Grower Summary

SF/TF 170

Soft fruit detection and shape estimation using 3D information and machine learning

Annual 2019

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Further information

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Project title:	Soft fruit detection and shape estimation using 3D information and machine learning
Project number:	SF/TF 170
Project leader:	Grzegorz Cielniak, University of Lincoln
	Charles Whitfield, NIAB EMR
Report:	Annual report, 2019
Previous report:	NA
Key staff:	Justin Le Louedec
Location of project:	University of Lincoln
Industry Representative:	Berry Gardens Growers
Date project commenced:	September 2018

GROWER SUMMARY

Headline

We aim to study the utility of 3D information for robotic perception in commercial strawberry production. We have found, through investigating sensing technologies and state-of-the-art algorithms for the detection of fruit that using images rather than 3D information is more suitable. We will now focus on shape description and understanding, as well as 3D reconstruction of fruit.

Background

This work is part of a larger programme of work funded by BBSRC and industry through the Collaborative Training Partnership for Fruit Crop Research (CTP-FCR) to develop and deploy robotic platforms for commercial strawberry production. The platform is hoped to assist pickers, growers and agronomists to deliver tasks. in this current study we will develop the vision system component of the robotic platform and test how it can be utilised for different tasks such as picking and phenotyping.

Summary

During the first year of this project we have studied the sensing technologies available and state-of-the-art algorithms for the task of detecting strawberry fruit in 3D space. The results have developed methods of understanding shape and phenotyping of the berries.

Financial Benefits

This project is part of a much larger programme to develop robotics for the horticultural industry. The exact financial outcomes of such investment in robotics and computer science is unclear at this early stage. However, it is expected that a fully working robot picker would alleviate labour cost for picking, transporting and analysing fruits in the grower facility, with an initial investment in the robot.

Action Points

There are no action points at this early stage of the project