***Study to review automation of banana de-handing* (BA21005)**

This project examined whether automating banana de-handing was feasible and provided the banana industry with an understanding of what would be required to progress towards automation.

**Key research provider:**

Advanced Robotics for Manufacturing Hub

**What was it all about?**

In 2022, this project examined the feasibility of automated banana de-handing and provided the Australian banana industry with an understanding of what would be required to progress towards automation.

To understand the opportunities and potential challenges for the integration of robotics and automation, the research team conducted a ‘time and motion’ study to survey banana processing in an operational processing facility.

Research was undertaken into existing banana de-handing processes, which included a review of several patented mechanical de-handing solutions. Investigations concluded there are currently no commercial-ready solutions that can be immediately deployed to automate banana de-handing in Australia.

Recommendations from the research included:

* Previously proposed automated de-handing solutions and inventions are unlikely to be viable for adoption in Australia and do not warrant further investigation or development.  These and other mechanical banana de-handing technologies are likely to have unacceptable impacts on fruit quality, including bruising.
* Advances in computer vision, machine learning and robotic handling methods provide promising opportunities for the development of a viable de-handing solution.
* For a commercial solution to be developed, the detailed design of two robotic options should be progressed to the next stage of development. Development of an automated robotic de-handing solution is being researched further.
* A cost benefit analysis would best be conducted once more information is available.
* Greater farm-level information is needed to determine benchmark/s that would make an automated system viable for use in Australia.
* Further research and development efforts should be delivered in partnership with producers and technology providers.

**ACT NOW**

Further information can be found on the [Advanced Robotics for Manufacturing (ARM) Hub website](https://armhub.com.au/), which also contains specific details about its [work in support of the Australian banana industry](https://armhub.com.au/arm-hub-is-working-with-banana-farmers-to-help-automate-the-industry/).