Title:
Defective Product Detection System for Factory Automation

Overview:

This project is an IoT-based prototype for quality control in factories.
It uses three sensors (Ultrasonic, Proximity, Soil Moisture) to evaluate whether a product on a conveyor is defective. If a defect is detected (missing metal part, excess moisture, or no product present), the system flags it for rejection.

Features:

- Detects product presence using an ultrasonic sensor.

- Detects metallic content using a proximity sensor.

- Detects unwanted moisture using a soil moisture sensor.

- Simple logic for quality control: Product Pass/Fail.

- Can be expanded with servo/relay for automated rejection.

Technical Details:

- Hardware: Arduino Uno/Nano, Ultrasonic Sensor, Proximity Sensor, Soil Moisture Sensor, optional Servo.

- Thresholds: Ultrasonic < 15 cm, Moisture < 500 (wet).

- Language: Arduino C++.

Applications:

- Smart Factory quality control.

- Automated defect removal on conveyor belts.

- Industry 4.0 educational project.

Portfolio Relevance:

This project demonstrates sensor fusion, automation, and IoT concepts.