



미래를 위한 인공지능과 스마트농업

스마트농업 크로스코칭 세미나



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Multi-Viewpoints and Wide Field-of-View Assistance of an Autonomous Tractor Using Tethered UAV

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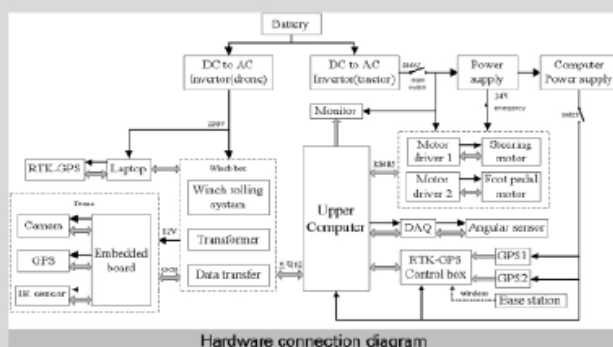


Introduction

- Autonomous tractors are applied to farms more and more. However, sensors equipped on a tractor cannot provide wide field-of-view and acquire depth perception.
- The purpose of this study was to develop an autonomous tractor with multi-viewpoints and wide field-of-view through the stationary third surround view provided by the tethered UAV.

Material & Method

- The corobot system consists of a primary autonomous tractor and a UAV-based aerial visual assistant.
- Five cameras mounted on UAV were able to provide stationary third surround view and a path to avoid obstacles in complex environment for the tractor.
- The autonomous tractor was composed of a twin channels RTK-GPS and an angular sensor for measuring the steering angle, as well as two main motors that control the steering and the velocity of tractor.



Results

- As the results of experiments, the tractor was driven on the predetermined path in an open playground accurately.
- The tethered UAV can take off and landing in station located on the top of tractor and rigidly track the autonomous tractor well.



Take-off and landing status of the tethered UAV

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