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Low Cost Remote Control for SAR Applications

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Abstract

This poster presents a low-cost remote control for SAR applications. The use of multi robot systems makes it difficult to control all robots from one operator base. The case described herein with a maximum weight of <10 kg is easy to handle and transport and fits the requirements for cabin baggage by airlines. To save space current low-cost embedded systems are used which are very energy efficient and provide a long operation time. In order to build a flexible and modular system, the communication and energy supply are able to work with different sources. The communication between robot and operator base is possible with a LAN cable or via wireless LAN. The energy can be delivered by a battery or an external energy grid. The batteries have enough power to run the operator station for 2 hours and enables rescue operations to be fulfilled under the harshest conditions. Because of the "Spacemouse" and the ergonomic control elements used, the unit is user-friendly and can be operated with gloves and in dark environments. The elements are clearly structured and make using the robots more intuitive. The control elements are focused in three groups: the engine, the arm control and special functions. All components and joints are sealed with rubber seals. Therefore, rain or dusts in harsh environment guess no problem for the remote control unit. Experts from first responder organizations will test the control in the coming years and contribute their experience to its further development.