ASSIGNMENT – 1

HOME AUTOMATION

Assignment Date	19 September, 2022
Student Name	Mithuna J
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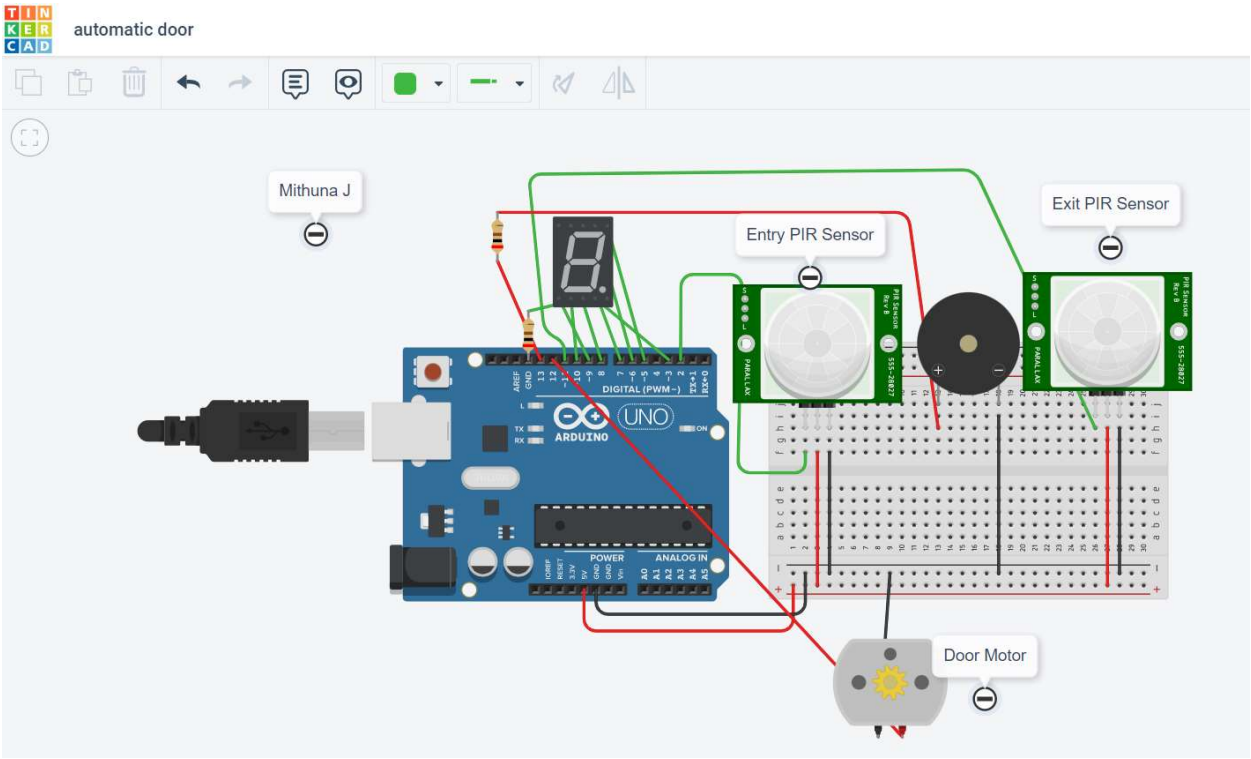
Maximum Marks	2 marks

Question 1:

Home Automation using TinkerCAD (Minimum 2 sensors)

Solution:

Circuit Diagram:



Source code:

```
int A = 6;
int B = 5;
int C = 3;
int D = 10;
int E = 9;
int F = 7;
int G = 8;

int pins[7] = {A, B, C, D, E, F, G};

byte entryPin = 2;
byte exitPin = 11;
byte motorPin = 12;
byte buzzerPin = 13;

byte count;

int segCode[10][7] = {
  {1, 1, 1, 1, 1, 1, 0},
  {0, 1, 1, 0, 0, 0, 0},
  {1, 1, 0, 1, 1, 0, 1},
  {1, 1, 1, 1, 0, 0, 1},
  {0, 1, 1, 0, 0, 1, 1},
  {1, 0, 1, 1, 0, 1, 1},
  {1, 0, 1, 1, 1, 1, 1},
  {1, 1, 1, 0, 0, 0, 0},
  {1, 1, 1, 1, 1, 1, 1},
```

```
  {1, 1, 1, 1, 0, 1, 1},
};

void setup() {
  for(int i = 0; i < 7; i++){
    pinMode(pins[i], OUTPUT);
    digitalWrite(pins[i], LOW);
  }
  Serial.begin(9600);
  digitalWrite(motorPin, LOW);
  count = 0;
}

void loop() {
  byte entryPIR = digitalRead(entryPin);
  byte exitPIR = digitalRead(exitPin);
  bool humanDetected = false;
  if(entryPIR == HIGH){
    if(count == 9)
      tone(buzzerPin, 220, 5000);
    else{
      count++;
      humanDetected = true;
    }
  }
  if(exitPIR == HIGH && count > 0){
    count--;
    humanDetected = true;
```

```
  }

  displayNumber(count);

  if(humanDetected == true){
    digitalWrite(motorPin, HIGH);
    delay(5000);
    digitalWrite(motorPin, LOW);
    humanDetected = false;
  }
  delay(100);
}

void displayNumber(byte i){
  for(int j = 0; j < 7; j++)
  {
    if(segCode[i][j] == 1)
      digitalWrite(pins[j], HIGH);
    else
      digitalWrite(pins[j], LOW);
  }
}
```