

From a Laboratory to Sites of Disaster Save Lives with Rescue Robots

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Born in Ehime Prefecture in 1960. Graduated from the master's course of the Department of Precision Engineering, Graduate School of Engineering, The University of Tokyo. Dr. of Engineering. Worked as an associate professor at Kobe University, and then, assumed his current position in 2005.

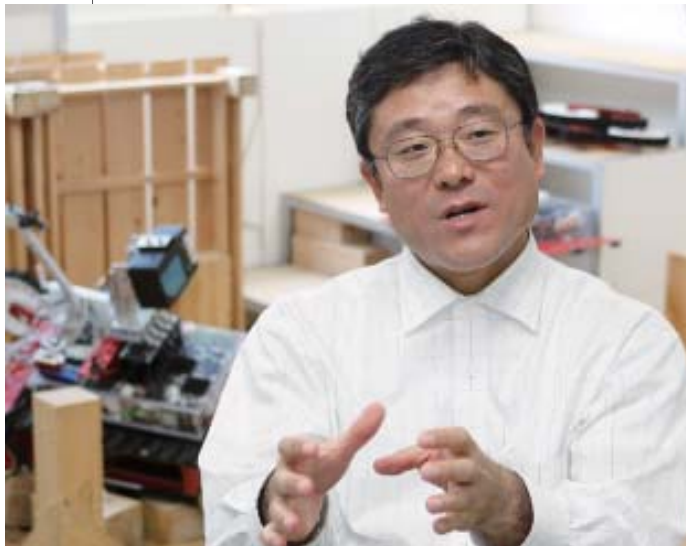
In 1995 Prof. Satoshi Tadokoro experienced the Great Hanshin-Awaji Earthquake in Kobe. Standing on a devastated urban area, he resolved that "as a researcher, I should create a robot that can support rescue work in a disaster and save human lives." Since then, he has done research to use robot technologies for search and rescue.

He, however, was then in a blank state, e.g., about what is needed at a disaster site, and so on. Prof. Tadokoro has continued trials and errors. He has had detailed interviews with rescuers, collected knowledge of researchers in various related fields, and developed various necessary functions in cooperation with such researchers. They have gradually approached using a "robot that can be used as a tool."

When an earthquake, a flood, or a terrorist attack occurs, there may be devastated sites where rescuers cannot go into because of a high risk of secondary disasters. In that case, rescue robots named Kenaf have a role to play in substitution for humans in searching for victims or collecting disaster information. Kenaf can go over the rubble by looking at the surrounding state through compact cameras and measuring the shapes of obstacles. When equipped with a 3D scanner using a laser range finder, this robot is capable of creating a 3D map. When equipped with a FLIR, this robot is capable of sensing temperatures to find the locations of victims.

Active Scope Camera capable of going into a narrow place is a video scope with a compact camera installed on the top end of the robot, and can take image under rubble piles.

In 2002, Prof. Tadokoro set up a non-profit organization named International Rescue System Institute, establishing the R&D system by doing grass-root activities. It is important not to make a robot but to create systems useful for search and rescue in disasters, in addition to constructing a social system where such robots can be used. The professor aims to make rescue results by robots and put the robots into practical application.



Kenaf (a tracked vehicle for exploration). This is remotely operated from a safe place by means of wireless LAN, and is capable of measuring 3D shapes.

Active Scope Camera. Operated through a controller, this camera crawls along on the ground, vibrating short hair covering its surface, and can go into a gap size of 3 cm. It was awarded the 2008 Robot Award, Prize for Excellence.



"Because we study for disaster response, our goal is to have good results at sites. A rescue robot still has a lot of problems to arrive at that level. We have to solve those problems one by one," said Prof. Tadokoro.



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