IN-HOME SAFETY MONITORING SYSTEM FOR ELDERLY PEOPLE USING DEEP LEARNING

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Elderly people are more likely to fall and sustain injuries, so they require fall detection systems that are effective. A machine learning model using a proposed VGG16 architecture for picture classification tasks was constructed with the aid of a robust dataset consisting of 374 training and 111 testing photos showing different postures. In order to prevent overfitting, the suggested approach entailed carefully preprocessing and feature extraction of a pre-trained VGG16 model, then adding dropout regularization. The model demonstrated success in differentiating fall-related occurrences, as seen by its remarkable training accuracy of 99.53% with a little loss of 0.0322, and its strong testing accuracy of 89%. In cases of abnormal activity, the system generates alerts in the form of emails to the user, neighbors, and nearby clinics by providing detailed descriptions and images. The Experimental results hold great promise for practical applications that might instantaneously notify medical experts and carers, guaranteeing prompt attention to possible accidents. Experimentation with various video surveillance datasets demonstrates that the proposed system achieves low false alarm rates. Overall, this project integrates sophisticated deep learning anomaly recognition with a modular approach, offering a customizable and efficient surveillance system for enhanced security.

 ISBN 978-81-965908-5-7