Fruit Plucking Robot Arm

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Abstract*: In response to labor shortages and increasing demand for more effective harvesting techniques, this research suggests creating an autonomous robotic arm system for fruit picking. This robotic arm is engineered to carefully identify ripe fruits, handle them with precision, and harvest them without harming the plant or the fruit itself. The essential elements of the robotic arm system comprise advanced computer vision algorithms for identifying and assessing the ripeness of fruits, precise robotic arm kinematics for accurate positioning and movement, and gripper mechanisms designed to handle fruits delicately. This system relies on real-time data processing to make quick decisions and adjust to different environmental conditions as needed. Introducing this robotic arm system brings numerous benefits compared to conventional manual harvesting approaches. It cuts down on labor expenses and reduces reliance on seasonal workers, boosts harvesting efficiency by operating tirelessly without fatigue, and decreases fruit damage, resulting in superior quality produce. Moreover, the autonomous functionality enables 24/7 operation, ultimately maximizing productivity and yield.*

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