

Face Identification for E-Ration Shop Customer Authentication

Abstract:

In developing countries like India, ensuring the efficient distribution of essential commodities such as ration to impoverished families is crucial. However, the existing manual systems face numerous challenges, including long queues, record-keeping difficulties, and limited accessibility. To address these issues, the E-Ration Shop project proposes an automated customer identification system using face recognition technology.

This system aims to streamline the ration distribution process by allowing customers to authenticate themselves through facial recognition. Leveraging the OpenCV library in Python, the system captures and analyzes the facial features of customers approaching the ration shop. Machine learning algorithms, including Convolutional Neural Networks (CNNs), are employed to match the captured features with those stored in a database of registered users. Upon successful authentication, customers gain access to their ration allocation details and can proceed with their purchases.

The proposed system comprises three primary modules: the Admin module, which manages shop owner accounts, stock details, and access permissions; the Shop Owner module, which registers and manages user details, stocks, and shop information; and the User module, which enables customers to register, update their profiles, view recent transactions, and request ration products.

Furthermore, the system offers home delivery services, allowing users to manage their addresses, schedule deliveries, and calculate delivery fees. This feature enhances the accessibility of ration products for individuals who are unable to visit the physical ration shop.

By implementing an automated customer identification system using OpenCV and machine learning, the E-Ration Shop project seeks to significantly improve the efficiency, accuracy, and accessibility of the ration distribution process. This innovative approach not only addresses the shortcomings of the existing manual systems but also contributes to enhancing the overall welfare of disadvantaged communities.

Implementation:

The system will be implemented using Python and OpenCV for face detection and recognition. Machine learning algorithms, such as CNNs, will be utilized for accurate facial identification. The system will also include modules for admin, shop owners, and users to manage accounts, stocks, and transactions.