Adaptive Driving Beam control system and image processing algorithm

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Abstract

The invention discloses a self-adaptation high beam control system and an image processing algorithm. The control system comprises a foresight camera, a headlamp controller, a light source module driver, and an LED light source module; the foresight camera is used for collecting color image information of other vehicles in front in the vehicle running process and outputting the information to the headlamp controller, the headlamp controller is used for processing image information collected by the foresight camera, and calculating the position and the distance information of the vehicle on the front, determining the control strategy of the headlamp and outputting a control signal to the light source module driver, the light source module driver is used for receiving a control signal output by the headlamp controller, according to the control signal, the high-beam LED light source module is driven, and high-beam self-adaption control is achieved. On the basis of the image collected by the low-cost foresight color camera, vehicle position detection is carried out, and the advantages of being low in cost, easy to mount, high in generality, and free of depending on specific devices are achieved.

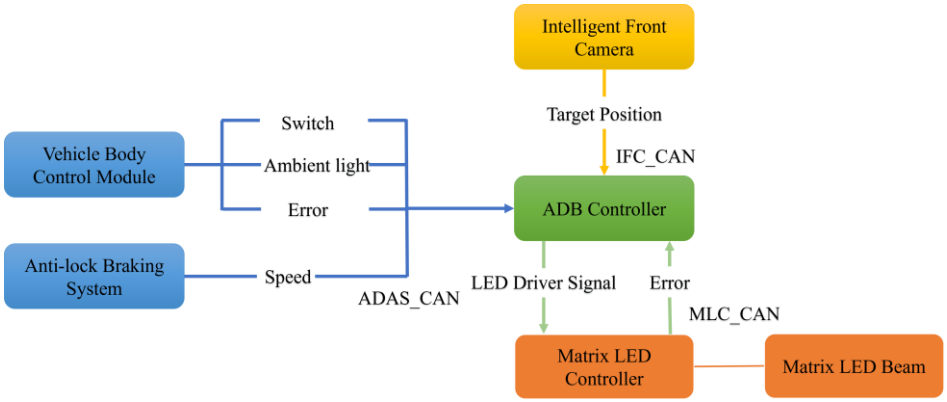

FIG.1 The Architecture of Adaptive Driving Beam System.

(a) (b)

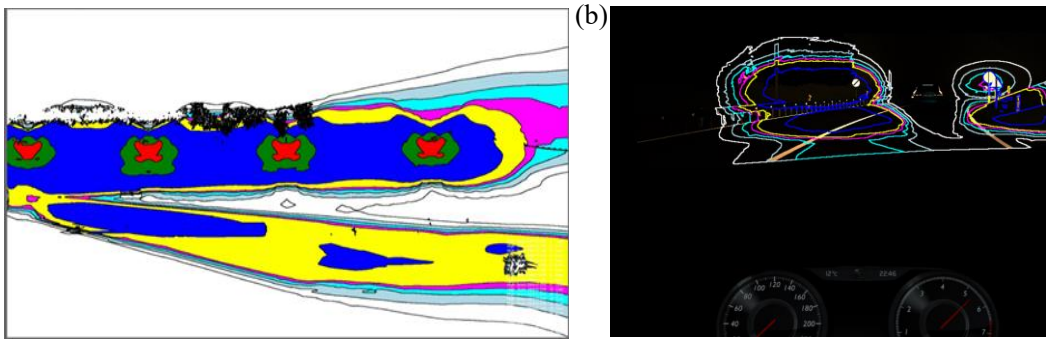

FIG.2 The Simulation of Adaptive Driving Beam System. (a) Isometric line of driving beam illuminated area from the bird-eye view, (b) The illuminate area shown from the driver's point of view, with reduced lighting for the vehicle ahead and maximum lighting in other areas.