

The subject of the thesis is the design and implementation of a modular control system environment, which could be used in robotics. Both autonomous and guided robots are supported. The higher-level software components like localization, steering, decision making, etc. are effectively separated from the underlying hardware devices and their communication protocols in the environment. Based on the layered design, hardware-independent algorithms can be implemented. These can run on different hardware platforms just by exchanging specific device drivers. Written in C++ using standard libraries, the final software is highly portable and extensible. Support for new platforms and hardware modules can be implemented easily. The whole system was tested on two robots and the particular instances of the systems built using this development environment are included in the solution and partially described in the thesis.