

Pill Identification using Deep Learning and Voice Assistance

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Abstract: Medical pills identification is crucial for ensuring medication safety, particularly for visually impaired individuals or those managing multiple prescriptions. This project leverages deep learning techniques using Artificial Neural Networks (ANN) to identify pills through images captured via a camera. The process involves pre-processing the captured images, extracting distinctive features, and providing results through a voice output system. Existing systems primarily use traditional image processing techniques or manual identification through databases, which are time-consuming and less accurate in diverse real-world conditions. A significant drawback of these systems is their inability to handle poor lighting, varied angles, or partial occlusions in captured images effectively. The proposed system introduces a robust deep learning model trained on an extensive dataset of pill images. It automates pill identification by pre-processing images to enhance quality, extracting meaningful features, and employing an ANN for classification. Results are relayed through a voice assistant for improved accessibility. This work utilizes cutting-edge deep learning algorithms, focusing on the healthcare domain, to improve the accuracy and usability of pill identification. The system integrates computer vision techniques, image pre-processing, and feature extraction to enhance identification reliability. Compared to existing methods, the proposed system offers higher accuracy, scalability, and Accessibility

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