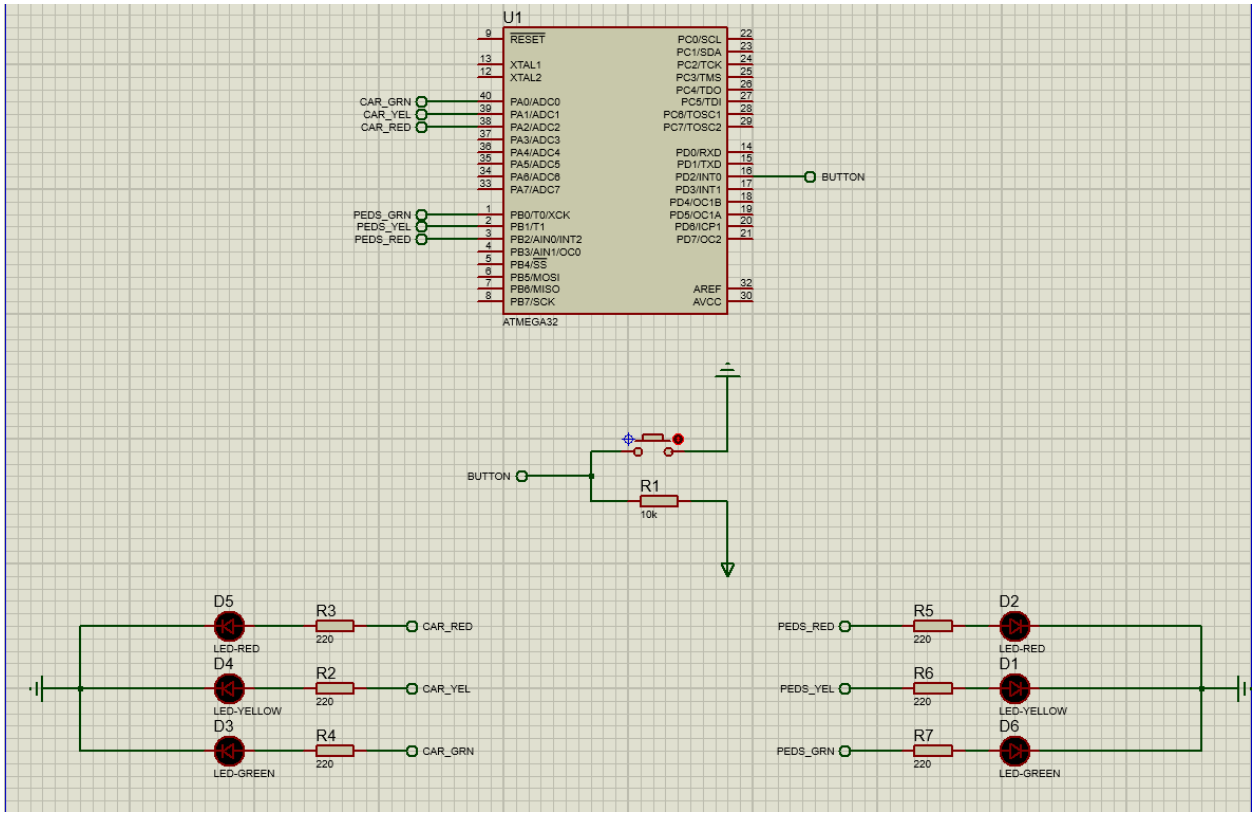
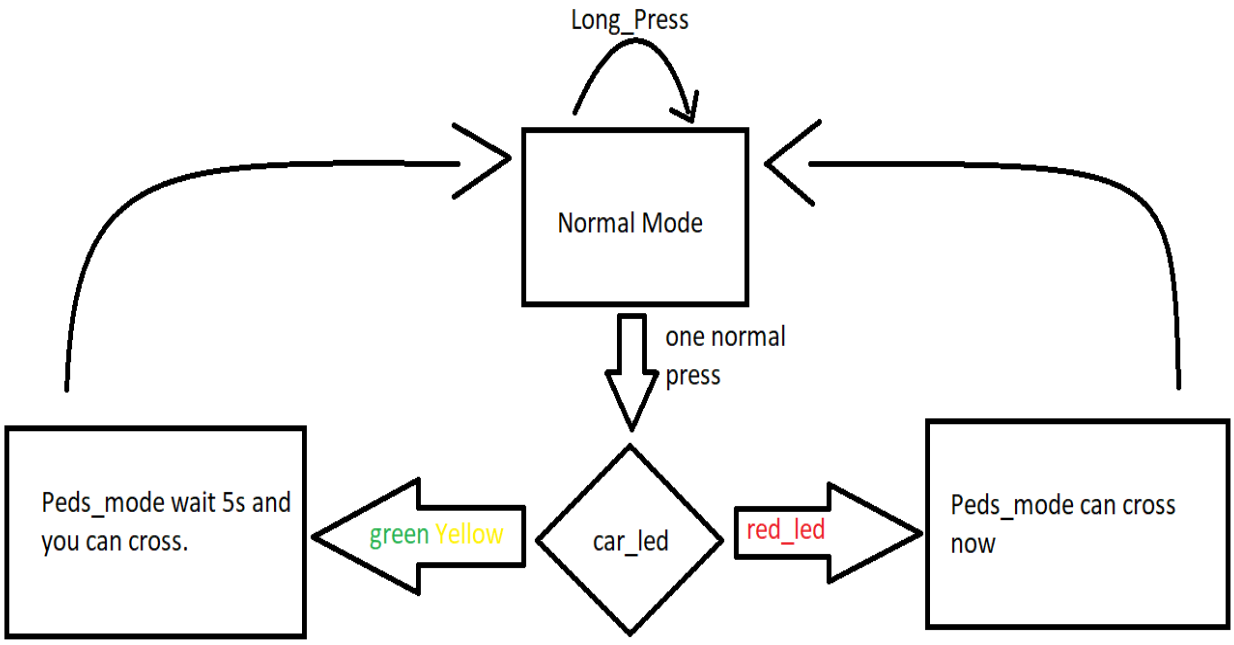
1. System description:



this project helps to enhance traffic light movement and help to avoid accidents by adding a button to help the pedestrian to cross the road. if a pedestrian pressed the button the traffic light going to be ready to cross. In our system, we used a microcontroller ATMega32 and 6 LEDs(3 for traffic lights to cars and 3 to pedestrians), and a push-button, this push-button is connected to INT0 pins to do external interrupts in the normal mode and active pedestrian mode.

2. System Design:



This system runs in two modes the main mode is the 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.

In pedestrian mode:
Change from normal mode to pedestrian mode when the pedestrian button is pressed.
If pressed when the car's Red_LED is on, the pedestrian's Green LED and the car's Red LEDs will be on for five seconds and the pedestrian can cross the road immediately.
If pressed when the car's Green LED is on or the car's Yellow_LED is blinking, the pedestrian Red_LED will be on then both Yellow_LEDs start to blink for five seconds, then the cars' 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.
After five seconds the pedestrian Green_LED will be off, and both the pedestrian Red_LED and the cars' Green LED will be on.
Traffic light signals are going to normal mode again.

3. System constraints:

- If a pedestrian played with a button, it will be trouble because the system runs in an infinite loop.
- We must add features when double and triple press pressed in the button.