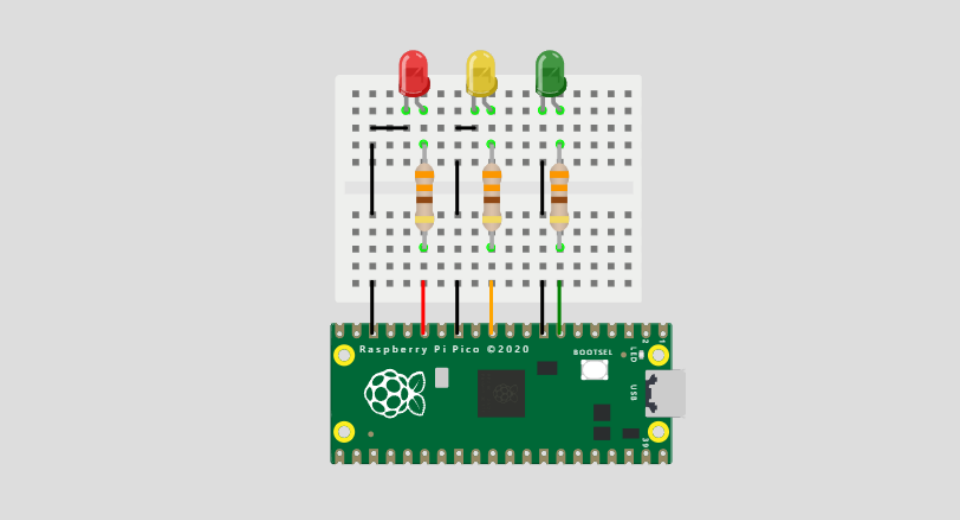
Project Design Phase-3

Date	18 October 2023
Team ID	454
Project Name	4123-Traffic Management
Team Name	Proj_227233_Team_2
Team Members	5

Traffic Management Block Diagram:



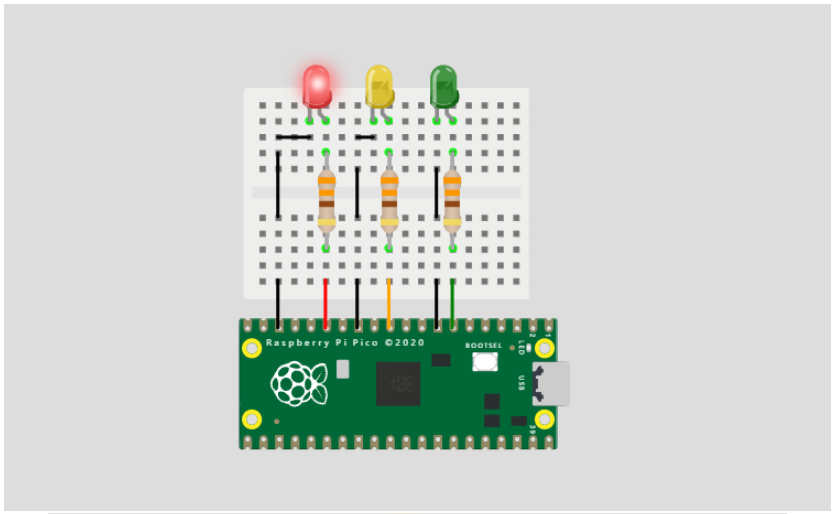
Program code for Traffic Management:

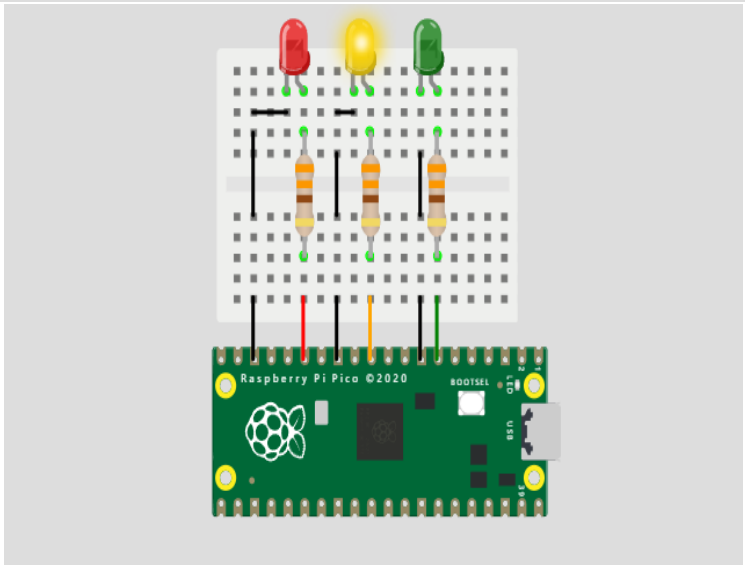
```
import machine

import utime


# Define the LED pins

led_red = machine.Pin(11, machine.Pin.OUT)

led_yellow = machine.Pin(8, machine.Pin.OUT)

led_green = machine.Pin(5, machine.Pin.OUT)
```

