IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 5, Issue 3, January 2025

Smart Soda Can Defect Detection System

Kaveri Dhamankar, Shravani Bhosale, Pratiksha Gaikwad, Gayatri Gaikwad, Varsha Deshmukh
Department of Computer Engineering
Pimpri Chinchwad Polytechnic Pune, India
dhamankars774@gmail.com, shravanibhosale750@gmail.com, gaikwadpatu21@gmail.com
gayatrigaikwad36108@gmail.com, varshadeshmukh90@gmail.com

Abstract: *The "Smart Soda Can Defect Detection System with Deep Learning" is an innovative solution designed to enhance the quality assurance process in soda can production lines. Leveraging advanced deep learning algorithms, the system efficiently classifies soda cans as either defective or good based on visual inspection. Utilizing convolutional neural networks (CNNs) trained on labeled datasets of soda cans, the model detects defects such as dents, scratches, or misprints with high accuracy. The system integrates real-time video processing, automatically identifying cans as they pass through a camera feed, and marking them for further action if defects are detected. This automated solution reduces manual labor, minimizes errors, and increases production efficiency. The research focuses on the implementation of the detection model, training techniques, system architecture, and its application in real-time defect detection scenarios. By improving the quality control process, this system has the potential to significantly reduce waste and ensure high-quality products in the beverage industry.*

Keywords: Deep Learning, Defect Detection, Soda Can Inspection, Convolutional Neural Networks (CNNs), Real-Time Detection, Quality Assurance, Automated Visual Inspection, Production Efficiency, Image Classification, Beverage Industry Automation

DOI: 10.48175/568