Project Development Part 2

Traffic Management

Team Details

Mentor	Mrs M.Maheshwari
Leader	M.Keerthika
Members	M.Abinaya R.Deepa K.Divya R.Mahalakshmi
Problem Description	We will start to build the IOT simulation of another part for traffic management

Simulation Steps

STEP 1: Access Wokwi

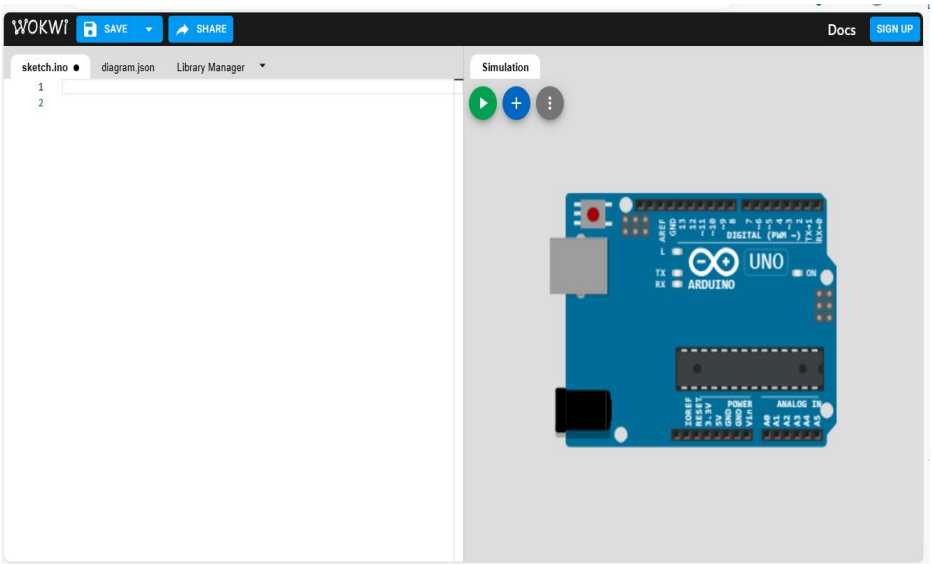
- Go to the websites(https://wokwi.com)

STEP 2: Create a Project

- Click on the new project

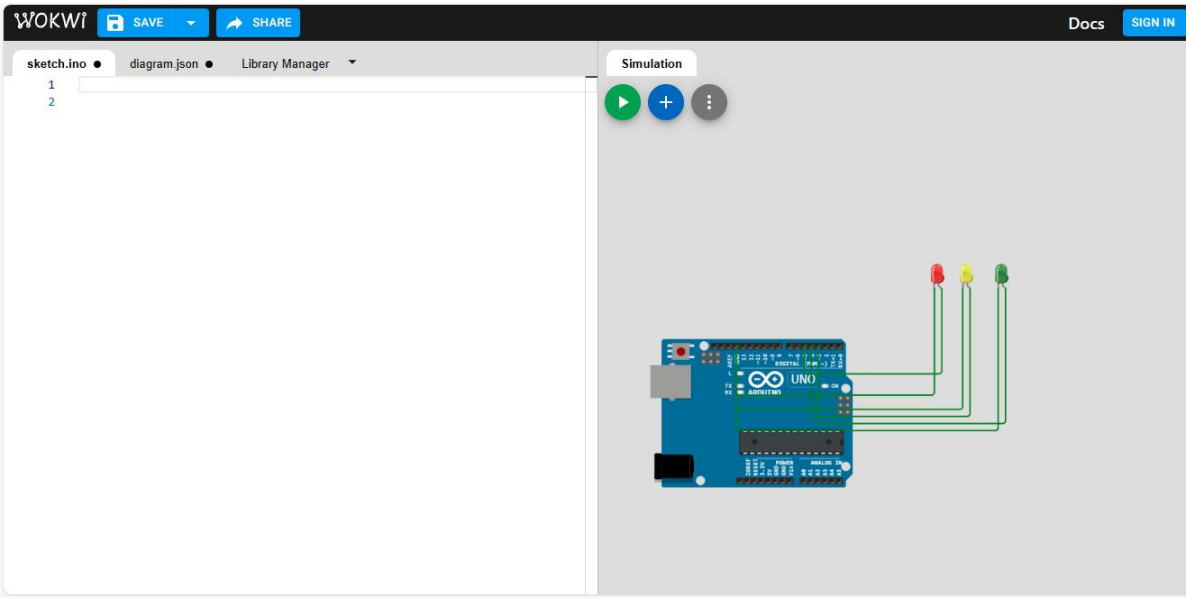
STEP 3: Add component

- In the component panel search for a “Arduino UNO” and drag it onto the virtual breadboard



