



Faculty of
Science and
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Development of UAV Control System Using LED Panel

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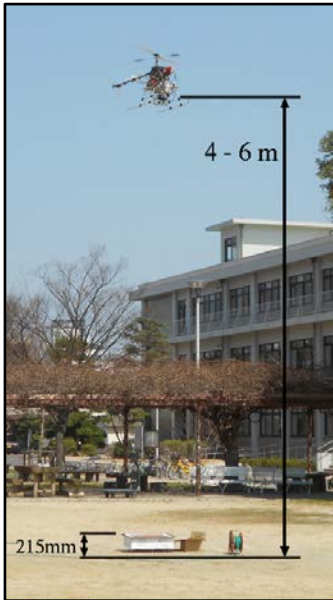
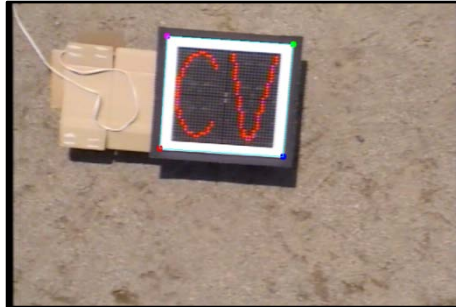
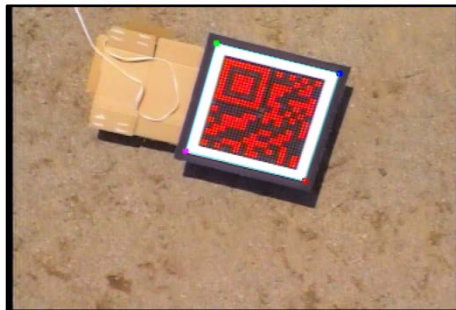


Fig.1 Scene of experiments.



(a) AR marker.



(b) QR code.

Fig.2 Captured images and LED panel detection.

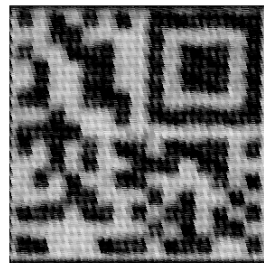
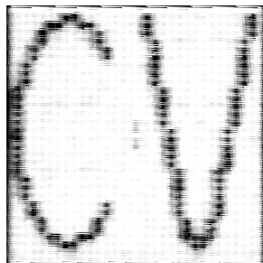


Fig.3 Corrected pattern images.

Content:

This study discusses the method to transmit the information by the LED panel and the video camera as one of the visible light communication. Here, we use the AR marker, QR and micro QR codes as 2D patterns to display on the LED panel, and propose the method to distinguish them automatically.

In the experiment, we use the video camera equipped on the radio controlled helicopter, and extract the information in the LED pattern images and estimate altitude from the LED panel by the captured images.

From the results of experiments, almost AR markers can be distinguished accurately, and the discrimination rate of the micro QR code patterns is more than 50%. But, the QR code patterns can not be discriminated. To realize the high discrimination rate of the QR and micro QR codes, it is necessary to improve the configuration of the LED panel. Moreover, to develop the flight control system of the helicopter it is also necessary to reduce the processing time.

Keywords : visual light communication, LED panel, AR marker, QR code, flight assist

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