**Project: Smart Vision Quality Testing System**

**Problem:**

In manufacturing, checking product quality manually is slow and prone to mistakes. As production speeds up, it gets harder to spot defects, leading to defective products being shipped.

**Solution:**

The **Smart Vision Quality Testing System** uses cameras and **computer vision** to automatically check products for defects like scratches or cracks. It speeds up the quality control process and reduces human errors, ensuring high-quality products.

**Tech Stack:**

* **Hardware:**
  + **Cameras** for capturing images of products.
  + **ESP32** (or other processors) for handling data processing.
  + **LED lighting** for clear images.
* **Software:**
  + **OpenCV** for processing images and detecting defects.
  + **TensorFlow/PyTorch** for machine learning models that identify defects.
  + **Python** to tie everything together.

**Target Audience:**

* **Manufacturers** who need automated quality checks on production lines.
* **Quality control teams** looking to speed up their testing processes.
* **Students and hobbyists** learning about computer vision and machine learning in real-world applications.