This paper describes a plug-in based software framework developed at Automation and Control, DTU Electrical Engineering. The software has been used for education and research in mobile robotics for the last decade. Important design criteria have been real-time performance of the control level, easy integration of sensors, fast porting to new robots and core system stability and maintainability in an undisciplined programming environment. Real-time performance is assured by using RTAI-Linux; core stability is obtained by using plug-ins for user developed modules. The plug-in based module structure combined with inter-module communication based on TCP/IP sockets and human readable XML-protocol makes it easy to use the system on a wide range of hardware platforms, configurations and computer platform distributions. The framework has until now been interfaced to 7 different hardware platforms and has enabled many application i.e. robust navigation in an orchard with an autonomous tractor (Andersen, 2010). Furthermore by providing a simple scripting robot control language the system also supports use by non-technicians.