Devanshu Surana
Pc-23, 1032210755
Batch - C1

MAIoT Lab Assignment 4

Problem Statement:
Consider a suitable scenario of traffic signaling considering a crossroad and demonstrate traffic control using Raspberry Pi | Beagle bone black board / Tinker CAD Arduino Uno etc.

Objectives:
1. To learn basic functioning of data Pin (digital) available on Arduino board.
2. To understand how to implement simulation of traffic signaling using Arduino board, LED's.

Theory:
Write the concept of current limiting register logic:
   A current limiting register regulates and reduces the current in a circuit. This equation helps to determine the value of register to add to a light emitting diode (LED) so that it can limit the current moving through the LED. The calculation also determines how much power the LED consumes.
   Current limiting register resistor are placed in a circuit to ensure that the amount of current that flows does not exceed what the circuit can safely handle.

Conclusion: Finally, we have successfully created smart traffic system using Arduino board.

FAQ's

1) List and explore commercial traffic control systems available in market.

→ Speed enforcement system
Video surveillance system
Congestion management system
Variable message signs (VMS)
Traffic counters and classifiers.
Incident Detection systems
Automatic number plate recognition (ANPR)

2) Think and explain as how LED displays systems are working in the city.

→ An led display consists of many closely placed leds. By varying the brightness of such LED the diodes jointly form an image on the display. The principles of additive color mixing are used, whereby new colors are created by mixing light. By adjusting the intensity of diodes billions of colors can be formed when you look from a certain distance the array of colored pixels are seen as an image.

3) List and explain different types of LED's and its features

→ 1) Miniature LED:
Mostly used now these days. These are available in single shape and color and are available in small sizes.
2) Highpower LED: These use of LED results in high output compared to normal LEDs. Light emitted is measured in Lumens.
3) Flash LED: With a normal LED, it contains an integrated circuits which flashes the light at a particular frequency.
4) Alphanumeric LED: These consists of segments which offer greater flexibility and lesser power consumption.

Teacher's Sign.: _____

MAIoT Assignment 04

```cpp
// C++ code
void setup() {

pinMode(5, OUTPUT);

pinMode(4, OUTPUT);

pinMode(3, OUTPUT);

pinMode(13, OUTPUT);

pinMode(12, OUTPUT);

pinMode(11, OUTPUT);

Serial.begin(9600);

}

void loop() {

digitalWrite(5, HIGH);

digitalWrite(4, LOW);

digitalWrite(3, LOW);

digitalWrite(11, HIGH);

digitalWrite(13, LOW);

digitalWrite(12, LOW);

delay(2000);

digitalWrite(5, LOW);

digitalWrite(4, LOW);

digitalWrite(3, HIGH);

digitalWrite(11, LOW);
```

```
digitalWrite(12, LOW);

digitalWrite(13, HIGH);

delay(2000);

digitalWrite(5, LOW);

digitalWrite(4, HIGH);

digitalWrite(3, LOW);

digitalWrite(11, LOW);

digitalWrite(12, HIGH);

digitalWrite(13, LOW);

delay(1500);

}
```

Snapshot of Implementation: