Traffic Sign Recognition using CNN (Convolutional Neural Network)

N. Shiva Ganesh[1], M. Bharadwaj[2], M. S. S. Kalyan[3], M. Yaswanth[4], Dr. K. Kishore Raju[5]

U.G. Student, Department of Information Technology[1,2,3,4]

Associate Professor, Department of Information Technology[5]

S.R.K.R. Engineering College (A), Bhimavaram, Andhra Pradesh, India

Abstract: *Effective recognition of traffic signs systems are essential for traffic management since road safety is a major problem. In this work, we introduce a unique method for computer vision and deep learning-based real-time traffic sign identification and categorization. Convolutional neural networks (CNNs), trained on an extensive collection of photographs of traffic signs, are the tool we use in our approach. We improve the quality of the input photos and extract relevant features by preprocessing them, which includes grayscale conversion and normalization. After that, the CNN model examines these characteristics to precisely determine the kind of traffic sign that is shown. To further improve classification accuracy, we also use bounding box localization to correctly outline and extract indicators. The effectiveness of our system is shown by experimental findings, which show that it can reliably detect traffic signs in a variety of environmental conditions. This study provides a reliable and effective method for identifying traffic signs, promoting road safety.*

Keywords: Traffic sign recognition, convolutional neural networks, deep learning, bounding box localization

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