**AMERICAN INTERNATIONALA close up of a sign

Description automatically generated**

**UNIVERSITY-BANGLADESH**

**Faculty of Science and Technology**

**Experiment 3**

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| Assignment Title: | Familiarization with Visual Designer for Arduino™ AVR and Raspberry Pi and implementation of a traffic control system using Drag -Drop -Play. | | | |
| Assignment No: | 03 | | Date of Submission: | 7 October 2021 |
| Course Title: | Microprocessor And Embedded Systems | | | |
| Course Code: | EEE 4103 | | Section: | M |
| Semester: | Fall | 2021-22 | Course Teacher: | **Dr. Ferdous Jahan Shaun** |

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# Abstract:

The main goal of this experiment is to build an LED flashing and traffic control system using Arduino and Raspberry PI. We must first become familiar with Arduino. Arduino offers a variety of boards, each with its own set of features. Arduino is an open-source platform that allows you to create interactive electrical creations. The Raspberry Pi is a low-cost, credit-card-sized computer that connects to a computer monitor or television and can be controlled with a conventional keyboard and mouse. We'll create a traffic management system here. Using the Animated LED model, the LED will blink. There will be three different LED variants available. Red, yellow, and green are just a few of the hues available. We'll also include a delay option to aid with flashing the lights during specific times. We'll also implement a delay function, which will allow the lights to flash at predetermined intervals. For this exercise, we'll use an Arduino Uno and a Raspberry Pi to create a simple traffic control design. For our simulation, we will use the proteus software. As a result, we will have a simulation result for a traffic control system. It will become a traffic control system after this experiment is completed.

# Objectives:

# This experiment will teach us how to build a traffic management system with an Arduino Uno and a Raspberry Pi, as well as how to use Proteus 8.9 Professional software as a simulation environment. We can learn how to make the LED blink using Arduino and the Raspberry Pi in this experiment. We can learn about microcontrollers as well. We require a microcontroller because any input sent via keyboard necessitates the employment of a microcontroller. We will manage and control the traffic control system using these methods.

