EgFWD - Udacity

Embedded System Professional Track

On-Demand Traffic Light Control Project

Subject: Project Documentation.

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1) System Description:

This system is a traffic light system which include a button for pedestrian. When the pedestrian presses the button it forces the system on stopping the cars to help the pedestrian to cross the road. This system priority is the pedestrian crossing the road.

Traffic lights normally consist of three leds, sending meaning to drivers and riders through symbols and colors.

The regular traffic light colors are green, yellow, and red arranged in that order.

Although this is internationally standardized, there is variations on national and local scales for traffic light laws.

2) System Design:

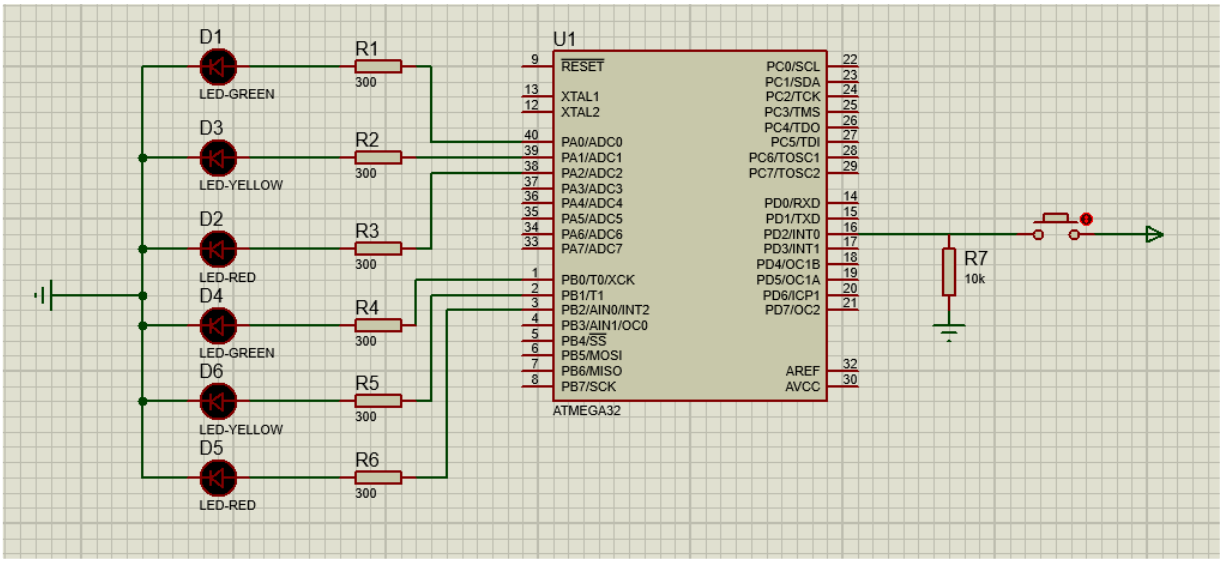

Figure 1: Simulation on Proteus

2.1) Components:

The System Requires:

- Atmega32
- 2 Green Leds
- 2 Yellow Leds
- 2 Red Leds
- 1 NO Push Button
- 6 300 ohm Resistors
- 1 10k ohm Resistor

2.2) System Integration

The system is connected as follows:

A. Green led to 300 ohm resistor then to pin A0
B. Yellow led to 300 ohm resistor then to pin A1
C. Red led to 300 ohm resistor then to pin A2
D. Green led to 300 ohm resistor then to pin B0
E. Yellow led to 300 ohm resistor then to pin B1
F. Red led to pin 300 ohm resistor then to B2
G. All leds are connected from the other side to the ground
H. Button to pin INT0 and from the other side to power source
I. 10k resistance connected between the button and pin INT0 and from the other side to the ground

All the leds are outputs and the button is the input to the system.

