

Design of Construction Stability Test System using Small Unmanned Aerial Vehicle based on Image Processing

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Abstract—Stability test of high-rise buildings must be achieved periodically for the buildings' maintenance, but there are many problems that it is dangerous for inspector to make a personal test, it needs much time and cost, and accurate diagnosis is difficult.

This paper proposes a monitoring system for construction stability test based on image processing to analyze and process data from sensors in the vehicle to inspect internal and exterior crack and deformation of constructions by using unmanned aerial vehicle. The system loads various sensors such as temperature sensor, humidity sensor, smoke sensor, illuminance sensor, CO2 sensor, ultrasonic sensor, and infrared thermal imaging sensor and can achieve stability inspection. So, It can reduce inspection time and building's maintenance cost.

Keyword—Small Unmanned Aerial Vehicle, Monitoring Facilities, Safety Inspection, Image Processing, Sensor Fusion



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