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Automatic Vehicle Headlights by Light Conditions Using STM32

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Abstract: *This paper proposes an efficient method to control the headlight intensity of the vehicle using ambient light sensor (ALS) based on light dependent resistor (LDR) with the principle of pulse width modulation. We propose the new system titled "AUTOMATIC VEHICLE HEADLIGHTS BY LIGHT CONDITIONS USING STM32". The main responsibility of this automatic headlight control is to control the intensity of the headlight based on the ambient light. The intensity of the headlight will be low when the ambient light intensity is high and vice versa. This system employs external light sensors to continuously monitor ambient light levels. This technology can integrate many embedded systems which control other complex systems such as car headlights control system, street lighting system, general park lighting system, house lighting system and many more. The LDR sensor is used to sense the surrounding lighting condition. By utilizing a light sensor, microcontroller, and control mechanism, this system dynamically adjusts the intensity of vehicle headlights based on the surrounding ambient light*

Keywords: light sensor(LDR), microcontroller (STM32), headlight, Embedded 'C'

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