



## On Demand Traffic Light Control

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## **System Description :**

A Traffic Light Control System that estimate traffic light as we use 6 LEDs ; 3 LEDs for Traffic Car and 3 LEDs for Pedestrian, when red led of car on green led of pedestrian on and pedestrian can cross the road.

When green led of car on and red led of pedestrian on that's mean pedestrian cann't cross roat in the safe way, to be in safe press the button this let our system fire interrupt and blanking yellow led then change the traffic light to let pedestrian crossing safely.

### **System consists of 2 parts:**

#### **Hardware**

ATmega32

2 RED LED

2 YELLOW LED

2 GREEN LED

1 Push button

6 resistance 220 ohm

1 resistance 10 Kohm

#### **Software**

Eclips for coding

Protues for simulation

## System Design

System layered architecture consisted of 3 layer architecture

HAL:

Hardware Abstraction Layer, in this layer I implement :

- 1- Switch driver
- 2- LED driver

MCAL

I implement

- 1- DIO driver
- 2- EXTI ( External Interrupt driver)
- 3- GIE (Global Interrupt)
- 4- TIMER0 driver

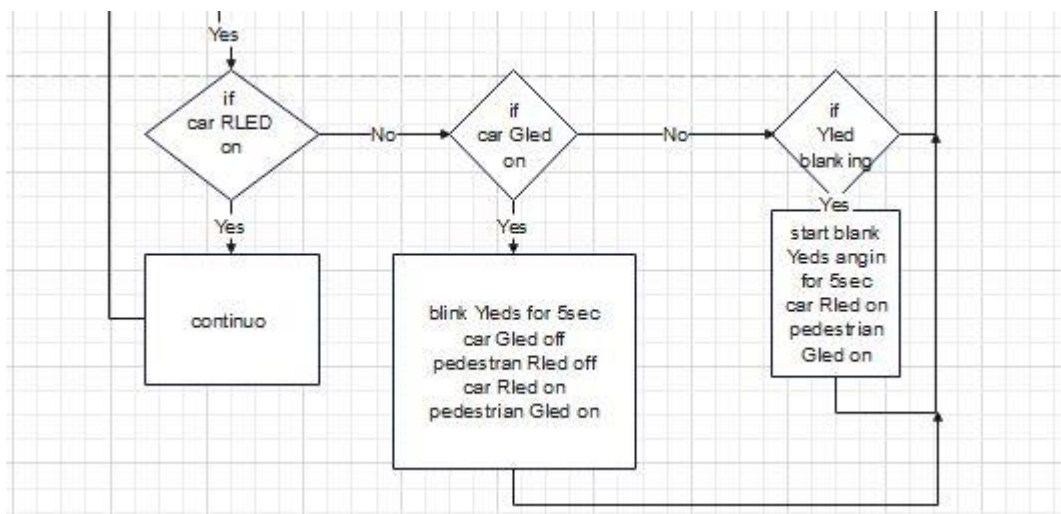
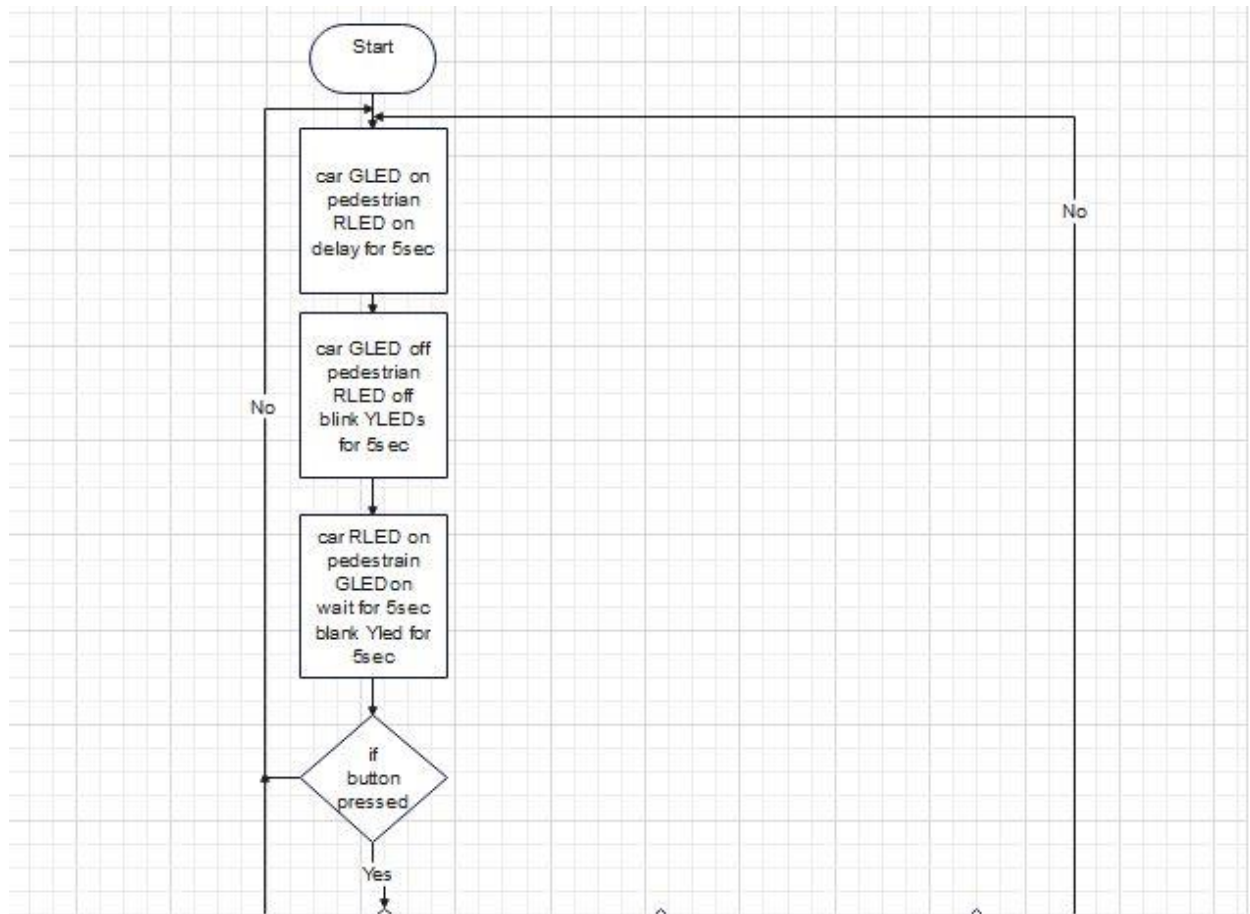
APP

- 1- Application.c
- 2- Application.h
- 3- Main.c

Libraries

- 1-BitMask
- 2-errorStates
- 3-SedTypes

# FLOW CHART



## **System constraints**

- 1- If pedestrian press button while yellow led blanking, yellow led will start blanking again for 5 sec.
- 2- If pedestrian make a long press on button no thing happen unless pedestrian rising his hand form button.
- 3- If pedestrian press button when car red led on no thing happen.