



Nadar Saraswathi College of Engineering and Technology

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Title: AI/ML Model generation for Industrial Sector-Defect detection in bottle manufacturing and Human posture estimation for manpower productivity improvement

Abstract: The integration of AI/ML in industrial automation is revolutionizing quality control and workforce efficiency. This project focuses on developing AI models for defect detection in bottle manufacturing and human posture estimation for manpower productivity improvement. The defect detection system employs deep learning-based computer vision techniques to identify surface imperfections, shape deviations, and other anomalies in bottles, ensuring real-time quality assessment and minimizing production waste. Simultaneously, the posture estimation model leverages pose detection frameworks to monitor worker movements, identify incorrect postures, and provide actionable insights for ergonomic improvements, thereby enhancing workplace safety and efficiency. The scope of work includes data collection using industrial cameras and sensors, model training with CNNs and pose estimation algorithms, and deployment on edge devices like Raspberry Pi for real-time inference. By integrating AI-powered analytics into manufacturing and workforce management, this project aims to improve product quality, reduce operational costs, and optimize manpower productivity, contributing to the Industry 4.0 transformation.

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