On-demand Traffic light control
Project Egypt-FWD

Content:

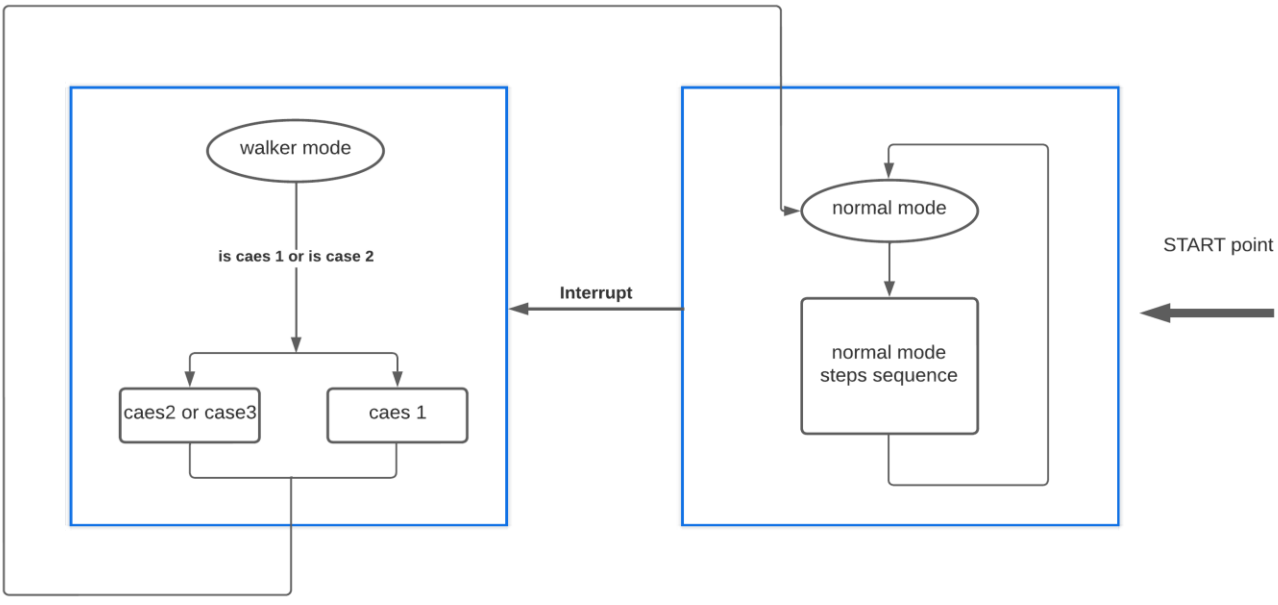
System description:

traffic light system equipped with 6 led and one push button the first 3 led is for normal mode which dedicated for car movement and the second 3 led dedicated for pedestrian movement

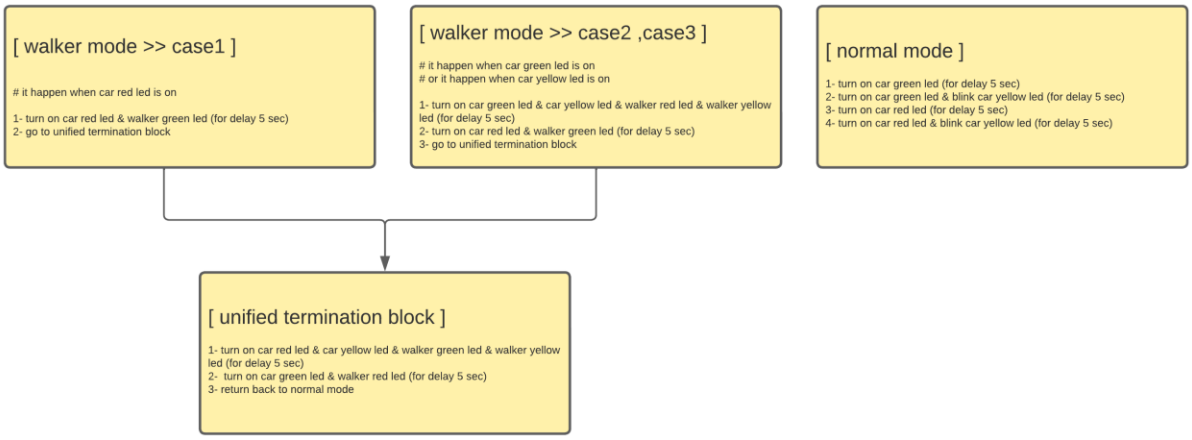
System design:

