

## **AUTOMATION OF TRADITIONAL AGRICULTURE: ROBOT HARVESTING WITH CHALLENGES**

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**Abstract:** Modern agriculture produces maximized yield, high profit and fulfills the human food needs. Majority developing countries provide 80% of farm power from humans while developed countries use machines. Farm mechanization is timely efficient and enhances crop quality with potential yield per unit area. Therefore, Agricultural automation including harvesting is crucial. Author presents a comparative discussion on the applications of robot harvesting for traditional Agriculture with some challenges. The study employs a qualitative methodology, focusing on content analysis of existing literature. Overall farm productivity can be significantly increased by robot harvesting while focusing on other farming activities. It replaces the manual traditional harvesting by upgrading the quantity and quality with less farming efforts. Majorly, different kinds of fruits and vegetables are harvested by robots. The discussion is mainly based on path navigation of robots, using algorithmic functions aided with sensors and cameras to detect the real time of harvesting. Robotic arms or other tools are utilized to harvest without damaging. Monitoring of crop health and nutrient deficiencies, thinning, pruning, spraying and bagging functions in green houses, orchards and open fields are performed with the automation. Research difficulties on scarcity of actual in-depth data, variations of feed-back from end users, issues on visual processing efficiency and economic aspects including initial investment and higher expenditure are the challenges on the approach. Traditional harvesting can be replaced by robotic harvesting with some challenges. Extended research based on socio-economical aspects and; crop specific, regional based and in-depth experiments are needed to enhance the technology.

**Keywords:** Agriculture, Mechanization, Oppositions.