SNAPSHOT

AUTOMATION OF PRIMAL CUT BAGGING

Project Report Reference: 2018-1049 **Date: 18 November 2019**

Project Description

Meat processing plants suffer significant labour costs and OH&S risks associated with the manual bagging of meat cuts after processing. This project aims to examine the most effective way of bagging and labelling naked primal cuts, through research and development into automation technologies that could be directly applied to bagging tasks and identify available technologies that might be applied and used as building blocks for the development of an automated bagging system. A concept design for a fully automated primal cut bagging system was developed with recommendations for future development.

Project Content

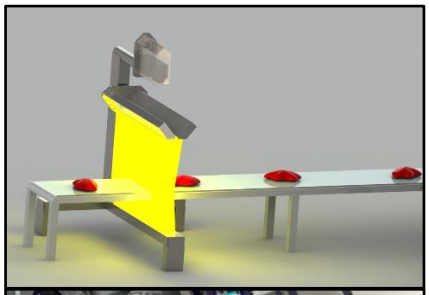
The range of primal cuts requiring bagging were examined and the various complexities that would need to be tackled with an automated bagging system were identified. These included:

- Variation in shape
- Amorphous nature of red meat
- Presence of bone with hard or sharp edges
- Transporting and positing meat for bagging
- Variation in bagging material or bag labelling

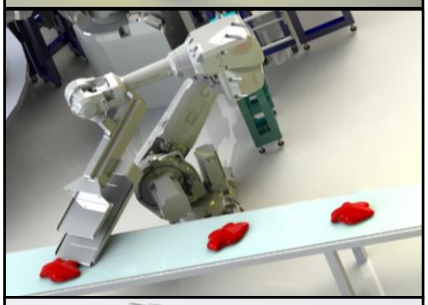
Currently available automated bagging technologies that might be used for the task of automated bagging of primal cuts were assessed. Additionally, available technologies that might be used as building blocks in the creation of a system for automated primal cut bagging from the ground up were also assessed.

Project Outcome
The following automated bagging tasks were identified in the concept design:

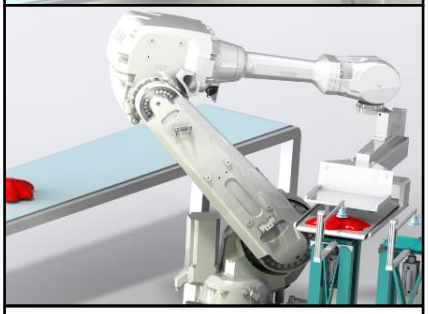
Identification and Inspection
A stereo line scan camera with LED lighting bars is integrated with a typical belt style conveyor to capture colour images and generate a 3D point cloud of each primal cut.



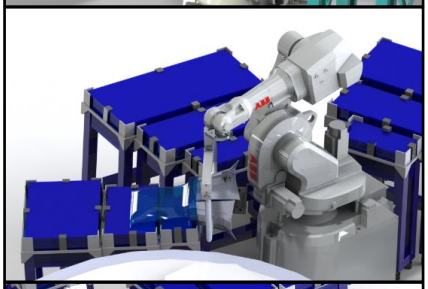
Transportation of Cuts
Transportation of the primal cuts through the automated bagging system and between the various tasks will be achieved with standard conveyors and a specially designed robotic spatula type gripper.



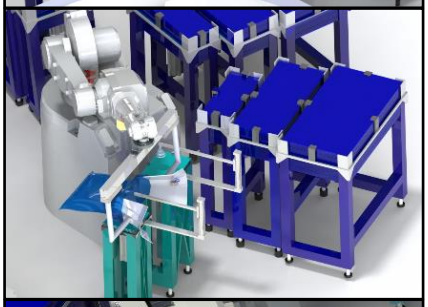
Additional Items Placed on Top of Cuts
Once the primal cut is picked it will be positioned under a work station where the additional items will be positioned on top of the cut.



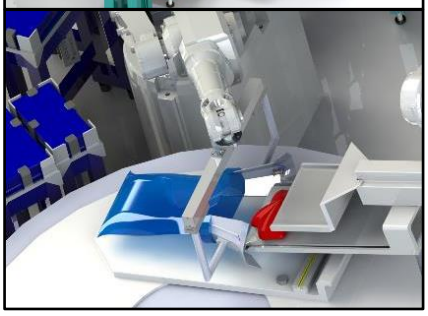
Bagging of Primal Cuts
The robot then positions the bag for an external label to be applied if required, before positioning the bag above the carousel of the vacuum sealing machine.

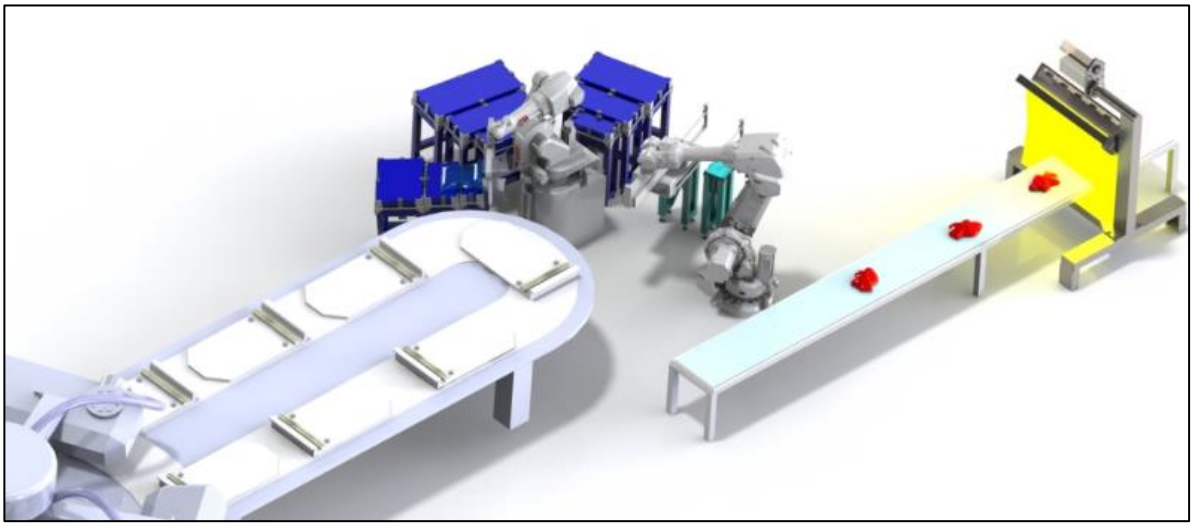


Labelling Primal Cuts
The bagging robot will position the bag to be labelled, as required, by the particular primal cut.



Vacuum Sealing of Primal Cuts
The robot handling the primal cut positions the cut inside the bag, where it is released onto the vacuum sealing machine.





Benefit for Industry

Meat processing facilities would be able to use a fully automated primal cut system significantly reduce the amount of manual labour required in their plant needed for identification, labelling and bagging. This should improve safety standards, reduce labour costs, workplace errors and waste, increase efficiency as well as lead to improved quality and grading. Further downstream processes, such as picking and packing of primal cuts, could be integrated to utilise the identification and tracking information collected during the bagging process. Allowing for more efficient automation with potentially lower overhead costs.