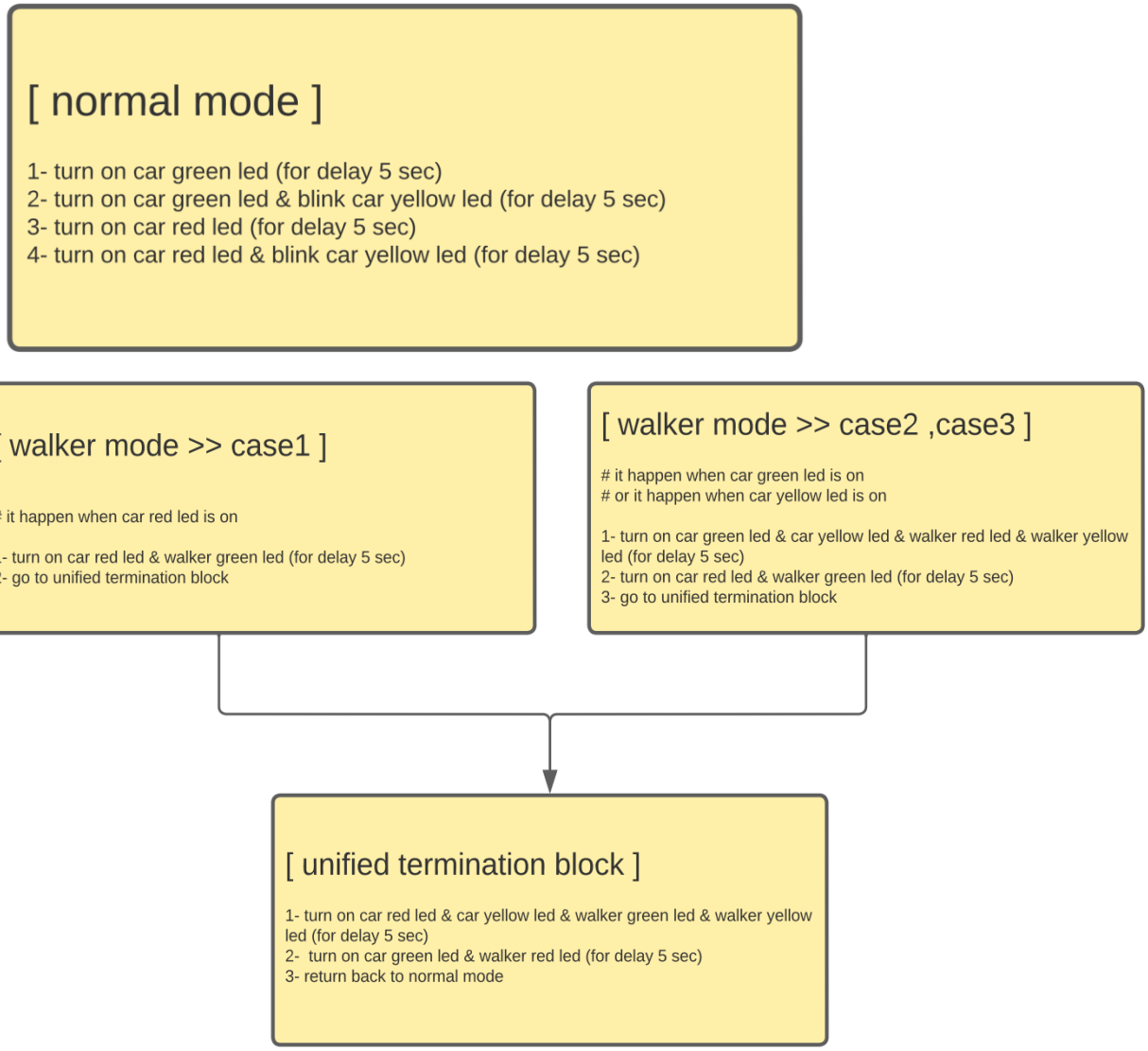
- The system is designed to run in one of two modes, Normal mode & Pedestrian mode.
- The system consists of 6 LEDs and one push button.
- It runs all the time in the normal mode unless the button is pressed, then it runs in the pedestrian mode.
- In normal mode Cars' LEDs will be changed every five seconds starting from Green then yellow then red then yellow then Green, The Yellow LED will blink for five seconds before moving to Green or Red LEDs.
- If entered pedestrian mode while car green led is on then the walker red led AND the yellow LED will be on for 5 secs then the car red and the pedestrian LED turns on.
- If entered pedestrian mode while car red led is on the walker green LED turns on for 5 seconds then the car yellow and the walker yellow LED blinks for 5 seconds then go to normal mode.

