

RECENT RESEARCH ACTIVITIES

Demonstration of Multicopter Assisted Wireless Batteryless Sensing System (WBLS)**(Laboratory of Applied Radio Engineering for Humanosphere, RISH, Kyoto University)****Naoki Shinohara, Tomohiko Mitani, Yohei Ishikawa, Junji Miyakoshi,
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A wireless sensor application by using a flying drone is proposed by Kyoto University in 2015. One of weak point of the WPT is a miss match between a required power and system size of the WPT which includes an antenna size and a transmitting radio wave power. When a distance between a transmitting antenna and a receiving antenna of the WPT becomes longer, beam efficiency becomes lower than a user expectation. Even for the WPT sensor, it sometimes happens. By using the flying drone, the distance between a transmitting antenna and a receiving antenna of the WPT becomes shorter and WPT system can be smaller than that without the drone. The proposed WPT system is named a "Multicopter Assisted Wireless Batteryless Sensing System (WBLS)". The first experiment was carried out on July, 2015 at Advanced Microwave Energy Transmission Laboratory (A-METLAB) of RISH, Kyoto University by WiPoT, Kyoto Univ., Mini-Surveyor Consortium, and Autonomous Control Systems Laboratory Ltd. 5.8 GHz, 8.74W microwave power was transmitted from 8×8 array antenna (21 dBi) on a flying drone (multicopter) as shown in Fig. 1. Received and rectified 6.1 mW DC power drives a sensor. Hopeful applications of the Multicopter Assisted WBLS are rescue of victims, WPT-powered sensors at volcano, and inspection of infrastructures (bridges, tunnels), etc.

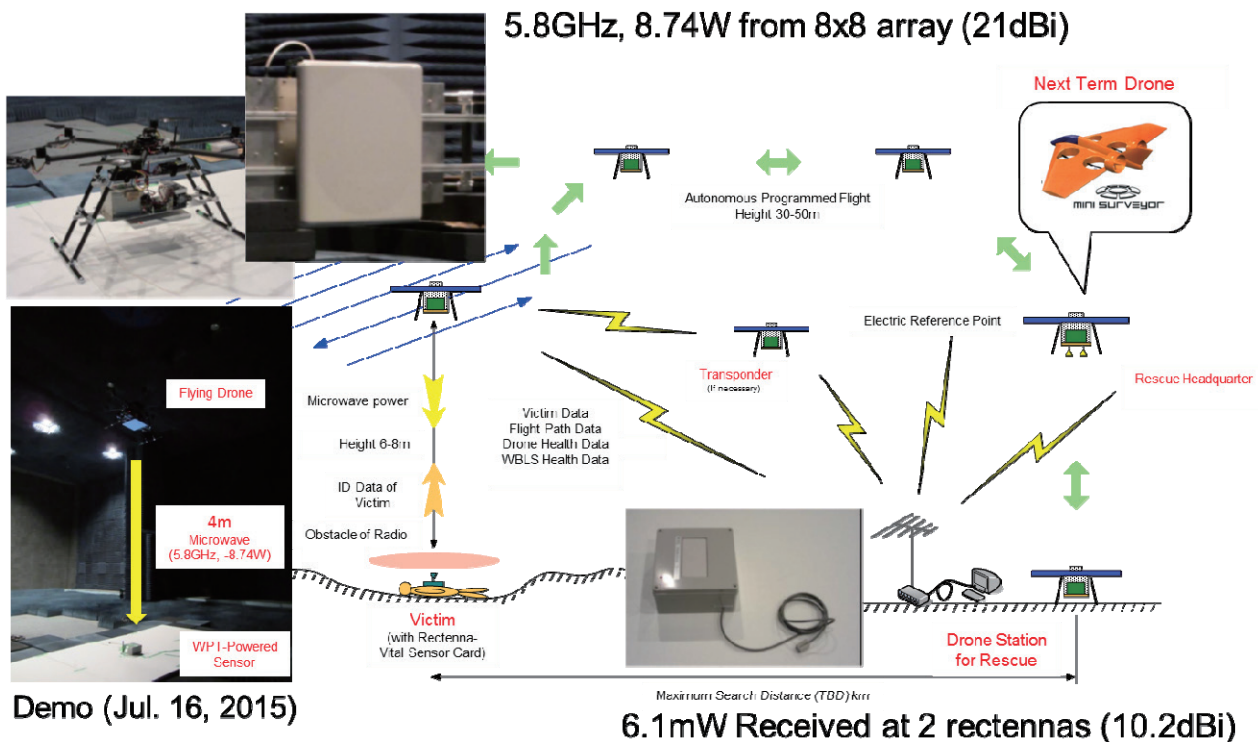


Fig.1. Concept of Multicopter Assisted WBLS and its demonstration on July, 2015 at A-METLAB

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