(ON DEMAND TRAFFIC LIGHTS CONTROL)

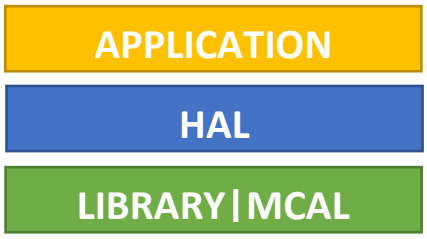
- System Description: -
  - Implementation of a traffic lights system with an on-demand crosswalk button. Crosswalk buttons let the signal operations know that someone is planning to cross the street, so the light adjusts, giving the pedestrian enough time to get across.

- System Design: -
  - We have two main modes(normal-pedestrian).
  - Normal Mode: Cars' LEDs will be changed every five seconds starting from Green then yellow(blinking) then red then yellow then Green.
  - Pedestrian Mode: Change when the pedestrian button is pressed, so we have 3 cars traffic states.
    - Red: The pedestrian's Green LED and the cars' Red LEDs will be on for five seconds.
    - Green-Yellow: The pedestrian Red LED will be on, both Yellow LEDs start to blink for five seconds then Red LED and pedestrian Green LEDs are on for five seconds.

    the cars' Red LED will be off and both Yellow LEDs start blinking for 5 seconds and the pedestrian's Green LED is still on.

    pedestrian Green LED will be off and both the pedestrian Red LED and the cars' Green LED will be on.

- Layers: -
  - APPLICATION
  - MCAL
  - HAL
  - LIBRARY



- Modules & Drivers: -
  - Led Module(HAL).
  - Button Module(HAL).
  - Timer Driver(MCAL).
  - DIO Driver(MCAL).
  - External Interrupt(MCAL).

- System Flow Chart: -