Learning Robotics Using Python

Lentin Joseph

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Learning Robotics Using Python Lentin Joseph
Design, simulate, program, and prototype an interactive autonomous mobile robot from scratch with the help of Python, ROS, and Open-CV!

About This Book

- Design, simulate, build and program an interactive autonomous mobile robot
- Program Robot Operating System using Python
- Get a grip on the hands-on guide to robotics for learning various robotics concepts and build an advanced robot from scratch

Who This Book Is For

If you are an engineer, a researcher, or a hobbyist, and you are interested in robotics and want to build your own robot, this book is for you. Readers are assumed to be new to robotics but should have experience with Python.

What You Will Learn

- Understand the core concepts and terminologies of robotics
- Create 2D and 3D drawings of robots using freeware such as LibreCAD and Blender
- Simulate your robot using ROS and Gazebo
- Build robot hardware from the requirements
- Explore a diverse range of actuators and its interfacing
- Interface various robotic sensors to robots
- Set up and program OpenCV, OpenNI, and PCL to process 2D/3D visual data
- Learn speech processing and synthesis using Python
- Apply artificial intelligence to robots using Python
- Build a robot control GUI using Qt and Python
- Calibration and testing of robot

In Detail

Learning about robotics will become an increasingly essential skill as it becomes a ubiquitous part of life. Even though robotics is a complex subject, several other tools along with Python can help you design a project to create an easy-to-use interface.

Learning Robotics Using Python is an essential guide for creating an autonomous mobile robot using popular robotic software frameworks such as ROS using Python. It also discusses various robot software frameworks and how to go about coding the robot using Python and its framework. It concludes with creating a GUI-based application to control the robot using buttons and slides.

By the end of this tutorial, you'll have a clear idea of how to integrate and assemble all things into a robot

and how to bundle the software package.

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