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# STRATEGIC PARTNERSHIP IN THE FIELD OF VOCATIONAL EDUCATION AND TRAINING

## SHORT DESCRIPTION

STRATEGIC PARTNERSHIP IN VOCATIONAL  
TRAINING

## AUTHOR

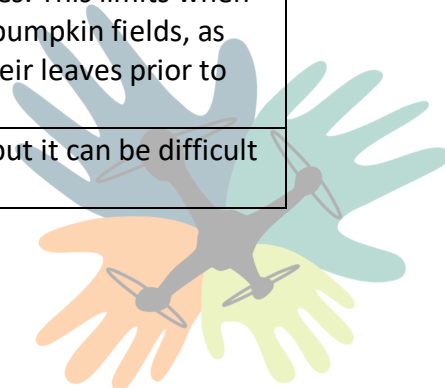
DENMARK'S PARTNERS

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<b>Project:</b>	2017-1-ES01-KA202-038136
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<b>Title</b>	Counting and mapping of pumpkins using UAVs
<b>Summary</b>	A UAV was used to acquire high resolution images of several pumpkin fields at Gyldensteen, a farm in the northern part of Funen, Denmark. Based on the acquired images, the number of pumpkins in each field was estimated. In addition was maps showing the pumpkin density distribution generated.
<b>Major area of work</b>	Horticulture?
<b>Key Facts</b>	<b>Location:</b> Gyldensteen Gods, Funen, Denmark
	<b>Target group:</b> Pumpkin farmers.
	<b>Other stakeholders:</b> Pidgeon Air Photo (acquired the images), University of Southern Denmark (analysed images)
	<b>Objective:</b> To get an early and precise estimate of the number of pumpkins in the fields. This could be used by the farmer to improve his sale of pumpkins.
	<b>Timeframe:</b> Images was acquired and analysed in september 2017.
<b>Context and problem addressed</b>	At a Danish pumpkin farm, the farmer was interested in more detailed knowledge about the field inventory / number of pumpkins in his fields. This information would be used to adjust the sales for increase profit. The earlier in the season this field status can be completed, the larger benefit for the farmer.
<b>How does it work</b>	<ol style="list-style-type: none"> <li>1. A UAV was used to acquire images of the pumpkin fields with a resolution of 2 cm / pixel.</li> <li>2. The images was stitched together to a large orthomosaic.</li> <li>3. Orange (pumpkin colored) objects was located in the image and counted</li> <li>4. Information was presented to the farmer.</li> </ol>
<b>Validation</b>	Yes, the project is still running and we are in contact with the farmer on a monthly basis.
<b>Impact</b>	The project is not completed yet.
<b>Innovations and Success factors</b>	<p>Why was your practice successful? Yes.</p> <p>Was there a technical innovation? Yes.</p>
<b>Constraints</b>	<p>What where the challenges you encountered implementing the practice? Mainly to get a proper understanding between the project partners about their joint interests (defining the scope of the project)</p> <p>Does your practice have constraints you would like to address in the future? Right now the system is only able to count visible pumpkins in the UAV images. This limits when the system can make precise counts of pumpkin fields, as they must have thrown / lost most of their leaves prior to the image acquisition.</p>
<b>Lessons learned</b>	There is a lot of information in images, but it can be difficult to get it into an actionable form.



<b>Sustainability</b>	If the farmer can get an additional sale of a few percent, given a better knowledge of the field inventory, the image acquisition and analysis can be covered by that extra sale, generating an increased total profit for the farmer.
<b>Farmers' story</b>	See links below.
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<b>Websites and other resources</b>	<a href="https://www.youtube.com/watch?v=UmNsEe7et8A">https://www.youtube.com/watch?v=UmNsEe7et8A</a> <a href="https://www.tv2fyn.dk/artikel/droner-hjaelper-fynsk-gods-med-taelle-400000-graekar">https://www.tv2fyn.dk/artikel/droner-hjaelper-fynsk-gods-med-taelle-400000-graekar</a> <a href="https://www.fyens.dk/indland/Halloween-Droner-spotter-de-bedste-graekar/artikel/3195323">https://www.fyens.dk/indland/Halloween-Droner-spotter-de-bedste-graekar/artikel/3195323</a> <a href="https://www.dr.dk/nyheder/regionale/fyn/drone-giver-graekaravlere-overblik-over-halloween-salget">https://www.dr.dk/nyheder/regionale/fyn/drone-giver-graekaravlere-overblik-over-halloween-salget</a>

