

Automatic Battery Charging for Rotor Wings Type Unmanned Aerial Vehicle

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Abstract : This paper describes the development of the automatic battery charging device for the rotor wings type unmanned aerial vehicle (UAV) and the positioning method that can be accurately landed on the charging device when landing. The developed automatic battery charging device is considered by simple maintenance, durability, cost and error of the positioning when landing. In order to for the UAV accurately land on the charging device, two kinds of markers (a color marker and a light marker) installed on the charging device is detected by the camera mounted on the UAV. And then, the UAV is controlled so that the detected marker becomes the center of the image and is landed on the device. We conduct the performance evaluation of the proposal positioning method by the outdoor experiments at day and night, and show the effectiveness of the system.

Keywords : unmanned aerial vehicle, automatic battery charging, positioning

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