

ALACRANE

The Alacrane mobile robot has been designed as a mean to help in Search and Rescue Operations (SAR). Unlike current systems, which are usually limited to exploration, Alacrane's arms are powerful enough to rescue victims.

Alacrane's arms are designed around a main arm ending in twin human-sized arms including force and tactile feedback. The whole system (mobile robot plus arms) is hydraulic powered.

THE ALACRANE MOBILE ROBOT

ALACRANE CHARACTERISTICS

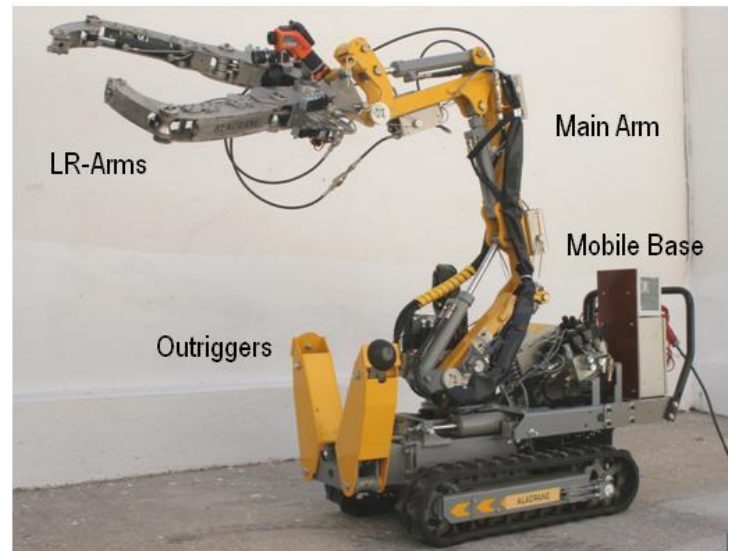
Weight (no effector)	380 kg
Width	600 mm
Height	940 mm
Length	1200 mm
Speed, max	1.5 km/h
Slope angle, max	30°
Motor power	4 kW

MAIN ARM CHARACTERISTICS

Range	2400 mm
Base angle	±123°
Slewing speed	6,5 sec / 246°

LR-ARMS CHARACTERISTICS

Range	1000 mm
Base angle	±90°
Shoulder angle	+100°L, -100°R
Slewing speed	2,6 sec / 100°



Control system, Communications and Sensors:

- Three onboard PC computers connected by Ethernet and a remote base. Low level control on a PXI PC computer. CANopen bus.
- IMU (inertial measurement unit) with differential GPS system.
- IP cameras (conventional and infrared).
- 3D and 2D laser scanners.
- Teleoperation with force feedback.

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**ALACRANE:
Mobile Robot Assistant for Search and Rescue Operations**

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The major goal of the ALACRANE Project is to develop new methods and techniques for mobile robotic assistants in missions of exploration, search and rescue. Particularly, the robotic assistant consists on a mobile robot equipped with a light crane and a couple of 4 DOF manipulators. The assistant will be coordinated with another mobile robot with a trailer, so that objects can be loaded and unloaded. The robot team will be lead by a human agent.

The project objectives comprise the construction of the manipulators, the development of robotic architectures for the assistants (ALACRANE Architecture) and the robot team (CROMAT-IIIMa), as well as realistic experimentation with the system. Furthermore, mobile robots Auriga-I and Auriga-II, previously designed by the Research Group, will be reconfigured so as to become part of the robot team with the new multi-manipulator platform.



