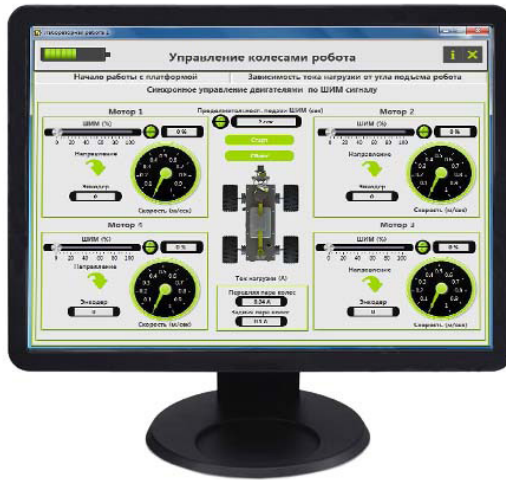# Universal Platform for Robotics

Overview

The Robotics Educational and Research Platform is designed for carrying out practical experiments and robotics algorithms research and development.The platform corresponds to an open source platform based on a four wheel mobile robot equipped with Micro-Electro Mechanical Sensors (MEMS) with 10 degrees of freedom (10DOF), manipulator with 2 degrees of freedom, color camera mounted on 2 servo motors, 2 infrared distance meters and an ultrasonic distance scanner.

As a control and measurement hardware and software National Instrument's NI myRIO-1900 and LabVIEW graphical programming environment were used. The platform should be controlled and configured from a personal computer through wi-fi or USB connection. The platform can be useful for research groups, high schools and for university students.

Hardware and software

- NI MY RIO-1900
- NI LabVIEW Robotics Module
- NI LabVIEW FPGA Module
- NI LabVIEW Real-Time Module
- Personal Computer

Features

- Simultaneous and independent control of the motors
- Control of a manipulator with 2 degrees of freedom
- Control of camera view direction using servo motors
- Data acquisition and measurements from the following sensors:
    1. Ultrasonic distance meter
    2. Infrared distance meter
    3. Digital compass
    4. Barometer
    5. Accelerometer
    6. Gyroscope

Universal Platform for Robotics

List of Labs