STEP 4: Add a LED

- Find and drag an LED
- Drag the 3 LED with different kind of colours(red,yellow and green)

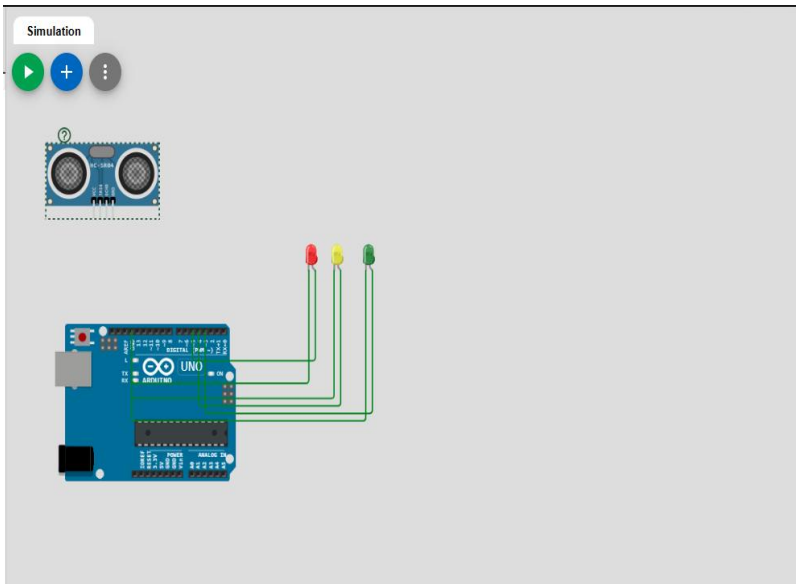


SIMULATION CONNECTION:

- LED 1 Cathode connected in the “Arduino” at GND 1.
- LED 1 Anode connected in the “Arduino” at uno 5.
- LED 2 Cathode connected in the “Arduino” at GND 1.
- LED 2 Anode connected in the “Arduino” at uno 4.
- LED 3 Cathode connected in the “Arduino” at GND 1.
- LED 3 Anode connected in the “Arduino” at uno 3.

STEP 5: Add a Ultrasonic sensor.

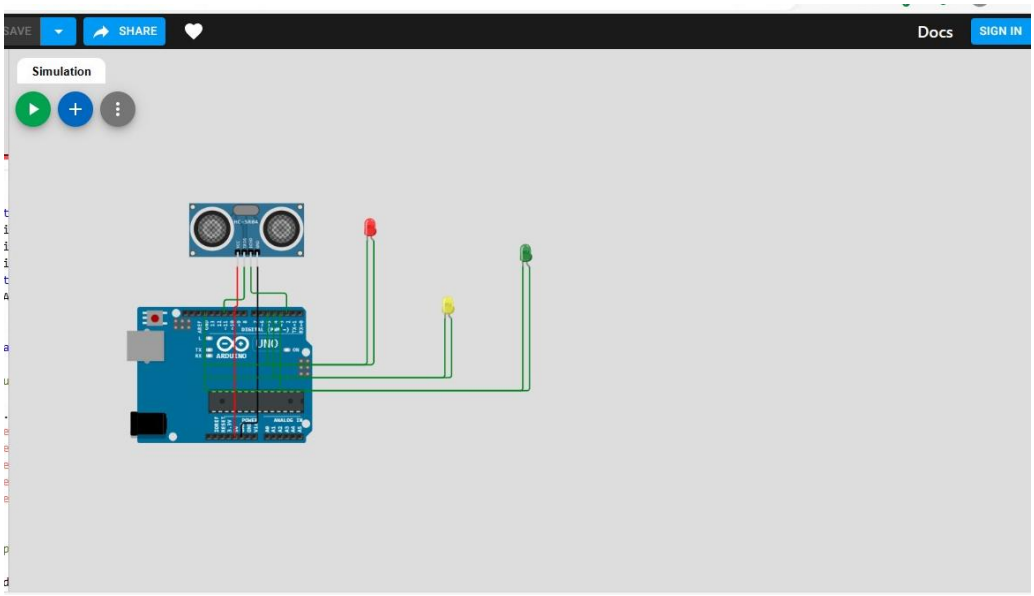
- Find and drag a ultrasonic sensor.



