

Introduction: In recent years, the integration of robotics and agriculture has revolutionized traditional farming practices. By harnessing the power of robotics and artificial intelligence, farmers can achieve higher yields, reduce resource consumption, and ensure the long-term viability of agricultural production in the face of growing global challenges. By continuously monitoring environmental conditions, these robots can detect fluctuations or anomalies that may indicate potential issues, such as pest infestations, disease outbreaks, or equipment malfunctions, allowing farmers to take proactive measures to mitigate risks and ensure crop health. Equipped with sensors and advanced data processing capabilities, these robots provide farmers with accurate insights into the conditions within their greenhouses, enabling timely interventions and adjustments to optimize crop health and productivity. The primary objective of a greenhouse monitoring robot is to collect real-time data on various environmental parameters essential for plant growth, such as temperature, humidity, light intensity, soil moisture, and CO2 levels. In addition to monitoring environmental parameters, some greenhouse robots are equipped with additional functionalities, such as crop imaging, weed detection, and even autonomous harvesting.