



# Raspberry Pi Robotic Blueprints

By Richard Grimmett

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**Raspberry Pi Robotic Blueprints** By Richard Grimmett

**Utilize the powerful ingredients of Raspberry Pi to bring to life your amazing robots that can act, draw, and have fun with laser tags**

## About This Book

- Learn to implement a number of features offered by Raspberry Pi to build your own amazing robots
- Understand how to add vision and voice to your robots.
- This fast-paced practical guide comprises a number of creative projects to take your Raspberry Pi knowledge to the next level

## Who This Book Is For

This all-encompassing guide was created for anyone who is interested in expanding their knowledge in applying the peripherals of Raspberry Pi. If you have a fancy for building complex-looking robots with simple, inexpensive, and readily available hardware, then this book is ideal for you. Prior understanding of Raspberry Pi with simple mechanical systems is recommended.

## What You Will Learn

- Add sensors to your robot so that it can sense the world around it
- Know everything there is to know about accessing motors and servos to provide movement to the robotic platform
- Explore the feature of adding vision to your robot so it can “see” the world around it
- Refine your robot with the skill of speech recognition so that it can receive commands
- Polish your robot by adding speech output so it can communicate with the world around it
- Maximize the use of servos in Raspberry Pi to create a drawing robot
- Strengthen your robot by adding wireless communication skills so you can see what the robot is seeing and control it from a distance
- Build an unbelievable autonomous hexcopter controlled by Raspberry Pi

## In Detail

The Raspberry Pi is a series of credit card-sized single-board computers developed in the UK by the Raspberry Pi Foundation with the intention of promoting the teaching of basic computer science in schools. The Raspberry Pi is known as a tiny computer built on a single circuit board. It runs a Linux operating system, and has connection ports for various peripherals so that it can be hooked up to sensors, motors, cameras, and more. Raspberry Pi has been hugely popular among hardware hobbyists for various projects, including robotics.

This book gives you an insight into implementing several creative projects using the peripherals provided by Raspberry Pi. To start, we'll walk through the basic robotics concepts that the world of Raspberry Pi offers us, implementing wireless communication to control your robot from a distance. Next, we demonstrate how to build a sensible and a visionary robot, maximizing the use of sensors and step controllers. After that, we focus on building a wheeled robot that can draw and play hockey. To finish with a bang, we'll build an autonomous hexcopter, that is, a flying robot controlled by Raspberry Pi.

By the end of this book, you will be a maestro in applying an array of different technologies to create almost any imaginable robot.

## Style and approach

This book is an easy-to-follow, project-based guide that throws you directly into the action of creating almost any imaginable robot through blueprints. It is full of step by step instructions and screenshots to help you build amazing robots in no time at all.

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### Editorial Review

About the Author

#### Richard Grimmett

Richard Grimmett continues to have more fun than he should be allowed working on robotics projects while teaching computer science and electrical engineering at Brigham Young University-Idaho. He has a bachelor's and master's degree in electrical engineering and a PhD in leadership studies. This is the latest book, in a long series of books detailing how to use Raspberry Pi, Arduino, and BeagleBone Black for robotics projects, written by him.

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##### Kara Hogan:

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