Non linear predictive control of a LEGO mobile robot

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Abstract : Metaheuristics are general purpose heuristics which have shown a great potential for the solution of difficult optimization problems. In this work, we apply the meta heuristic, namely particle swarm optimization, PSO, for the solution of the optimization problem arising in NLMPC. This algorithm is easy to code and may be considered as alternatives for the more classical solution procedures. The PSO- NLMPC is applied to control a mobile robot for the tracking trajectory and obstacles avoidance. Experimental results show the strength of this approach.

Keywords : predictive control, non linear control, mobile robotics, metaheuristics.