1 Microcontrollers
   1.1 Performance: Bits, Bytes and MIPS
   1.2 Peripherals
   1.3 Summary

2 Languages
   2.1 Machine Code and Assembly Language
   2.2 Higher Levels: C, BASIC, and Spin
      2.2.1 Variables
      2.2.2 Expressions
      2.2.3 Flow Control
      2.2.4 Abstraction
         Functions
         Objects
   2.3 Human-level: 12Blocks
      2.3.1 Visual Vs. Textual
      2.3.2 Vocabulary and Grammar
      2.3.3 12Blocks Overview
   2.4 Summary

3 Control Structures
   3.1 Functions: Repetition, Arguments and Recursion
      3.1.1 Mathematical Functions
      3.1.2 Recursion
      3.1.3 Fractals
   3.2 State machines
   3.3 Multiprocessors
   3.4 Events
   3.5 Summary

4 Visual Debugging
   4.1 Physical Dashboard: LEDs, Speakers and Gauges
   4.2 PC-Based Development Environments
   4.3 Multifunction Oscilloscope
   4.4 Summary

5 Output
   5.1 LEDs
      5.1.1 Dimming an LED
      5.1.2 Full-Color LEDs
   5.2 Motors
   5.3 Hobby Servos
   5.4 Stepper Motors
   5.5 Robotic Arms
5.6 Sound
5.7 Speech Synthesis
5.8 Summary

6 Orientation Sensors
6.1 Compasses
6.2 Encoders
6.3 Tilt
6.4 Tilt Sensing Using a Kalman Filter
6.5 Proximity
6.6 Summary

7 Vision Sensors
7.1 Assistance from Artificial Markers
7.2 Fiduciary Markers with reacTIVision
7.3 Vision Processing with the OpenCV Library
   7.3.1 Computer Vision Filters
   7.3.2 Finding Colored Objects
   7.3.3 Finding Specific Objects, Such As Faces
   7.3.4 Finding Circles
7.4 OpenCV and Propeller Integration
7.5 Computer Vision: Propeller Implementation
7.6 Video Frame Grabber
7.7 Vision Engine Using Filters
7.8 Summary

8 Audio Sensors
8.1 Recognizing Handclaps
8.2 Touch Tones
8.3 Speech
8.4 Summary

9 Control Loop Algorithms
9.1 Digital Control
9.2 PID
9.3 Fuzzy Logic
9.4 Fuzzy Logic Cascading PID
9.5 Summary

10 Communication Technologies
10.1 Infrared
10.2 Audible
10.3 Bluetooth
10.4 XBee
10.5 Skype
10.6 XML-RPC over HTTP
10.7 Robot Operating System (ROS)
10.8 Summary

Appendix A: Parallax Propeller
   Multicore Architecture
   Speed and Power Management
   On-board Peripherals

Appendix B: PICAXE

Appendix C: TBot
   Learning with TBot
   TBot as a Competitor
   Features
   Technology

Appendix D: 12Blocks
   Visual Programming
   Editing tools
   Features

Appendix E: ViewPort
   Features

Appendix F: PropScope
   Features