November 2022

COLOR LIGHT SENSOR (CLS) AMBIENT RGB LIGHTING DETECTION AND MAPPING TO PC LIGHT SOURCES

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Color Light Sensor (CLS) ambient RGB lighting detection and mapping to PC light sources

The increasing supply and demand of LED light sources like LED light strips and smart light bulbs have created a huge, inexpensive, and readily accessible catalog of LED devices for consumers to use in their home and office environments. These consumers outfit their rooms with LED devices to improve their lighting while also providing more customizability with the LED's placement and color configuration for RGB lights. Specifically, there is a consumer market segment that also heavily values customizability of its gaming, peripheral accessories, and PC lighting configurations. However, there is a challenge of coordinating the lighting between PC and connected peripherals and ambient room RGB LED lighting.

Aside from manual input or choice of color palette through software applications for LED RGB value configuration of PC and connected peripheral lighting, there are a few existing solutions in the market to provide color mapping of ambient lighting to PC and connected peripheral lighting. Some examples include the "Govee Immersion TV LED Backlight with Camera" and "Philips Hue Sync Box" that use an RGB camera or analyze an input video feed to extract RGB values from the video/display to provide connected LED lighting with estimated color to immerse the viewer with an almost edgeless illuminated video viewing experience.

In comparison, however, this publication's color light sensor (CLS) technology implementation uses a CLS integrated into a PC to identify prominent lighting in the room and provide the PC user an applicable color palette through SW to adjust the user's integrated lighting of his PC and PC peripherals to create a unified and cohesive lighting environment and theme. This allows PC users to coordinate their PC ecosystem's (including but not limited to keyboards, mouses, lightbar, microphones, etc.), lighting colors with the rest of their ambient room lighting (including but not limited to ceiling lights, LED light strips, lamps, etc.).

From the RGB reflected light intensity values and computed ratios of environmental lighting, this CLS implementation can extract and provide prominent lighting of light sources in the PC's CLS environment. The RGB raw data (hex value, RGB value) color of the light sources in the environment with stronger intensity or luminosity will be passed to a PC lighting control software. In this software, the user is presented with a color palette of the most prominent lighting colors in the ambient environment collected by the CLS. Colors from this palette can be selected by the user to change the integrated PC's

lighting (like keyboard backlight, lightbar, mouse, etc.) to match the environmental lighting. This will create a more cohesive thematic coloring among the user's room and PC and PC accessories.

Existing RGB PC hardware and software requires you to manually adjust coloring of your PC lighting via a color slider or RGB values with an insurmountable amount of color configurations. To match the user's PC lightings' colors, the user is required to tediously guess and check whether his color selection matches his ambient lighting. Through use of a CLS and this publication's implementation, the user is given the additional option to seamlessly match the PC's and accessories' lighting to any present lighting they have in detection area of the CLS.

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