15 OUTLOOK

If you have completed this book and want to work on larger, more powerful (and more expensive) robot systems, then looking at the Robot Operating System (ROS)[1], originally developed by Willow Garage, should be your next step. ROS is a free open source platform and provides a comprehensive library of high-level robotics software packages and utilities, such as SLAM (Simultaneous Localization and Mapping), visualization (*rviz*), data recording (*rosbag*) and simulation (*Gazebo*). ROS implementations exist for the majority of commercially available research robots and can be used for their program development as well as their simulation.

The drawback of using ROS for beginners is that it requires Ubuntu as the operating system and does not support C as an application language, only C++ and Python. Also, its system structure is significantly more complex and not easy to grasp for robotics novices. We have developed a ROS client for our EyeBot robots and may also include it in EyeSim at a later stage. Our projects involving larger robots and our autonomous vehicles are based on ROS and may migrate to the open hardware/software automotive platform Apollo[2] in the future.

We hope we have inspired you to dive deeper into the world of robotics and carry out many more experiments on your own. The EyeSim simulation environment gives you a chance to develop your robot programs in a realistic, versatile and free environment. On the other hand, we believe it is essential to complete the second step and build a physical robot. This does not have to be expensive, as we have outlined at the beginning of this book. A robot can be built quite cheaply by setting up an embedded controller, like the Raspberry Pi, with a camera, display, two motors and some distance sensors – or alternatively, by converting a remote-controlled model car for less accurate but faster driving.

Have fun and enjoy your robot adventures!

1 Robot Operating System, http://www.ros.org
2 Apollo Open Platform, http://apollo.auto

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