Simulation steps:

- Ultrasonic 1:GND is connected to the “Arduino” at uno GND 2.
- Ultrasonic 1.Echo is connected to the “Arduino” at uno 2.
- Ultrasonic 1.TRIG is connected to the “Arduino” at Uno 11.
- Ultrasonic 1.VCC is connected to the “Arduino” at Uno 5V.

ULTRASONIC CONNECTIO TO THE “ARDUINO”



STEP 6: CODE

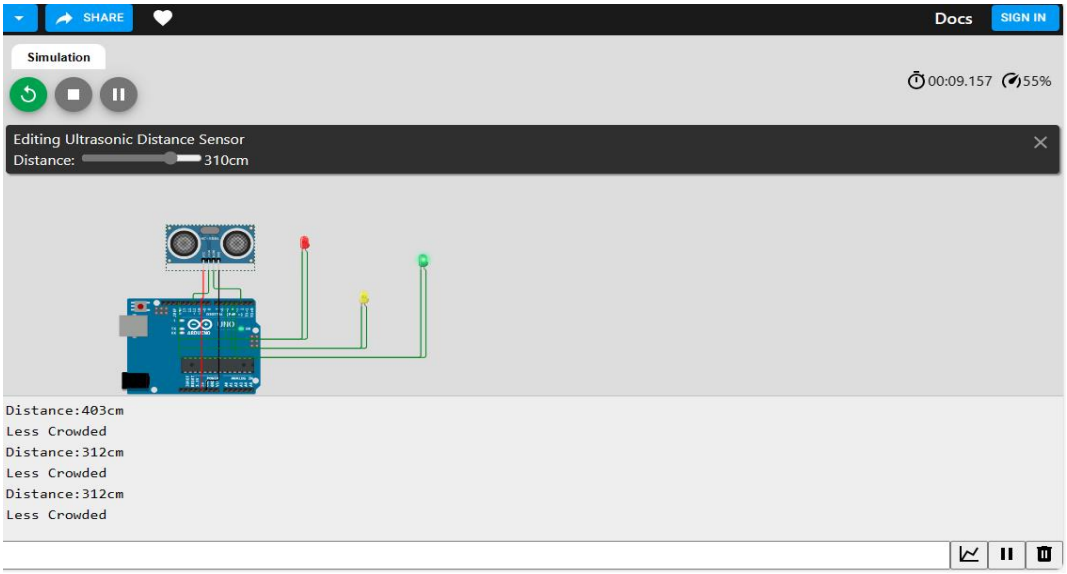
```
#include <WiFi.h>
#include <ThingSpeak.h>
#include <stdio.h>
const int echoPin=2;
int ledPin1=3;
int ledPin2=4;
int ledPin3=5;
const int trigPin=11;
bool ledActivated=false;
unsigned long ledActivationTime=0;
unsigned long myChannelNumber =  2126746;
const char * myWriteAPIKey = "LZNGZ5F5XFUQXLO7";

void setup()
{
  Serial.begin(9600);
  pinMode(echoPin,INPUT);
  pinMode(trigPin,OUTPUT);
  pinMode(ledPin1,OUTPUT);
  pinMode(ledPin2,OUTPUT);
  pinMode(ledPin3,OUTPUT);
```

```
}

void loop()
{
  if(!ledActivated)
  {
    digitalWrite(trigPin,LOW);
    delayMicroseconds(2);
    digitalWrite(trigPin,HIGH);
    delayMicroseconds(10);
    digitalWrite(trigPin,LOW);

    unsigned long duration=pulseIn(echoPin,HIGH);
    unsigned long distance=duration/58;

    Serial.print("Distance:");
    Serial.print(distance);
    Serial.println("cm");

    if(distance<50)
    {
      digitalWrite(ledPin3,HIGH);
      Serial.println("Heavily Crowded");
      ledActivated=true;
      ledActivationTime=millis();
    }

    else if(distance<100)
    {
      digitalWrite(ledPin2,HIGH);
      Serial.println("Moderately Crowded");
      ledActivated=true;
      ledActivationTime=millis();
    }

    else
    {
      digitalWrite(ledPin1,HIGH);
      Serial.println("Less Crowded");
      ledActivated=true;
      ledActivationTime=millis();
    }
  }

  else
  {
    if(millis()-ledActivationTime>=2000)
    {
```

