

This master thesis describes the design and implementation of control system for autonomous robot which is able to run through user defined points in unknown environment without colliding with obstacles. The work contains analysis of the available hardware and software solutions, modular design with control system implementation divided into separate subsystems (control, localization, route planning, driving the robot using Hermit curves and low-level hardware control). The work also contains explanation of rework of the school robotic platform.

The implementation was tested on a created robotic platform. Driving the robot along the Hermit curve allows smooth and in some cases quicker passage through defined points, than passage consisting of rotations on the spot and direct movements.