Control & Automation Engineering Department

KON309E Microcontroller Systems - Experiment 5

Aim: Controlling the brightness of LEDs using PWM.

In this experiment, participants are expected to achieve tasks given below.

1. Construct a circuit consisting of 3 LEDs (1 red, 1 green, 1 yellow) and 2 buttons.
   - One button (button 1) is for selecting the LED and the other one (button 2) is for controlling the brightness.
2. Use button 1 to select the LED to use.
   - When button 1 is pressed while all LEDs are OFF, the red LED is selected (red will be ON with **low brightness**, others will be **OFF**).
   - At most **one** LED should be ON at any given time.
   - Selection sequence with button pressed event is:
     red -> yellow -> green -> OFF -> red ...
   - When button is pressed while green LED is selected, all LEDs will be OFF.
3. Use button 2 to control the selected LED's brightness.
   - Brightness could be low, medium or high.
   - Change of brightness with the button pressed event is in the sequence:
     low -> medium -> high -> low ...
   - Pressing button 1 changes the selected LED at any time.
   - Initial brightness state of the LED when it is selected is always **low**.