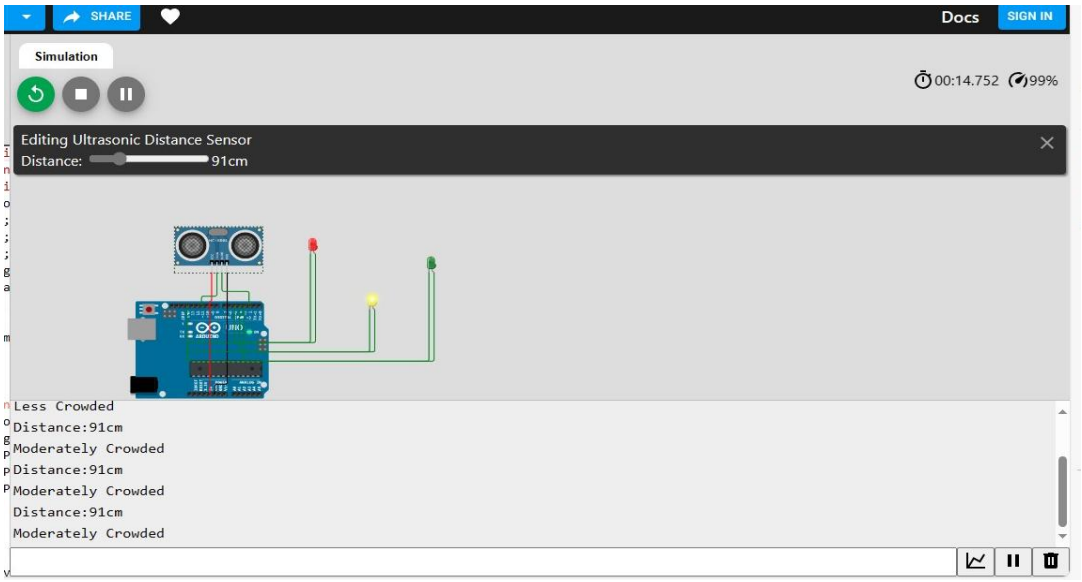
```
      digitalWrite(ledPin1,LOW);
      digitalWrite(ledPin2,LOW);
      digitalWrite(ledPin3,LOW);
      ledActivated=false;
    }
  }
  delay(1000);
}
```

