System layers

1- MCAL
2- HAL
3- App

System design

1-MCAL layer: in the MCAL layer we have generic drivers based on the chosen microcontroller which is AVR ATMega32

Each layer contains:

1-private.h

2-interface.h

3-configration.h

4-program.c

Private header file

This file includes the defines of the registers of the microcontroller and any other macros may be used in the driver.

Interface header file

In this file we write the prototype of the used functions in the driver

Configuration header file

In this file we choose the available moods in the driver by the define macros
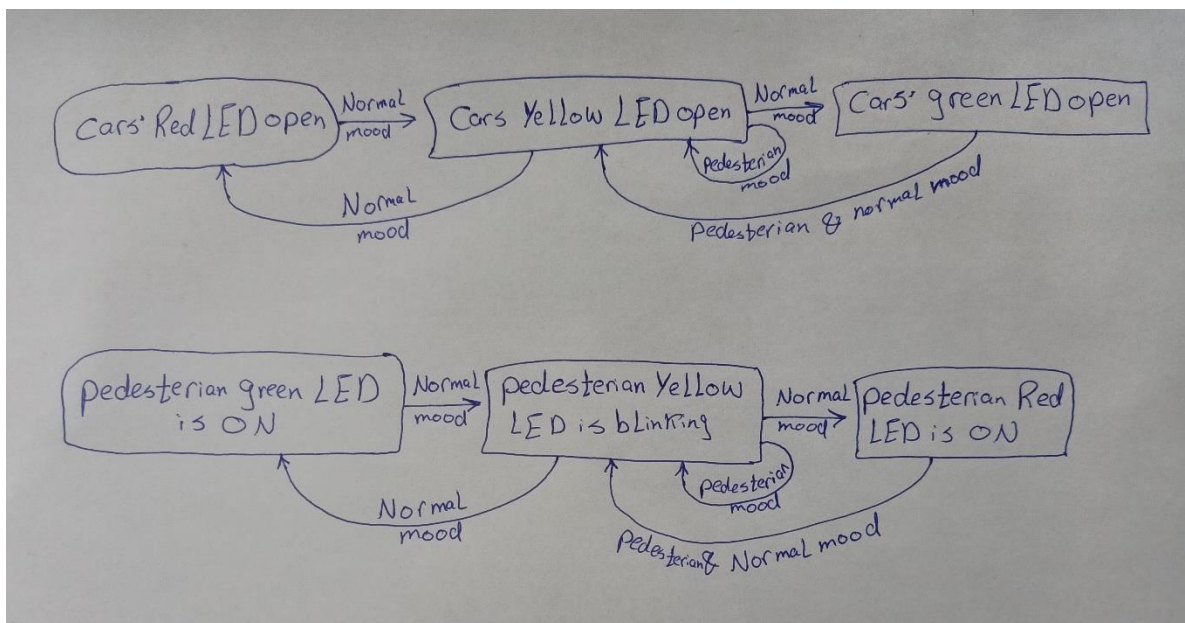
Program source file

In this file we write the definition of the functions in interface

2-**HAL** (hardware abstraction layer)

In this layer we write the drivers to control the hardware components

3-**App** in this layer we initialize some pins then making the source code of the application by using the HAL functions

System state machine

The state machine represents each traffic states

System constrains

Our system constrains made by the push button of pedestrians when we have long pressed or press many times the action made once.