Robotic harvesting: the facts and figures

> The global agricultural robotics market was valued at $2.8 billion (USD) in 2016 and is predicted to reach $12.8 billion by 2022.

> Harvesting management is the most widely used application in agricultural robotic farming.

> Robotics for harvesting is a promising emerging type of farm tech and this market was valued at $5.5 billion (USD) in 2018.

> Robotic harvesting of tropical and sub-tropical horticulture crops was seen as THE priority across all growing regions of Australia (2016).

> Harvesting is the number one thing that Australian growers and farmers would like to automate on their farms.

(Markets and Markets; Alpha Brown; Horticulture Innovation Australia Ltd)

CONTACT US

If you are interested in providing feedback or advice, would consider a farm visit or trial, or would like to learn more about our robotic harvesting solution, please get in touch.

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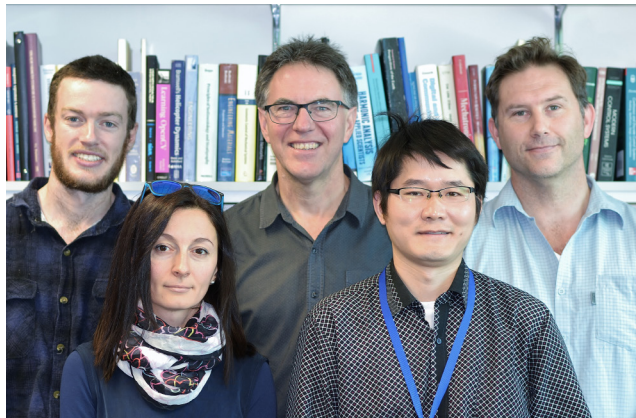Level 6, 121 Marcus Clarke Street,
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ANU ROBOTIC HARVESTING SOLUTION

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Researchers from The Australian National University (ANU) are developing a robotic harvesting solution, for multiple horticulture crop types, under real-world conditions. Using a wide range of disciplines, our researchers are developing a multi-crop, selective-harvesting, robotic platform to help automate labour and reduce input costs for outdoor farms.

Why robotic harvesting?

Like any industry, horticulture requires an adequate workforce to keep operations going. Growers and farmers continue to identify chronic and critical labour shortages as one of the most pressing risks facing the horticultural industry and a major constraint on both growth and global competitiveness. Horticulture is a complex industry that faces unique workforce challenges due to rural depopulation and seasonal production of highly perishable products.

The shortage, instability and cost of labour for manual, hand harvesting and increasing competition from lower cost world producers have been the driving forces behind the development of mechanised and automated harvesting in Australia. Robotic harvesting offers an attractive potential solution to insufficient labour and enables more regular and selective harvesting (optimising crop quality and therefore profitability).

Whom is our solution for?

Australian fruit and vegetable growers & farmers

Our novel robotic platform design is multi-purpose and adaptable, enabling the technology to be applicable to many horticulture crop types. Capsicum, chilli and green asparagus are the first series of crop types we would like to consider. Further crops will be tackled following the successful harvesting of capsicum, chilli and green asparagus.

Where at we at?

Our robotic platform consists of three main systems: a perception, manipulator and transportation system. The main focus over the next 12 months is further development of the perception system, which requires the implementation of 3D modelling experiments at several farm locations. Once complete this information will be used to optimise the design of the manipulator and transportation systems.

The goal is to perform the first on-farm harvesting trials on a single crop during the 2019 harvest season. Then following platform refinement and optimisation, the aim to perform on-farm harvesting trials, for multiple crops, from 2020-2022. Our platform is at an early stage of development, but the objective is to have commercially viable units available in 2023.

How can you help?

ANU is driven to deliver a robotic harvesting solution that will be of practical use to the Australian horticultural community. As such, we are seeking to involve members of the horticultural industry, throughout the life of project, to ensure that we provide a solution that meets current needs and returns value back to growers and farmers.

Specifically we are looking to engage on three levels:

> **Feedback and advice:** surveys and discussions with growers and farmers around current farming conditions, practices and harvesting procedures.

> **Farm visits:** visiting of farms to witness harvesting first-hand and to discuss harvesting techniques, costs and components of most value.

> **Farm trials:** conducting on-farm 3D perception modelling experiments and prototype harvesting trials.