STEP 7: Simulation

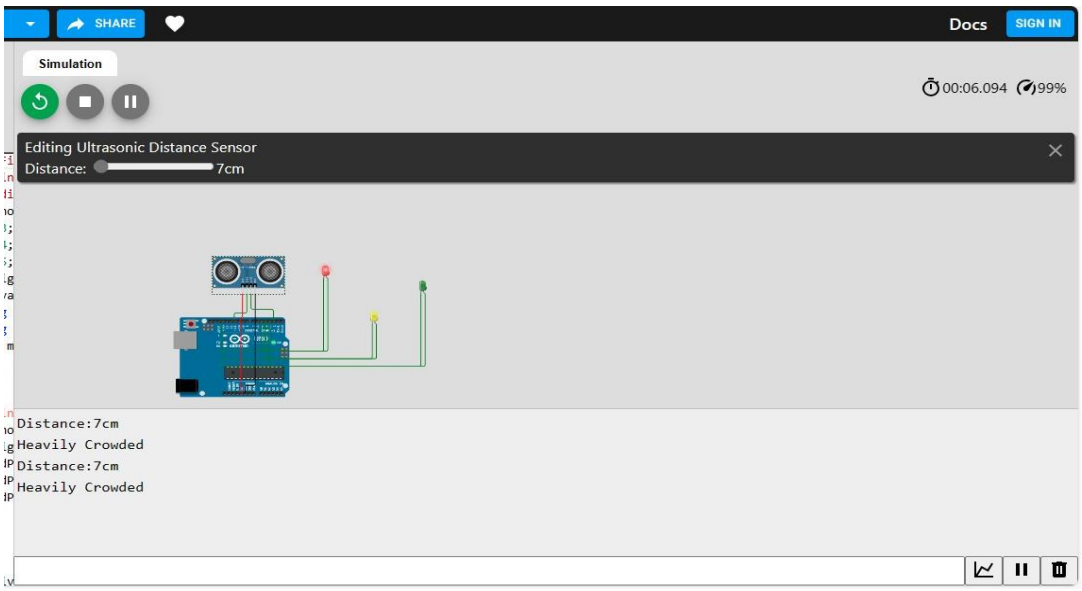
- Click on the simulate button to start the simulation.
- The LED should start to blinking the according to the ultrasonic sensor distance.
- The green light will be blink when the ultrasonic distanc sensor has high volume then it will display that the less crowed .



- The Yellow light will be blink when the ultrasonic distanc sensor has medium volume then it will display that the moderately crowed .



- The Green light will be blink when the ultrasonic distanc sensor has less volume then it will display that the heavy crowed .



WEB APPLICATIO FOR TRAFFIC MANAGEMENT

CODE:

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible"
content="IE=edge">
  <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  <title>WEB APPLICATION </title>
  <style>
    @import
url('https://fonts.googleapis.com/css2?family=Nunito:wg
ht@400;700&display=swap');

    * {
      margin: 0;
      padding: 0;
      box-sizing: border-box;
    }

    body {
      color: #000;
      font-family: 'Nunito', sans-serif;
    }
```

```
.testimonial {
  height: 100%;
  display: flex;
  flex-direction: column;
  justify-content: center;
  align-items: center;
  padding-bottom: 5rem;
}

h1 {
  margin: 20px 0;
}

.line {
  height: 2px;
  width: 6rem;
  background-color: #e26c4f;
  margin-bottom: calc(3rem + 2vmin);
}

.arrow-wrapper {
  position: relative;
  width: 70%;
  border-radius: 2rem;
  box-shadow: rgba(99, 99, 99, 0.2) 0px 2px 8px 0px;
  overflow: hidden;
  place-items: center;
}
```

```
.review-wrap {
  display: flex;
  flex-direction: column;
  justify-content: center;
  align-items: center;
  padding-top: calc(2rem + 1vmin);
  width: 100%;
}

#imgBox {
  border-radius: 50%;
  width: calc(10rem + 4vmin);
  height: calc(10rem + 4vmin);
  position: relative;
  box-shadow: 5px -3px #e26c4f;
  background-size: cover;
  margin-bottom: calc(0.7rem + 0.5vmin);
}

#name {
  margin-bottom: calc(0.7rem + 0.5vmin);
  font-size: calc(1rem + 0.5vmin);
  letter-spacing: calc(0.1rem + 0.1vmin);
  font-weight: bold;
}

#profession {
  font-size: calc(0.8rem + 0.3vmin);
```

```
    margin-bottom: calc(0.7rem + 0.5vmin);
    color: #e26c4f;
  }

  #description {
    font-size: calc(0.8rem + 0.3vmin);
    width: 70%;
    max-width: 40rem;
    text-align: center;
    margin-bottom: calc(2.4rem + 1vmin);
    color: rgb(92, 92, 92);
    line-height: 2rem;
  }

  .arrow {
    width: calc(1.4rem + 0.6vmin);
    height: calc(1.4rem + 0.6vmin);
    border: solid #e26c4f;
    border-width: 0 calc(0.5rem + 0.2vmin) calc(0.5rem
+ 0.2vmin) 0;
    cursor: pointer;
    transition: transform 0.3s;
  }

  .arrow:hover {
    transition: 0.3s;
    transform: scale(1.15);
  }
```

```
    .left-arrow-wrap {
      position: absolute;
      top: 50%;
      left: 5%;
      transform: rotate(135deg);
    }