3) Flowchart:

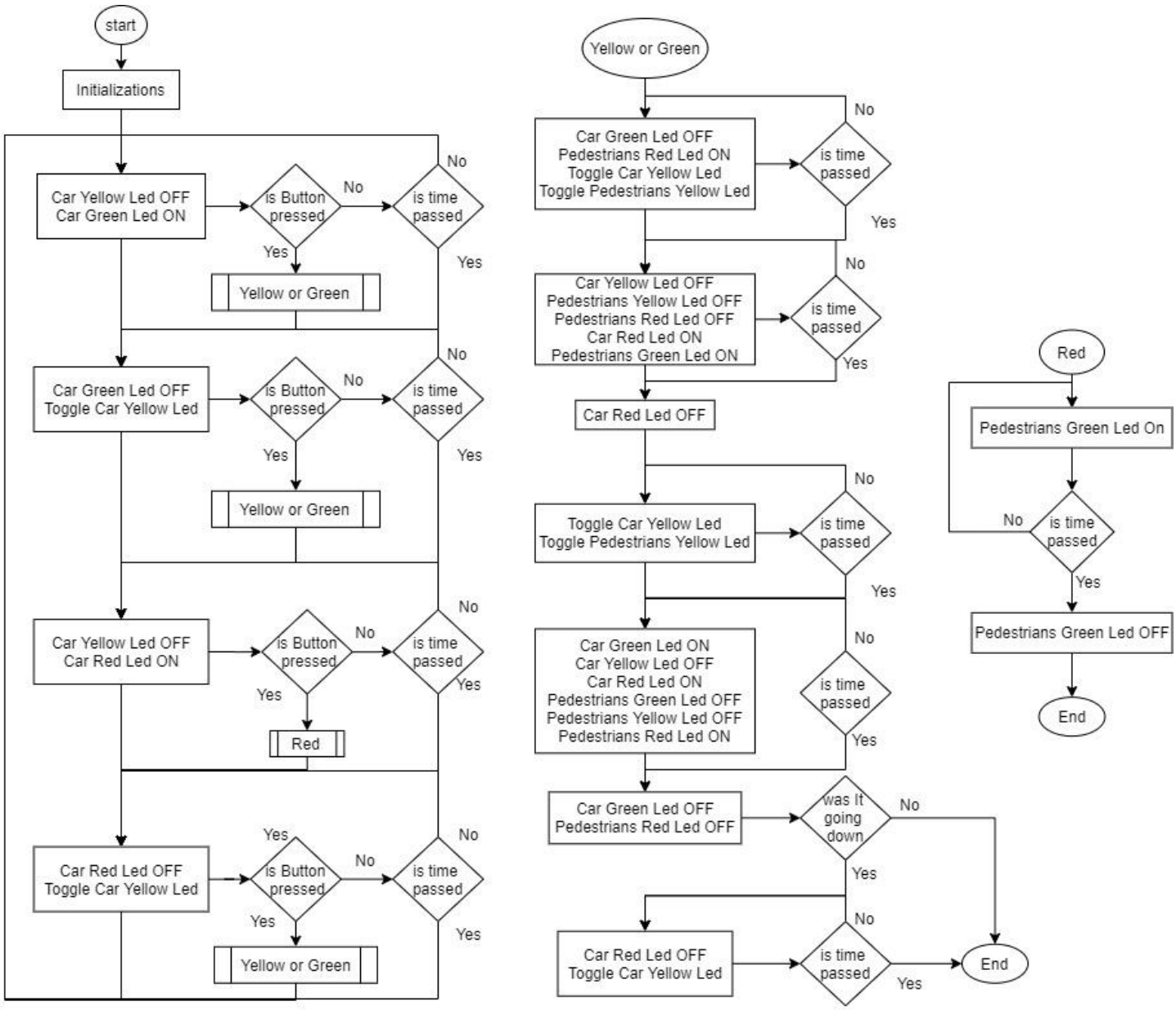

Figure 2: Flowchart