TWO WAY TRAFFIC LIGHT

**Group Members**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *S.no* | | *Student ID* | | *Student Name* | |
| 1 | | Student1207303 | | MAHIBA NAZIR | |
| 2 | | Student1240230 | | NOOR-UL-AIN SAJJAD | |
| 3 | | Student1160146 | | Maira Akram Bhatti | |
| 4 | | Student1152841 | | Muqaddas Akhter | |
| 5 | | Student1195389 | | Muhammad Sameer | |

**Project Advisor**

Engr. Muhammad Subhan Raza



**Aptech Computer Education**

Korangi Center

**ACKNOWLEDGEMENT**

First of all we would like to thank ALLAH the almighty who make us able to complete this project.

After that we would like to express profound gratitude to our internal project advisor, Center Senior Faculty, ***Engr.*** Muhammad Subhan Raza, for his precious support, back-up, supervision and useful suggestions throughout this project. His moral support and continuous help enabled us to complete our work successfully

We are as ever, especially indebted to our parents for their love and support throughout our life. We also wish to thank our classmates, friends and all the individuals or groups that were involved in this project by any mean.

- Mahiba Nazir

-Noor-ul-ain Sajjad

-Maira Akram Bhatti

- Maqaddas Akhter

-Muhammad Sameer

**Introduction**

The thirst for learning, upgrading technical skills and applying the concepts in real life

environment at a fast pace is what the industry demands from IT professionals today. However

busy work schedules, far-flung locations, unavailability of convenient time-slots pose as major

barriers when it comes to applying the concepts into realism. And hence the need to look out

for alternative means of implementation in the form of laddered approach.

The above truly pose as constraints especially for our students too! With their busy schedules,

it is indeed difficult for our students to keep up with the genuine and constant need for

integrated application which can be seen live especially so in the field of IT education where

technology can change on the spur of a moment. Well, technology does come to our rescue at

such times!!

Keeping the above in mind and in tune with our constant endeavour to use Technology in our

training model, we at Aptech have thought of revolutionizing the way our students learn and

implement the concepts using tools themselves by providing a live and synchronous eProject

learning environment!

So what is this eProject?

eProject is a step-by-step learning environment that closely simulates the classroom and Lab

based learning environment into actual implementation. It is a project implementation at your

fingertips!! An electronic, live juncture on the machine that allows you to

• Practice step by step i.e. laddered approach.

• Build a larger more robust application.

• Usage of certain utilities in applications designed by user.

• Single program to unified code leading to a complete application.

• Learn implementation of concepts in a phased manner.

• Enhance skills and add value.

• Work on real life projects.

• Give a real life scenario and help to create applications more complicated and useful.

• Mentoring through email support.

The students at the centre are expected to complete this eProject and send complete project

along with the documentation to eProjects Team

Looking forward to a positive response from your end!!

**Problem Statement**

Nowadays congestion in traffic is a serious issue. The traffic congestion is caused due to lack of

proper sign for traffic control. By not having the proper signature lights accidents occur and

traffic congestion happens. The system tries to reduce the possibilities of traffic jam or

accidents by implementing two way traffic light system which is self-controlled and does not

require any human interaction or effort. The system is an embedded system which means it is

going to need a microprocessor to control the lights with some duration or delay.

**Functional Requirements**

The system must control the two-way traffic in order to stop the accidents or traffic congestion.

**Hardware/Software**

Hardware

• Raspberry Pi 4

• LED Lights (According to traffic lights)

• Bread Board

• Jumper Wires

**Software**

• Raspbian as Operating System

• Python 3

• RPIO GPIO as library

Project Code

import RP1.GPIO as GPIO 3 from time import sleep

red\_one = 3

red\_two = 11

yellow\_one = 5

yellow\_two = 13

green\_one = 7

green two 15

street lights = 36

GPIO.setmode (GPIO.BOARD)

GPIO.setup(red\_one, GPIO.OUT) GPIO.setup(yellow\_one, GPIO.OUT)

GPIO.setup(green\_one, GPIO.OUT)

GPIO.setup(red\_two, GPIO.OUT)

24 GPIO.setup(yellow\_two, GPIO.OUT)

25 GPIO.setup(green\_two, GPIO.OUT)

GPIO.setup(street lights, GPIO.OUT)

GPIO.output(street\_lights, True)

GPIO.output (red\_one, True)

GPIO.output (red\_two, False)

GPIO.output(green\_two, True)

sleep(3)

GPIO.output(red\_one, False)

GPIO.output(green\_two, False)

GPIO.output(yellow\_one, True)

GPIO.output (yellow\_two, True)

sleep(1)

GPIO.output(yellow\_one, False)

GPIO.output(yellow\_two, False)

GPIO.output(red\_two, True) GPIO.output(green\_one, True)

sleep(3)

GPIO.output(red\_two, False)

GPIO.output (green\_one, False)

GPIO.output (yellow\_one, True)

GPIO.output(yellow\_two, True)

sleep(1)

GPIO.output (yellow\_one, False) GPIO.output (yellow\_two, False)