

RiE 2015

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Conference Brochure
& Abstracts

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See also:

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1 Methods and Best Practices

Chairperson Alexander Hofmann

KEYNOTE 1 : Webots and ProgBot Competition

Olivier Michel, Cyberbotics

- 1.1 **Proposal of a low cost educational mobile robotics experiment: an approach based on hardware and simulation**
José Gonçalves, Manuel Silva, Paulo Costa and Armando Sousa
- 1.2 **Using Educational Robotics Research to Transform the Classroom: Establishing a Robotics Community of Evidenced-based Practice using MESH Guides and the TACTICS Framework**
Dave Catlin, Andrew P. Csizmadia, James G. Omeara and Sarah Younie
- 1.3 **Orbital Robotics: A new Frontier in Education**
Nikolena Christofi, Monica Talevi, Joanna Holt, Iosif S. Paraskevas and Evangelos G. Papadopoulos

Proposal of a low cost educational mobile robotics experiment: an approach based on hardware and simulation

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Abstract—In this paper it is presented an educational mobile robotics experiment based on a low cost mobile robot prototype and its simulation. The chosen educational robot challenge is a classical introductory experiment, that consists in following a line with a mobile robot based on the differential kinematics. The presented experiment has as goal to introduce students to the challenges of mobile robotics, initially programming a simulated robot, building a real robot and finally testing the developed code in a real robot. The robot was simulated using SimTwo, which is a realistic simulation software that can support several types of robots. Having as base the proposed challenge, a mobile robot competition was conducted as a part of the evaluation of the curricular unit of “Systems Based on Micro-Controllers” of the “Electrotechnical and Computer Engineering” course of the Faculty of Engineering of the University of Porto.