    .right-arrow-wrap {
      position: absolute;
      top: 50%;
      right: 5%;
      transform: rotate(-45deg);
    }

    @media screen and (max-width: 900px) {
      .testimonial {
        width: 100%;
      }
    }
  </style>
</head>

<body>
  <div class="testimonial">
    <h1>TRAFFIC MANAGEMENT USING IOT</h1>
    <div class="line"></div>
    <!-- arrow wrapper contains the review and the arrows
-->
    <div class="arrow-wrapper">
```

```
      <!-- review section -->
      <div id="reviewWrap" class="review-wrap">
        <div id="imgBox"></div>
        <div id="name"></div>
        <div id="profession"></div>
        <div id="description"></div>
      </div>
      <!-- left arrow -->
      <div class="left-arrow-wrap">
        <div class="arrow"></div>
      </div>
      <!-- right arrow -->
      <div class="right-arrow-wrap">
        <div class="arrow"></div>
      </div>
    </div>
  </div>

  <script>
    const reviewWrap =
document.getElementById("reviewWrap");
    const leftArrow = document.querySelector(".left-
arrow-wrap .arrow");
    const rightArrow = document.querySelector(".right-
arrow-wrap .arrow");
    const imgBox =
document.getElementById("imgBox");
    const name = document.getElementById("name");
```

```
    const profession =
document.getElementById("profession");
    const description =
document.getElementById("description");

    let people = [{
        photo:
'url("https://th.bing.com/th/id/OIP.tBrw_mxy9n2uhuUj1f
9hzwHaF8?pid=ImgDet&rs=1.jpg")',
        name: "Traffic management",
        profession: "Monitor traffic flow",
        description: "Traffic management using iot devices
to mointor the traffic flow and congestion:"
      },
      {
        photo:
"url('https://ae01.alicdn.com/kf/HTB1F4S5RXXXXXXaC
XpXXq6xXFXXXR/High-quality-New-design-single-
light-300mm-red-color-LED-traffic-signal-light.jpg')",
        name: "RED SIGNAL",
        profession: "BASED ON ULTRASONIC
SENSOR",
        description: "The ultrasonic sensor has a low
distance radiation then the red light will be blink.Then
there is HEAVY CROWED"
      },
      {
```

```
        photo:
"url('https://th.bing.com/th/id/OIP.FmKR6MebmOgh0m
WDcQCbqwHaKH?pid=ImgDet&rs=1.jpg')",
        name: "YELLOW SIGNAL",
        profession: "BASED ON ULTRASONIC
SENSOR",
        description: "The ultrasonic sensor has A MEDIUM
distance radiation then the green light will be blink.Then
there is MODERATE CROWED"
      },
      {
        photo:
"url('https://th.bing.com/th/id/R.8cf589bfa8b98fdc6f82d4
48d040e37e?rik=Ex5W1RM1pf07Eg&riu=http%3a%2f
%2fwww.kbrhorse.net%2fsigpics%2fmarb_6540f.jpg&e
hk=RVOnFsrGfoLz2j7rJNmVEsHuZ7lir%2b7JQI0yI7G
JOU0%3d&risl=&pid=ImgRaw&r=0.jpg')",
        name: "GREEN LIGHT",
        profession: "BASED ON ULTRASONIC
SENSOR",
        description: "The ultrasonic sensor has a High
distance radiation then the green light will be blink.Then
there is LESS CROWED"
      }
    ];

