2000); // Wait for 2 seconds before closing the door
servo.write(90);
doorOpened = false;
  }


  if (ir2Detected==0) {
    // IR sensor 2 detected, close the door
servo.write(180);
doorOpened = true;
outCount++;
delay(2000); // Wait for 2 seconds before closing the door
servo.write(90);
doorOpened = false;
  }
delay(500);
}
```