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(57) Abstract :
Automatic detection and recognition of traffic signs is very important and could potentially be used for driver assistance to reduce accidents and eventually in driverless automobiles. In this invention, Deep Convolutional Neural Network (CNN) is used to develop an Autonomous Traffic and Road Sign (ATRS) detection and recognition system. The proposed system works in real time detecting and recognizing traffic sign images. The contribution of this paper is also a newly developed database of 24 different traffic signs collected from random road sides in Saudi Arabia. The images were taken from different angles and including other parameters and conditions. A total of 2718 images were collected to form the database which we named Saudi Arabian Traffic and Road Signs (SA-TRS-2018). The CNN architecture was used with varying parameters in order to achieve the best recognition rates. Experimental results show that the proposed CNN architecture achieved an accuracy of 100%, thus higher than those achieved in similar previous studies.

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