Traffic Light

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1 System Description

1.1 Hardware

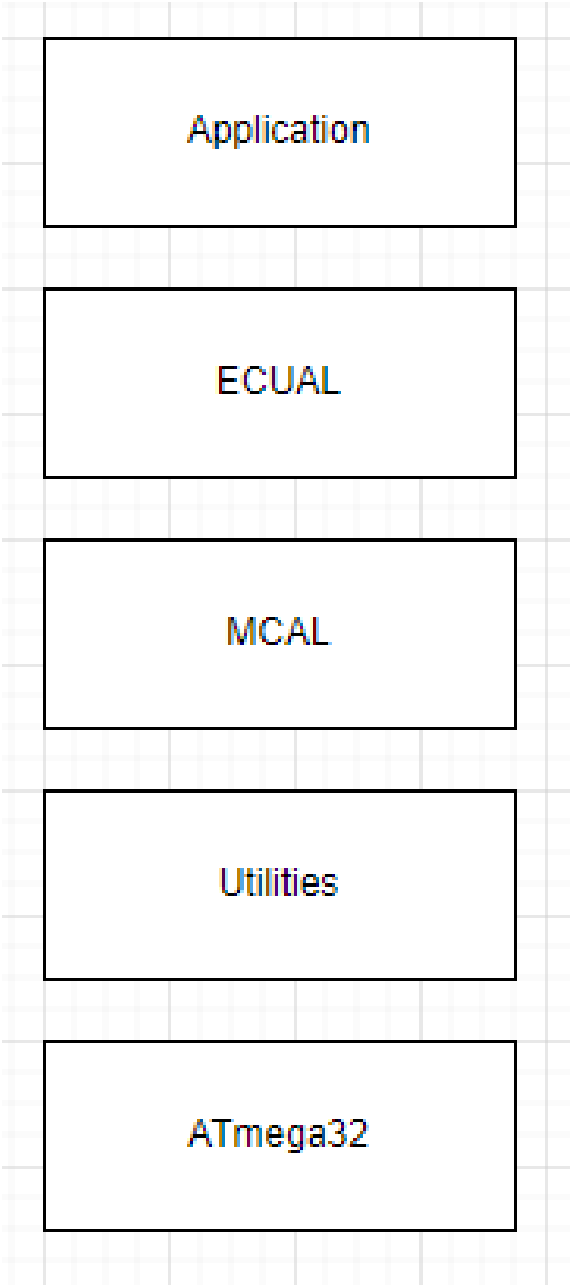
We need one push-button wired as active high, 6 LEDs, and an ATMega32 Micro controller.

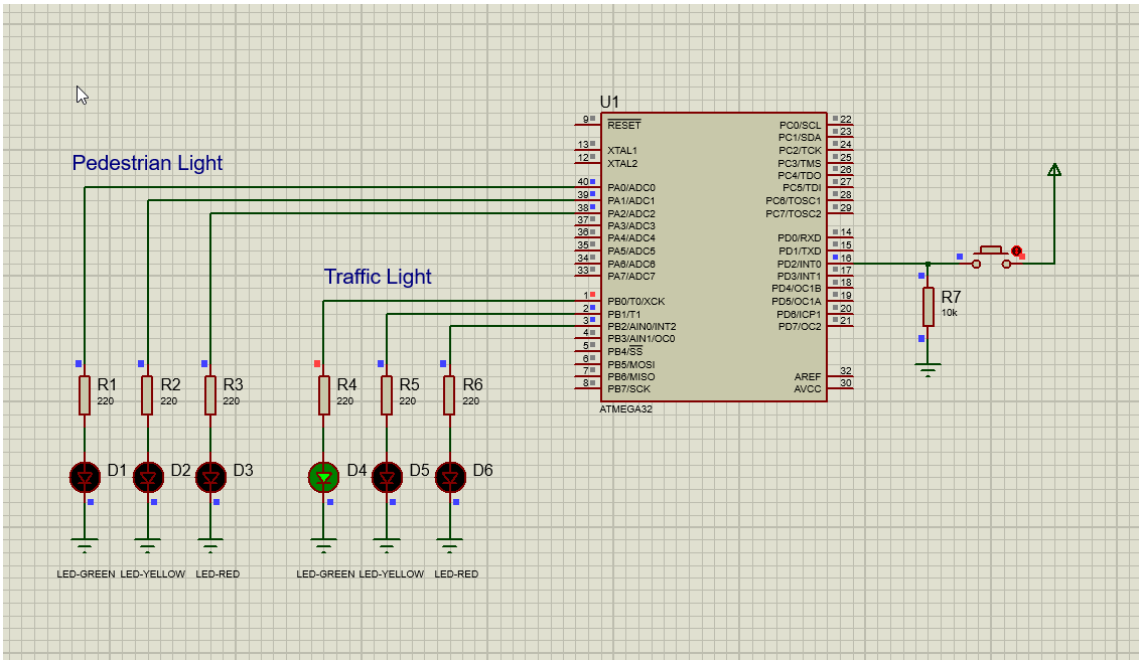
1.2 Software

I used static architecture and split the code into layers each has its own drivers.

- MCAL:
  - **GPIO** driver to that control Digital pins.
  - **EXTINT** driver to configure interrupt.
  - **TIM0** driver to use delays.
- ECUAL:
  - **Button** driver to control the button.
  - **LED** driver to control the led.
- Utilities:
  - **types** library that provides typedefs to data types.
  - **register** library that provides addresses with registers.
  - **bit_manipulation** library contain bit manipulation expressions.
- App:
  - Contains app flow.

2 System Design

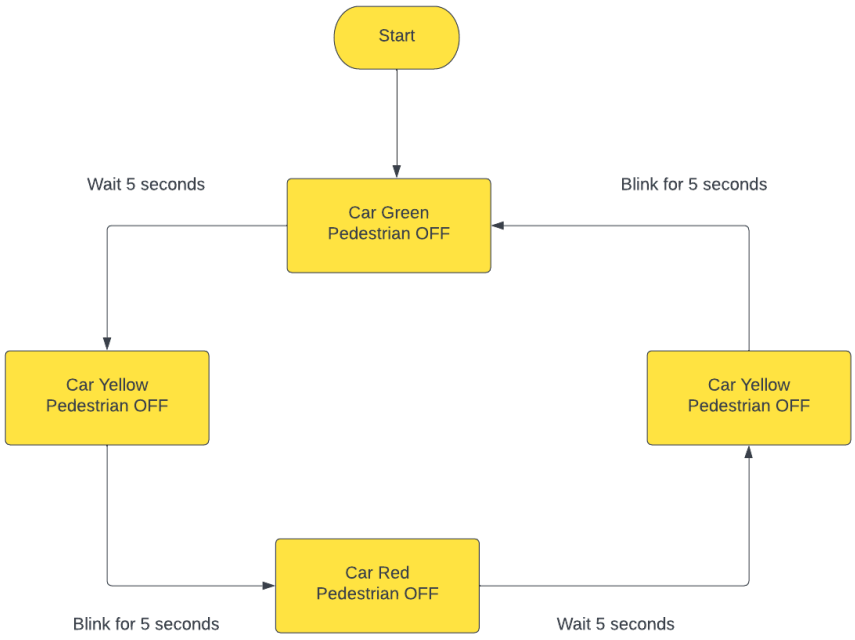




3 System Constraints

This System only works with ATMega32A microcontroller. It also needs LEDs, Resistors, and, Push button. They need to be wired correctly with their corresponding pins in order for the system to work as intended.

4 System Flow Chart



When the pedestrian presses the button.