

# SNAPSHOT

## NAKED PRIMAL CUT RECOGNITION VISION SYSTEM TRIAL IN PLANT

Project Report Reference: 2018-1048

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### Project Description

This project takes the technology developed in AMPC project no: 2017-1064 “Development of Naked Primal Cut Recognition Software” and implements the system in a meat processing plant for a live trial. The system makes use of 3D imaging sensors which captures and processes the 3D scene in real time. Information such as dimensions, fat content and shape are calculated from the 3D data and used to identify the naked primal cut.

### Project Content

To achieve the final objective of real-time identification of primal cuts, the following stages were completed:

1. Identification of a suitable meat processing plant to accommodate the vision system.
2. Customising the system to meet the space, hygiene and lighting requirements of the plant.
3. Installing the modified system into the plant.
4. Using the vision system to gather training images.
5. Training a neural network from the newly acquired training images to identify a subset of primal cuts.
6. Conduct a live trial where the primal cuts are identified in real time and displayed to screen.
7. Analyse the results of the trial and determine the overall accuracy of the system.

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**Project Outcome**

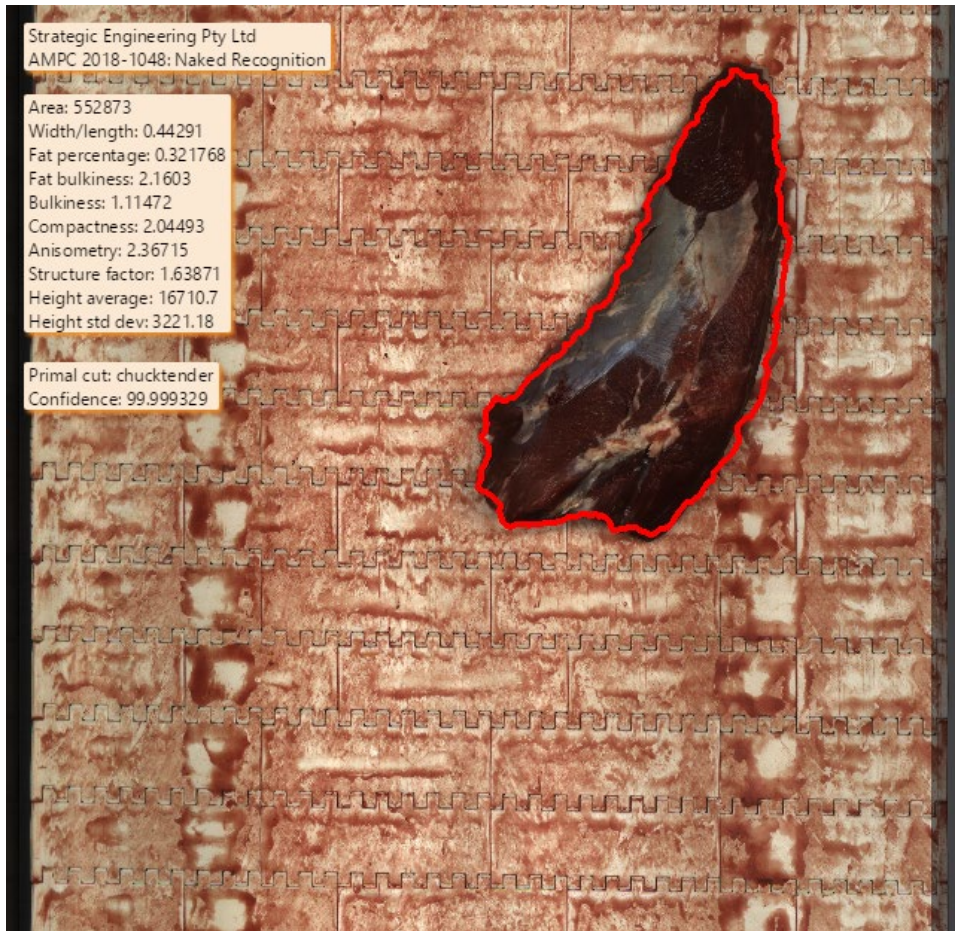
Modifications were made to the vision system to make it meet the specification of the host plant, Oakey Beef Exports, followed by a successful installation on site. The system was designed to meet the hygiene standards of the plant as well as to be as compact as possible with minimal footprint to reduce potential disruption to the plant’s regular operations.

