IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 6, May 2025
Impact Factor: 7.67

IoT-Based Smart Industrial Weighing Machine with Object Recognition

Dr. P. Ganesh Kumar[1] Suriya N[2], K Vimal Adithan[3]
Professor, Information Technology, K.L.N College of Engineering, Sivaganga, India[1]
Students, Information Technology, K.L.N College of Engineering, Sivaganga, India[2,3]

Abstract: *This paper presents an IoT-based Smart Industrial Weighing Machine with object recognition to automate weight measurement and product identification in industrial settings. Utilizing Raspberry Pi, precision weight sensors, and a high-resolution camera, the system accurately measures weight and identifies products, extracting metadata like expiration dates via image processing. Data is transmitted to a Firebase cloud platform for real-time monitoring, reducing manual errors and enhancing efficiency in retail, logistics, and pharmaceuticals. An intelligent alert system notifies users of expiring products, minimizing waste. The system supports Industry 4.0 by integrating IoT and computer vision, contributing to SDGs 9 (innovation), 12 (sustainable consumption), 2 (zero hunger), and 8 (economic growth). Results show improved accuracy and productivity, with potential for machine learning enhancements.*

Keywords: IoT, Smart Weight Machine, Object Recognition, Raspberry Pi, Firebase, Cloud Monitoring, Expiration Tracking

DOI: 10.48175/IJARSCT-26725