System flow chart:



System epics:





System Layers:

-APP

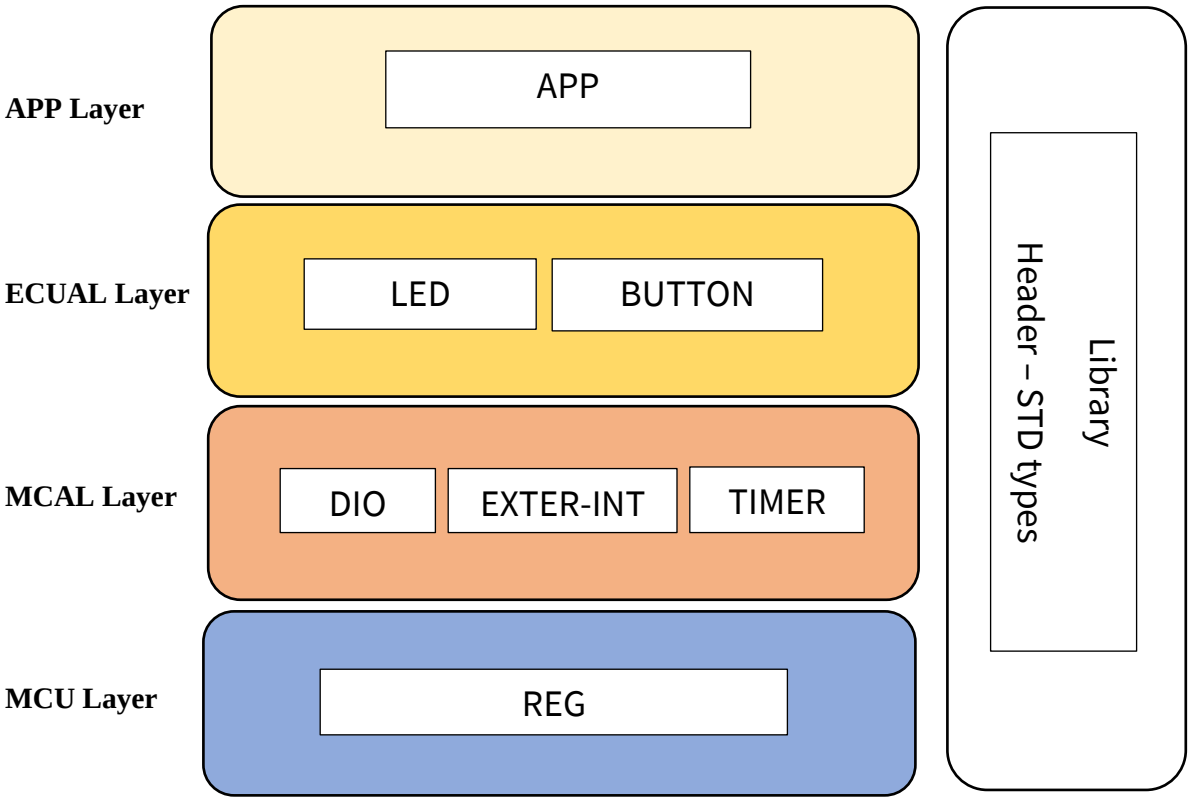
-ECUAL:

Electronic Unit Abstract layer, which contains any driver that represents the external hardware, such as LED, LCD, Motor or Seven segment.

-MCAL:

Microcontroller architecture layer, which contains any driver that represents the internal peripheral of the MCU, such as DIO, interrupt, ADC, UART… etc..

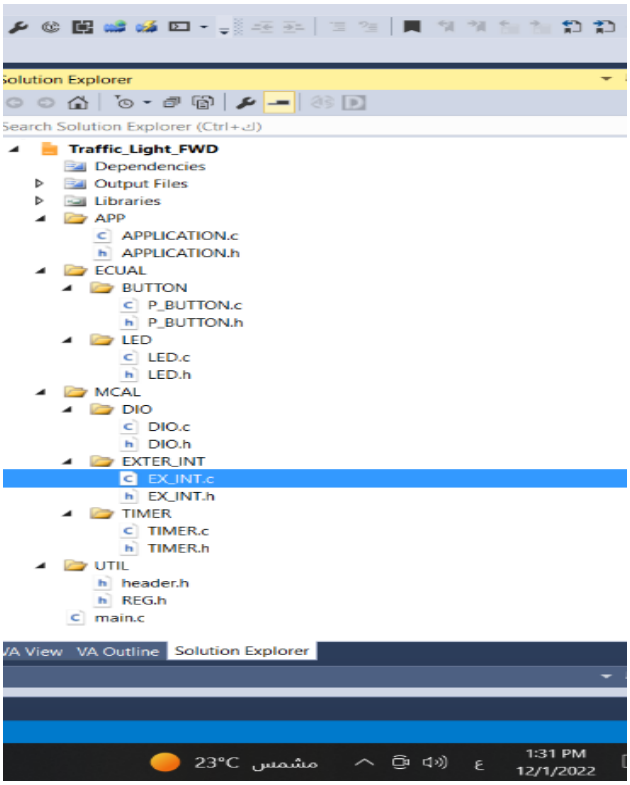
-MCU



System constrains:

There are no constrains.

Solution Explorer:



Application FUNCTIONS:

1- `delay_In_ms(uint32_t TIME)`
2- `LED_ON(uint8_t LED_PORT, uint8_t LED_PIN);`
3- `LED_OFF(uint8_t LED_PORT, uint8_t LED_PIN);`
4- `ON_Green_led_Walker();`

System Circuit: