Traffic Light control

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1. System Description

1.1 System Overview

This system provides a traffic control system. It includes a pedestrian interface that allow pedestrians to pass.

1.2 System Functionality

The system can detect when the button is pressed. Afterwards, based on current state it would decide what to do. It allows pedestrians to walk by making sure cars are stopped first.

2. System Design

2.1 System Requirements

The system consists of:

- AVR Atmega32 (1MHz)
- 2 Green LEDs
- 2 Yellow LEDs
- 2 Red LEDs
- 6 300 Ohm resistors
- 1 10k Ohm resistor
- 1 Push Button

2.2 Work Environment

The program has been tested on Proteus simulator. It should be used in traffic light control systems on streets with a pedestrian push button included to allow for full system functionality.

2.3 Input & Output Formats

The only system input is in the form of the pedestrian push button. When it comes to output it handles 6 LEDs at once given the current state, time and push button press state.

3. System Constrains

3.1 The system doesn’t support multiple users at a time. Many users must share the passing time.

3.2 The time provided by the HW is hardcoded so if the time base 5 seconds interval is too long or too short, the timing must be customized at the development phase of the project.

4. UML sequence diagram