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sorting strawberries - final report

CONTEXT:

An established strawberry farm is looking to increase profit by automating their sorting process.

STAKEHOLDER QUESTION:

Will adopting an automated process employing image classification ML to sort strawberries benefit the farm's bottom line?

PROCESS:

Set out to examine the investment involved in creating an end-to-end image processing application that automates the sorting process of a strawberry harvest.

Using a dataset of images - individual picked strawberries, found on Kaggle (fruits360); I created a model to predict class-A or class-B given a new unlabeled image. The model was built using the google cloud platform (ML: image classification - multiple labels).

DISCOVERY:

From someone just beginning in the field; creating a functioning prediction model was fairly straightforward. Uploading images, labeling each one, and creating a model to use for future prediction flowed smoothly on google cloud. The performance metrics of the initial trial model are:

- Precision: 90%
- Recall: 92.3%
- average precision: 0.977

If a 'pre-packaged' image classification algorithm is used; the majority of resources will be spent on image collection tasks. Develop a method of automated mass image collection. The quality and uniformity of each sample collected is vital to the success of the prediction model.

CONCLUSION:

Not only for sorting - image classification ML is worth adopting to positively affect the farms bottom line. The low cost of IOT devices for image collection, the ease and availability of cloud computing, and the employment of neural networks being developed for CEA all shine light on the potential benefit of this technology in farming strawberries.

OTHER APPLICATIONS:

- Monitor strawberry images throughout the entire growth process to optimize and tune production. Controlled Environment Agriculture - CEA
- Detect disease or pest infestation through image analysis