An Effective Content Based Image Retrieval System Using Deep Learning Based Inception Model

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Abstract

At present times, the rapid generation of digital images has resulted in a requirement to improve the searching and retrieving process of images from huge databases. The major difficulty is the way of retrieving relevant images from massive databases with minimal time and maximum accuracy. In this view, this paper presents a new content-based image retrieval (CBIR) model using the Deep Learning-based Inception v3 Model called DLIM to effectively retrieve the images from the databases. The DLIM model will extract the features of all the images that exist in the database and store them as a feature vector. Once the query image (QI) is provided, the DLIM model will extract the features from the QI and determine the similarity measurement with the features present in the database. The images with the highest likeness in features are retrieved from the database. The performance of the DLIM model has been validated using a set of images from the Corel 10 K database. The simulation results demonstrated the extraordinary retrieval performance of the DLIM technique in terms of recall and precision.

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Assessment of Plants Sensitivity to Air Pollution using Physiological and Biochemical Parameters

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Abstract

Plants act as a main green belt enhancement component. Green plants create a surface that may absorb air pollutants and act as a sink for them, making greenbelts an efficient method of controlling air pollution. Thus attention is needed to promote and develop green belt zones in polluted areas. The current study is focused on evaluating the air pollution tolerance levels of *Mangifera indica*, *Ficus religiosa*, *Psidium guajava*, *Annona squamosa* already grown in polluted and unpolluted sites. By taking into account biochemical markers such as total chlorophyll level, ascorbic acid level, pH, water content, the Air pollution tolerance index (APTI) was calculated. APTI is an empirical relationship that assesses the degree to which different plant species can tolerate air pollution. Plants that possess APTI value less than or equal to 11 are known as sensitive, between 12 and 16 are moderately tolerant and greater than 17 are tolerant. The results obtained from the study showed that M. indica is more tolerant in nature. The rest of the plants used in the study are found to be intermittently tolerant. From this study, it can be concluded that planting *Mangifera indica*, *Psidium guajava*, *Annona squamosa*, *Ficus religosa* in urban areas can reduce air pollution. This study also concludes that use of the APTI evaluation for the identification of air pollution tolerant plants is a suitable method.

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Introduction

Clean air is essential for the relationship between the environment and public health, but as pollution from many sources is released into the environment, the air quality is deteriorating, which has negative effects on both the climate and human health.[1-3] The main causes of air pollution emissions and poor air quality include growing urbanization,

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