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**Project Title** : **TRAFFIC SIGN DETECTION USING CNN**

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**ABSTRACT:-**

Traffic sign detection plays a vital role in various applications, including autonomous driving, road safety, and intelligent transportation systems. This project focuses on developing a robust traffic sign detection system using Convolutional Neural Networks (CNNs), a powerful deep learning technique known for its effectiveness in image classification tasks. The goal is to accurately identify and classify traffic signs from input images captured by onboard cameras or other sensors.

The methodology involves several key steps. First, a suitable dataset of annotated traffic sign images is selected and preprocessed to prepare it for model training. Popular datasets such as the German Traffic Sign Recognition Benchmark (GTSRB) and Belgium Traffic Sign Dataset (BEL-TSD) are considered for this purpose. The CNN model architecture is designed to effectively extract features from traffic sign images, incorporating convolutional layers, activation functions, pooling layers, and fully connected layers.

The implementation phase includes training the CNN model on the prepared dataset using TensorFlow/Keras, optimizing the model's hyperparameters, and evaluating its performance on a separate test dataset. Various metrics such as accuracy, precision, recall, and F1-score are computed to assess the model's effectiveness in traffic sign detection. Real-time detection capabilities may also be explored by deploying the trained model on live video streams.

The outcomes of this project aim to contribute to advancements in autonomous vehicle technology and road safety systems by providing an efficient and accurate traffic sign detection solution based on deep learning. The project's results and findings will be presented and discussed, highlighting insights into the performance and potential applications of CNN-based traffic sign detection systems.