# Results:

## Simulation Environment:

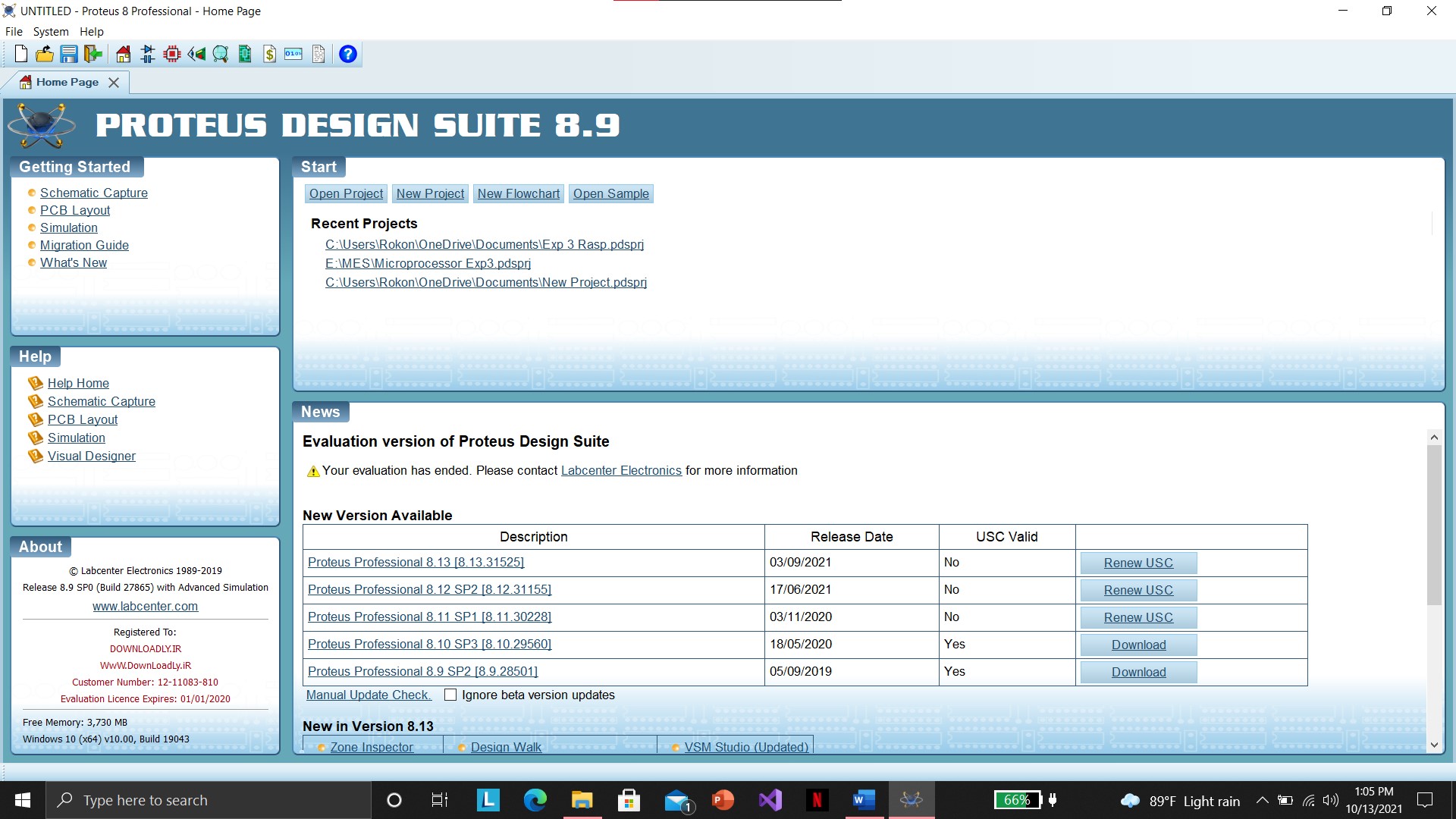


Figure 1: Proteus UI

fdfdfdfdd

We utilized Proteus 8 Professional software to simulate this experiment. This is the software user interface for Proteus 8.9.

## Simulation Results

**Adruino Uno**

|  |
| --- |
| Figure 2:Visual Designer |
| Figure 3: RED LED |
| Figure 4:Yellow LED |
| Figure 5: Green LED |
| Figure 6: Red light on |
| Figure 7: Yellow Light On |
| Figure 8: Green Light On |

**Raspberry Pi**

|  |
| --- |
| Figure 9:Visual Designer |
| Figure 10:Red LED |
| Figure 11:Yellow LED |
| Figure 12:Green LED |
| Figure 13:RED Light is on |
| Figure 14: YELLOW light is on |
| Figure 15: Green Light is on |

## 3) Discussion on Simulation Results:

The simulation results were done using Proteus 8.9 Professional software by implementing a traffic control system using Arduino UNO and Raspberry PI. At First, open the Visual designer and add three parapharels(RED, YELLOW, GREEN LED) and then draw the chart and build the designer. After building the designer we compile the schementhic designer.

# 

# Lab Task Question:

1) Modify the design for Two Way Traffic Light System

# Conclusion:

At first, we have design the circuit using Arduino Uno. In visual designer we have taken three(Red,Yellow, Green) LED. Red led will blink for 10 sec then off. Yellow Led will blink for 5 sec then dim at 60 brightness for 2 sec before turning off. Green led will blink for 12 sec then goes off. Three will on and off simultaneously. Then we will design the circuit using Raspberry PI. All the process will be repeated but we’ll exclude dim function from yellow led then compile the designer.

# Reference(s):

**1)**[**https://www.arduino.cc/**](https://www.arduino.cc/)**.**

**2)** [**https://www.labcenter.com/visualdesigner/**](https://www.labcenter.com/visualdesigner/)

**3)**[**https://youtu.be/yHB5it0s2oU**](https://youtu.be/yHB5it0s2oU)

**4)** **https://www.raspberrypi.org**