World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:11, No:04, 2017

RoboWeedSupport-Semi-Automated Unmanned Aerial System for Cost Efficient High Resolution in Sub-Millimeter Scale Acquisition of Weed Images

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Abstract : Recent advances in the Unmanned Aerial System (UAS) safety and perception systems enable safe low altitude autonomous terrain following flights recently demonstrated by the consumer DJI Mavic PRO and Phamtom 4 Pro drones. This paper presents the first prototype system utilizing this functionality in form of semi-automated UAS based collection of crop/weed images where the embedded perception system ensures a significantly safer and faster gathering of weed images with sub-millimeter resolution. The system is to be used when the weeds are at cotyledon stage and prior to the harvest recognizing the grass weed species, which cannot be discriminated at the cotyledon stage.

Keywords : weed mapping, UAV, DJI SDK, automation, cotyledon plants
Conference Title : ICPA 2017 : International Conference on Precision Agriculture
Conference Location : Kyoto, Japan
Conference Dates : April 27-28, 2017