University of Zagreb
Faculty of Mechanical Engineering and Naval Architecture
Department of Robotics and Production System Automation
Laboratory for Automation and Robotics

ELECTROHYDRAULIC ROBOTIC MANIPULATOR

E H R O M

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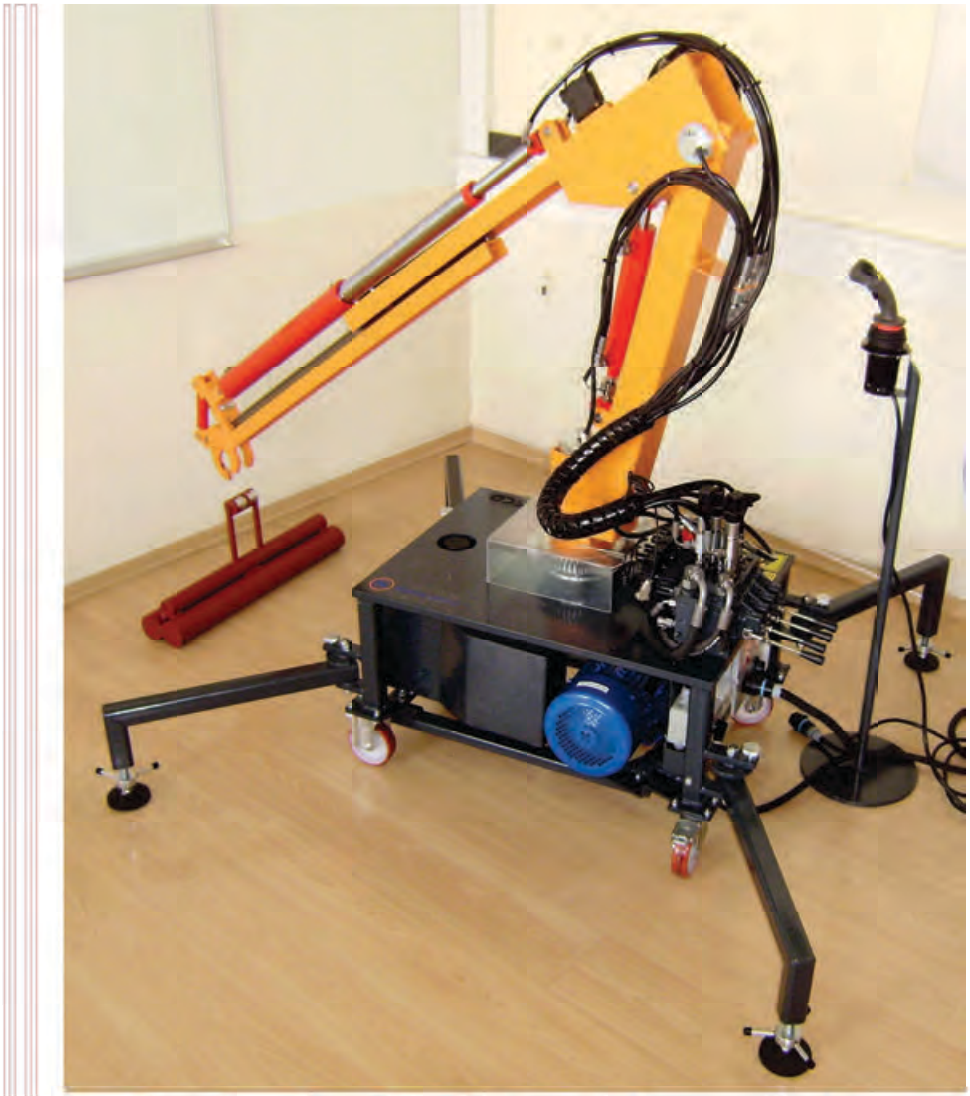
A prototype of the **electro-hydraulic robotic manipulator – EHROM** for large payloads (up to 200 kg) has been developed in the Laboratory for Automation and Robotics at the Faculty of Mechanical Engineering and Naval Architecture at the **University of Zagreb, Croatia**.

The manipulator was built in cooperation with two Croatian companies: Hidraulika Kutina – Hydraulic and Pneumatic Devices and Components Factory, Inc. from Kutina and RASCO – Factory of Communal Equipment Ltd. from Kalinovac.

The robotic manipulator has three-degrees-of-freedom (RRT spherical structure – two revolute joints and one prismatic joint for the telescopic extension arm) with a hydraulic gripper at the end of mechanical structure. The manipulator weights approximately 515 kg and when the telescopic extension arm is fully extended it measures an operating diameter of 3.6 m and height of 2.7 m. This configuration allows the manipulator for reaching a wide working area, still being most affordable and flexible.

In order to achieve automatic control of the robotic manipulator and to carry out some advanced feedback control strategy, the system includes various sensors (two angular sensors, position sensor, force sensor and four pressure sensors).

The robotic manipulator is totally open system and currently has an educational character. It involve a variety of educational activities such as explanation of the modern load-sensing systems operation, programming the desired trajectory, etc. During the development of the prototype, a number of students had been involved in various stages of the system production.



The following students have contributed to the realization of this project:

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Companies that have contributed to the realization of this project:

Hidraulika Kutina
Hydraulic and Pneumatic Devices and Components Factory, Inc.

RASCO d.o.o.
Factory of Communal Equipment Ltd.

SORMIKO d.o.o.

HANSA FLEX CROATIA d.o.o.

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