

NERA – A Center for Research on Educational Robotics and Automation

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Abstract. This work presents the results of projects on educational robotics so far developed by the teachers working at NERA, the Center for Research on Robotics and Automation of the Federal Institute of Education, Science and Technology of Espirito Santo, Brazil. NERA was founded in 2011 with the main objective of providing the resources for the students on technical and engineering courses to work with practical projects on robotics and automation. It also had the objective of integrating isolated projects that were being carried out by some teachers. Despite the fact that NERA exists for less than one year and a half, several projects are being executed and a group of about 30 students had the opportunity to work with practical projects on robotics so far. For example, one of the projects is the design, construction and programming of small mobile robots. This project is mainly directed to students of the technical course in informatics, so that they can learn about electronics and sensors (topics that are not part of the regular curriculum of their course). Another project is the organization of groups of students to participate in robotics competitions, which can be a very strong motivator for autonomous study. There are two teams, so far. One is composed by high-school level students and has participated in several robotics competitions, including RoboCup Junior. The other was recently formed by undergraduate students to compete at the Latin American Robotics Competition. Two undergraduate research projects related to robotics are also being developed. One is to develop a platform to enhance the capabilities of the Lego NXT, and the other is to develop a measuring system to be integrated on a Ph.D. research project on autonomous vehicles. Some of the results of the above mentioned projects are going to be presented. It is clear to us that students get highly motivated and learn much more when they are dealing with practical projects and/or competitions. We have noticed that robotics is a powerful tool to improve creativity and analytical reasoning, two important characteristics of workers on technical fields.

Keywords. Educational Robotics, Robotics Competition.