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Abstract
This thesis presents the implement and design of FPGA based RGB LED backlight digital control, including dimming control, feedback control and RS-232 baseband control. By using the digital PWM duty cycle to dim the illumination, we can achieve the RGB mixing light source with unique features such as instant color variability, and proposing three kind of RGB LED dimming control circuit. Under the long time use of LED, its part can affect brightness and stability of the color temperature along with the temperature change. The proposed article makes optics feedback on using the photo sensor element, fuzzy controller stabilizing the color of RGB LED backlight color drift phenomenon which under a long usage, produces the feedback voltage of photo sensor element. Finally, through the experiment, it can be demonstrated that the open loop controls RGB LED the color, and closed loop control stabilizes the RGB LED color temperature.
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