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Colour and Size of Fruit Sorting Machine: Case Study

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Abstract: *The IoT-Based colour and size sorting system is an innovative solution designed to automate the classification of objects based on color and size, catering to industrial and logistical needs for efficient sorting processes. Manual sorting methods are often labor-intensive, time-consuming, and prone to errors, making them inefficient for large-scale operations. This project aims to address these challenges by implementing a smart, Arduino-based robotic system capable of detecting and sorting objects autonomously with high precision.*

The system integrates IoT capabilities for real-time monitoring and control using the Blynk app on a smartphone. At its core, the project utilizes an Arduino Uno microcontroller paired with sensors such as a TCS3200 color sensor for detecting object colours and an ultrasonic sensor for determining object size. The sorting mechanism is driven by servo motors and a conveyor belt powered by a DC gear motor, ensuring smooth and accurate movement of objects. Sorted items are directed into appropriate bins based on predefined categories.

Energy efficiency and sustainability are prioritized by incorporating a 12V adaptor, enabling operation in remote or off-grid environments. The IoT integration allows users to monitor system performance, view real-time data, and make adjustments to sorting parameters through the Blynk app, promoting user convenience and adaptability.

This system enhances sorting accuracy, reduces human intervention, and boosts productivity while minimizing operational costs. Its scalable design and user-friendly interface make it suitable for various applications, including recycling plants, manufacturing units, and agricultural produce sorting. The combination of Arduino's robust capabilities and IoT-based control offers a smart, efficient, and sustainable solution for modern sorting requirements.

With its precision, adaptability, and IoT-enabled features, the IoT-Based colour and size of fruit sorting system represents a significant advancement in automated sorting technology, contributing to streamlined workflows and improved resource management across diverse industries..

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