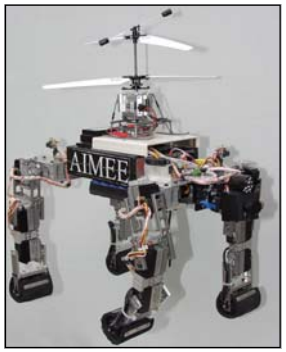
## Your support



AIMEE with the AeroBot

In the field of Rescue Robotics our project follows a forward-looking approach through the development of an autonomous walking-robot. Consequently, we have to do a lot of basic research and the creation of prototypes is quite expensive, so we are depending on financial support. With your encouragement you will be supporting robotics in an area that could save lives in the future. Through your assistance, research will advance and we can get a step closer towards the preparation for its utilization in real-life and marketing.

Contact us today,
your Rescue Robotics Team.

## Partner:

Deutsches Forschungszentrum für Künstliche Intelligenz GmbH

### Project „Rescue Robotics“

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# Rescue Robotics

— English Version —

http://rescuerobotics.informatik.uni-bremen.de

# Rescue Robotics

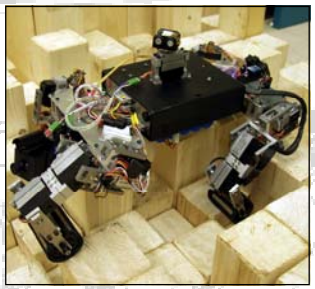
## Student‘s Project

The biennial project “Rescue Robotics” addresses Computer Science students who are interested in enhancing their knowledge about the development of robotic systems and are also participating in the exciting international RoboCup Rescue World Championships. The main focus is the creation of autonomous, cooperative walking and flying robot systems. Especially in an impassable environment, the numerous degrees of freedom of the robots are a definite advantage over average systems. The project’s goal is the further development of existing prototypes, which were already used successfully at the German Open 2005 in Paderborn and the RoboCup World Championship 2005 in Osaka, as well as the design of an autonomous flight-robot for supporting navigation and orientation of the walking-robot in disaster areas.

Students in the project „Rescue Robotics“

## Walking-Robot

AIMEE is a quadruped, biologically inspired robot which has been designed by our predecessor project “Laufroboter” for the use in disaster scenarios. AIMEE is capable of moving autonomously in its environment and using infrared sensors, tilt sensors, a gyroscope, and a laser-scanner. Furthermore, the system is able to find victims through a head mounted camera. Our task in this project is to enhance AIMEE with additional sensor and to replace out-of-date components with cutting-edge technology.



AIMEE crossing a random stepping field

## Flight-Robot

This sub-project is aimed at the development of the semi-autonomous flight robot AeroBot for indoor use to support the walking robot AIMEE. Therefore, the flight-robot shall be carried by the ground-system and be able to take off and land when needed, thus giving the operator a better overview of AIMEE’s surroundings by aerial views. The project’s goal is the development of a flight-robot on the basis of a model-helicopter, which is able to autonomously take off, hold its position above the ground-system and land again. Hence the operator can control the AeroBot by simple high-level commands.

150g light AeroBot

## RoboCup Rescue

The RoboCup Rescue is the biggest event in the context of robotic and autonomous systems, in which teams from all over the world participate. In 2006, the RoboCup Rescue for the first time will take place in Bremen, Germany. The intention of the competition is to find victims in a more or less chaotic environment (e.g. a collapsed building or an earthquake area), map the area and therefore facilitate the work of the rescue teams. A robot is able to enter a dangerous, unstable building without endangering the members of the rescue team, enabling them to get an overview. The usage of a multi-legged system in the competition is a highly ground-breaking idea. As a result of its small size, our system is superior to bigger, mostly wheel- or chain-driven systems, especially in cramped surroundings.

RoboCup Rescue scenario

## Competitions:

**2005:**

April GermanOpen, Paderborn, Germany
July RoboCup WM, Osaka, Japan

**2006:**

April RoboCup EuropeanOpen, Eindhoven, NL
June RoboCup WM, Bremen, Germany

**2007:**

Mid RoboCup WM, estimated USA