**TITLE: DL-Powered Quality Control for Packaged Food**

**DESCRIPTION:**

In contemporary manufacturing, the assurance of product quality is paramount to meet consumer expectations and uphold industry standards. However, the conventional quality control (QC) processes for products, such as chips and chocolates, often face challenges in terms of efficiency and precision. This project addresses these challenges through a comprehensive exploration of advanced technologies, specifically focusing on the identification and categorization of defective items. The primary issue at hand is the need for a more sophisticated and automated QC system that can efficiently detect and classify products. Conventional methods may fall short in providing real-time and accurate results, leading to potential delays, increased wastage, and the delivery of subpar products to consumers. The integration of the YOLO (You Only Look Once) algorithm, particularly YOLOV5, and deep learning models offers a promising solution to enhance the QC process. The primary goal is to overcome the limitations of traditional methods by implementing a system that can not only detect products promptly but also classify them accurately based on predefined criteria. By addressing these challenges, the project aims to revolutionize the manufacturing industry's approach to QC, ensuring the efficient production of high-quality products while minimizing wastage and meeting the demands of discerning consumers.

**Objectives**

* Object Detection and Classification: To develop a deep learning model capable of accurately detecting and classifying chips and chocolates based on specified criteria.
* Quality Improvement: To improve the quality of chips and chocolates supplied to consumers by detecting and classifying defective products.
* Real-time Processing: To implement a real-time system that can process images, providing rapid and efficient quality control.

The proposed project aims to achieve these objectives by using deep learning to create a sophisticated quality control system that can accurately detect and classify products and improve the quality of chips and chocolates supplied to the consumer.

**Project Domain**

**IOT**

**Machine Learning**

**Deep learning**

**Data Science**