A neural network was developed from 1169 training images gathered on site to identify 7 different primal cuts:

- Brisket navel end
- Chuck tender
- Eye round
- Outside flat
- Oyster blade
- Short rib
- Striploin



*Figure 1: Vision system installed at Oakey Beef Exports*

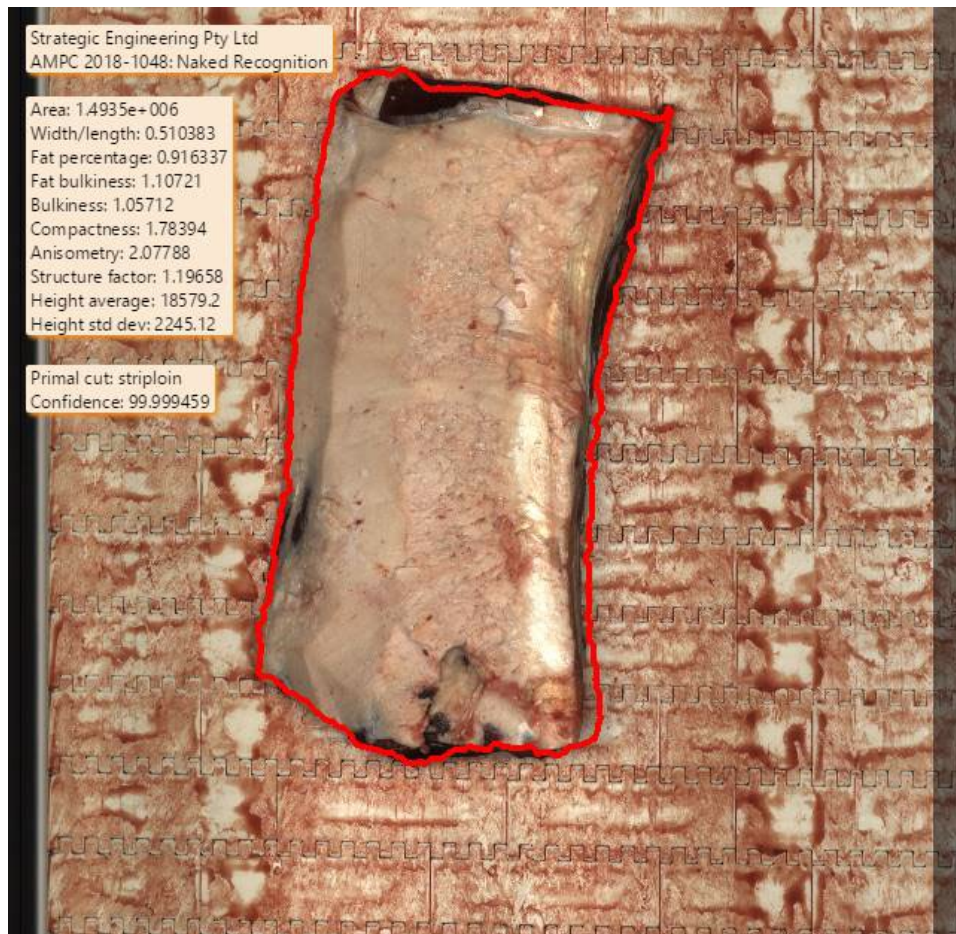


*Figure 2: Vision system identifying a chucktender*



### Benefit for Industry

Red meat processing facilities will be able to use automatic primal cut identification to significantly reduce the amount of manual labour required in their plant for bagging and labelling. The implementation of the identification system will also potentially allow for 'real time' performance feedback of the boning and slicing operations upstream. This project also enables other automation technologies such as automated labelling and bagging. Expanding the current vision system to determine the position, orientation and profile of primal cuts would facilitate the progression of AMPC Project No: 2018-1049 Automation of Primal Cut Bagging. Automating the labelling process would improve the efficiency and enable the commercial viability of Robotic Picking and Packing.



*Figure 3: Vision system identifying an outside flat*