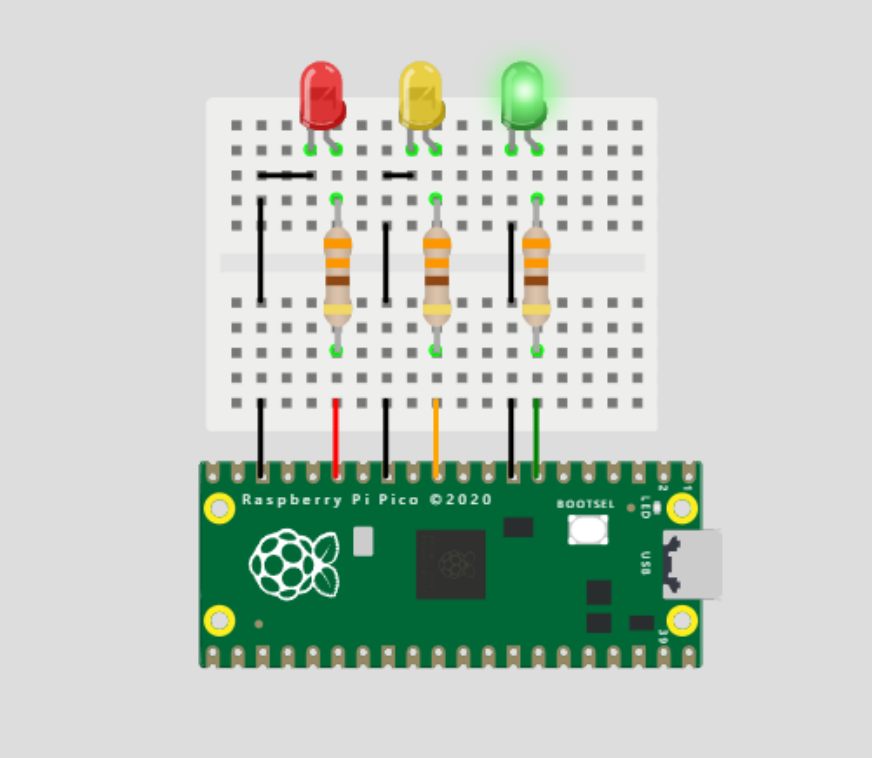
```
def handle_red_state():
    led_red.value(1)
    led_yellow.value(0)
    led_green.value(0)

def handle_yellow_state():
    led_red.value(0)
    led_yellow.value(1)
    led_green.value(0)

def handle_green_state():
    led_red.value(0)
    led_yellow.value(0)
    led_green.value(1)

def handle_yellow_state_short():
    led_red.value(0)
    led_yellow.value(1)
    led_green.value(0)

# State handlers list
state_handlers = [
    # (state function, time in milliseconds)
    (handle_red_state,          5000),  # Red LED, on for 5 seconds
    (handle_yellow_state,       3000),  # Yellow LED, on for 3 seconds
    (handle_green_state,        5000),  # Green LED, on for 5 seconds
    (handle_yellow_state_short,  2000)  # Short Yellow LED, on for 2 seconds
```

```
]

def traffic_light():
    state = 0

    while True:
        # Get the current state tuple (handler function and sleep time)
        current_handler_and_time = state_handlers[state]
        handler_func = current_handler_and_time[0]
        sleep_duration_ms = current_handler_and_time[1]

        # Execute the handler function and sleep for the specified time
        handler_func()
        utime.sleep_ms(sleep_duration_ms)

        # Update the state index
        state = (state + 1) % len(state_handlers)

# Run the traffic light sequence
traffic_light()
```

OUTPUT:


Raspberry Pi Pico ©2020
BOOTSEL
LED
USB


Raspberry Pi Pico ©2020
BOOTSEL
LED
USB



Reference:https://wokwi.com/projects/359490482573538305