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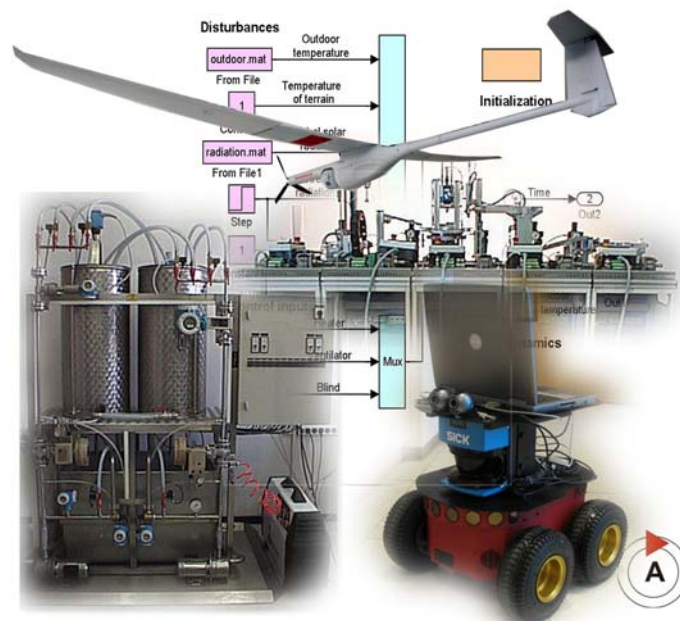
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Abstract:

LAMS group is involved in autonomous mobile systems such as autonomous wheeled vehicles, unmanned aerial vehicles and in Earth observation satellites. In most of these areas the group has research projects, application projects and military projects. Research work from unmanned ground vehicles involves group of small soccer robots as well as bigger outdoor autonomous mobile platforms. Main research is focused to the control, visual servoing, modelling, simulation, path planning, path tracking, environment sensing and recognition.



Detailed research information:

Laboratory of Autonomous Mobile Systems (LAMS) and Laboratory of Modelling, Simulation and Control (LMSC) share common research interest and work together at the Faculty of electrical engineering, University of Ljubljana.



Research work is oriented to the theory and application of modern methods of computer control as well as to modelling and simulation of dynamic processes. Adaptive, predictive and multivariable systems are special areas where robustness analysis, fuzzy set theory, neural networks, artificial intelligence and expert systems usage are under investigation. In the last period discrete-event, hybrid, and multiagent systems are intensively studied together with actual problems connected with the cooperation of mobile robots realizing different tasks. Significant stress is given also to the computer aided control system design and simulation tools development and application. The mentioned methods are transferred to different fields where complex control systems can be applied as well as to some interdisciplinary areas (chemical engineering, biopharmaceutics and pharmacogenomics, power plants, biomedicine etc.).

In the area of unmanned ground vehicles the laboratory has eight years of experiences from the group of small wheeled mobile robots as well as from outdoor wheeled autonomous mobile platforms (Pioneer 3AT).



The laboratory research and application covers different research areas applicable to unmanned ground systems such as motion control, path tracking, formation control, visual servoing, multiagent systems, computer vision, path planning, localization, mapping, simulation and modelling. From these fields they published several international journals and some books and book chapters. They had three military projects for Slovene army, a few research projects and many bilateral cooperation projects.



Also a number of world wide successes from the European championships and World championships in different robot soccer competitions organized from FIRA were gained. Some of the best include: second place in MiroSot Large and third place MiroSot Middle League in European championship in Wien, 2006, Second place in MiroSot Middle, MiroSot Extended Middle and MiroSot Large League in European championship in Netherlands, 2005, Third place in MiroSot Middle League World Championship in Pusan, South Korea, 2004, First place in MiroSot Middle and second place MiroSot Extended Middle League in European championship in Munchen, 2004, First place in MiroSot Small and MiroSot Middle League in European championship in Ljubljana, 2003 and others.