    // set the first person
    imgBox.style.backgroundImage = people[0].photo;
    name.innerText = people[0].name;
```

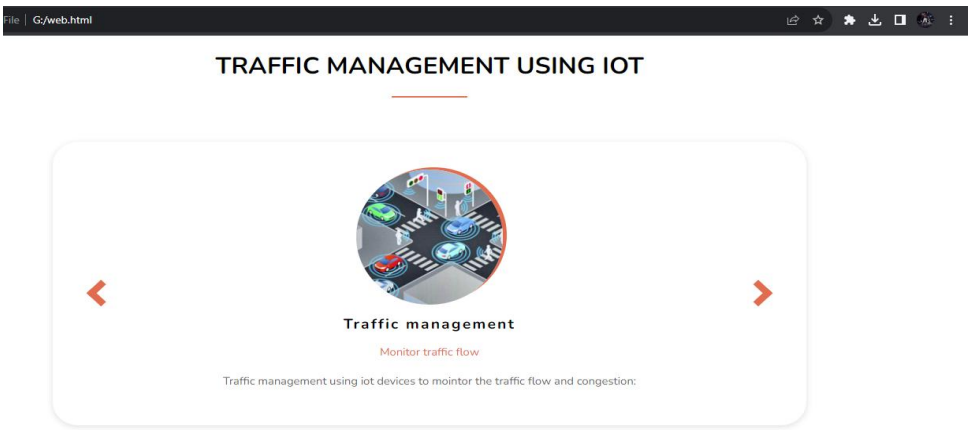
```
    profession.innerText = people[0].profession;
    description.innerText = people[0].description;
    let currentPerson = 0;

    //Select the side where you want to slide
    function slide(side, personNumber) {
      let reviewWrapWidth = reviewWrap.offsetWidth +
"px";
      let descriptionHeight = description.offsetHeight +
"px";
      //(+ or -)
      let side1symbol = side === "left" ? "" : "-";
      let side2symbol = side === "left" ? "-" : "";

      setTimeout(() => {
        imgBox.style.backgroundImage =
people[personNumber].photo;
      }, 0);
      setTimeout(() => {
        description.style.height = descriptionHeight;
      }, 100);
      setTimeout(() => {
        name.innerText = people[personNumber].name;
      }, 200);
      setTimeout(() => {
        profession.innerText =
people[personNumber].profession;
      }, 300);
      setTimeout(() => {
```

```
      description.innerText =
people[personNumber].description;
    }, 400);
  }

  function setNextCardLeft() {
    if (currentPerson === 3) {
      currentPerson = 0;
      slide("left", currentPerson);
    } else {
      currentPerson++;
    }

    slide("left", currentPerson);
  }

  function setNextCardRight() {
    if (currentPerson === 0) {
      currentPerson = 3;
      slide("right", currentPerson);
    } else {
      currentPerson--;
    }

    slide("right", currentPerson);
  }

  leftArrow.addEventListener("click", setNextCardLeft);
```

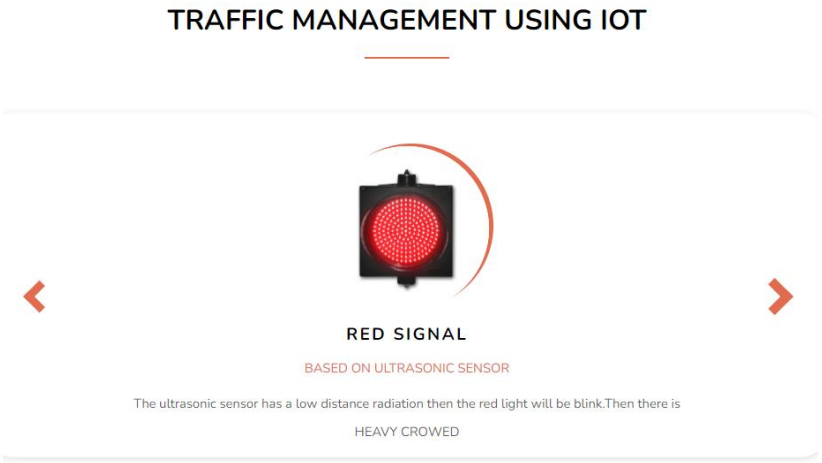
```
    rightArrow.addEventListener("click",
setNextCardRight);
  </script>
</body>

</html>
```

OUTPUT:

✧ THE HOME PAGE OF APPLICATION



✧ THE NEXT PAGES OF APPLICATION



TRAFFIC MANAGEMENT USING IOT

GREEN LIGHT

BASED ON ULTRASONIC SENSOR

The ultrasonic sensor has a High distance radiation then the green light will be blink.Then there is LESS CROWED

TRAFFIC MANAGEMENT USING IOT

YELLOW SIGNAL

BASED ON ULTRASONIC SENSOR

The ultrasonic sensor has A MEDIUM distance radiation then the green light will be blink.Then there is MODERATE CROWED