

Mobile robotics moves forward on standardisation

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Over the last decade considerable effort has gone into developing generic or application-specific approaches for characterisation, control and design of mobile robotic systems. The research efforts have accordingly concentrated on locomotion techniques and component-level and system architectures with conventional and new approaches. While conventional approaches allow the system to perform to some degree of satisfaction, they are best suited for relatively simple systems and applications where performance demands are not high. With complex systems and where performance demands are high, researchers have investigated the development of new and novel approaches taking account of accuracy requirements, computational efficiency and practical realisation. Such efforts have opened up a whole range of application areas for mobile robotics in industry, public and domestic sectors. The time has now come that robots are making their way out of the factory environment and benefiting the public and domestic sectors of society.

The CLAWAR (Climbing and Walking Robots) Thematic Network which was supported and funded by the European Commission in two phases from April 1997 to October 2005 has been one the main players and contributors to the innovative initiatives and developments in the area of mobile robotics. Their annual CLAWAR conference and the CLAWAR News newsletter have been used for dissemination of the research and development findings of the Network, and defining new directions in R&D. In September 2005 the Network launched the CLAWAR Association as a professional non-profit making charity membership-based organisation to continue with the established annual CLAWAR conference and the CLAWAR Newsletter, as well as begin new initiatives serving the robotics community in general and the mobile robotics community specifically. The CLAWAR conference is for the first time going out of Europe in 2007, organised in Singapore in July 2007, giving the organisation a truly international image.

For the mobile robotics sector to serve society to its full potential, it has to meet the technology-assisted sophistication and comfort demanded in public, domestic and industrial sectors. Accordingly, a great deal of research effort is being invested in the area of mobile service robotics. The range of applications of such systems include assembly and production lines, manufacturing industries, security and surveillance, demining operations, personal assistance, robotic-assisted mobility and rehabilitation, surgical operations, etc. For the designs to be efficient and cost-effective the theme of modularity has to be taken as a key element of the design cycle. Moreover, as the robot is coming in close contact with human beings, a great deal of research is invested in developing efficient and reliable *man-machine interface techniques* so as to allow the robot to develop full awareness of the environment in which it is functioning. Moreover, *safety* requirements for the robot and people are very important considerations in this sector of technology. To allow realisation of such systems, new *standards* covering safety issues, performance requirements, design requirements, etc. have to be developed. The CLAWAR Network initiated the first ideas towards standardisation of mobile robotics, and this work currently continues under the ISO TC184 SC2. Such initiatives are expected to continue to develop safety and other relevant standards for mobile service robotics sector.