system description

Traffic lights are signaling devices positioned at road intersections, pedestrian crossings, and other locations to control the flow of traffic.

Traffic lights normally consist of three signals, transmitting meaning to drivers and riders through colors and symbols including arrows and bicycles.

The regular traffic light colors are red, yellow, and green arranged vertically or horizontally in that order.

Although this is internationally standardized, variations exist on national and local scales as to traffic light sequences and laws.

like 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

I am designing a traffic lights system with an on-demand crosswalk button with an Atmega32 microcontroller to control LEDs and time between them

so, I split the project into layers to make it easy to control and debug my system

- **Layered architecture**
- **Microcontroller layer**
- **MCAL layer content (DIO Driver & Timer Driver)**
- **ECUAL Layer content (LED Driver & Interrupt Driver & Delay Driver)**
- **Application Layer**