

Advanced control structure for the autonomous mobile robot Lodur.

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Abstract

The Laboratory of Robotics and Automation (LaRA) of HESSO-HEIG developed several autonomous mobile robots comprising special control structures and architectures. These robots were designed to participate to the Swiss and European robotics cups EUROBOT. This paper describes the autonomous mobile robot "Lodur" which was used as defensive robot at the sides of the autonomous mobile robot "Lomu during EUROBOT 2004. The control part of the robot "Lodur" has the advantage of being contained in a minimal volume while presenting enough flexibility to allow easy programming of the control strategy and an integration of a sufficient number of external components. The choice was made to use the control module BECK, which is a 16-bit controller coupled with an interface board assigned to carry out all the external operations with the PC such as the engine control, the counting of the pulses from the coders and the processing of some additional binary input-outputs signals. The control logic of this interface board is integrated in a CPLD Altera and takes care of all the operations described above.