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Provision of Basis for a new Snake-like Reconnaissance Robot for Disaster Situations

Proceedings of the ASME 2008 International Design Engineering Technical Conference & Computers and Information in Engineering Conference (IDETC/CIE 2008), New York, USA.
-2008-

Abstract

It frequently comes to building collapses all over the world. Often people are buried alive. They must be rescued and saved by rescue teams. It depends on the time that passes during a rescue whether a person can still be rescued alive. Especially the information which is available about the exact position of a person buried alive is decisive for a fast accomplishment of rescue actions. Accordingly the exact localization of victims buried alive is of primary importance. It is the only way, a fast rescue and salvation can be started.

However, biological and technical locating equipment available today shows numerous weak points. This refers particularly to the precision of position determination of the victims. But the essential disadvantage of the utilizable technologies is that a collapsed building cannot be entered actively. There is no equipment available that enables a deep penetration into ruins for inspection and exploration tasks, without the necessity of using heavy machines.

In a research project currently funded in Germany these difficulties shall be encountered by a part autonomous, energy self-sufficient and remotely controlled reconnaissance robot. It will become a motion system, which orientates its design and behavior at the biological archetype snake. The paper at hand introduces the state-of-the-art of technology and research in the fields of locating, reconnaissance robots as well as snake robots. Originating from a multifunctional locomotion system that has been already implemented successfully, elements for a robot system to be newly developed are introduced and discussed.