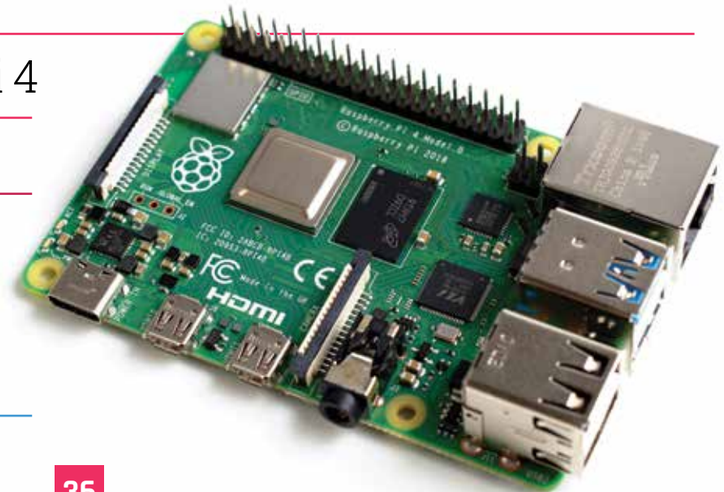
Contents

Issue 94 June 2020

Cover Feature

36 8GB Raspberry Pi 4



36

Regulars

08 World of Raspberry Pi
92 Your letters
97 Next Month
98 The Final Word

Project Showcases

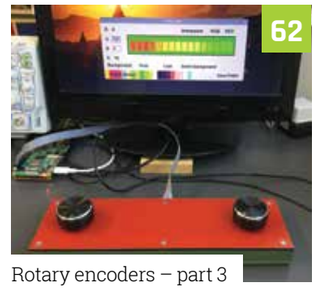
12 HAL 9000 Google Assistant
16 Game of Life
18 Apollo Pi
22 Smart Doorbell
24 Giant Battleships
26 Coffee Maker 'Greenhouse'
28 BeeMonitor
30 Raspberry Pi loft bed

22 Smart Doorbell

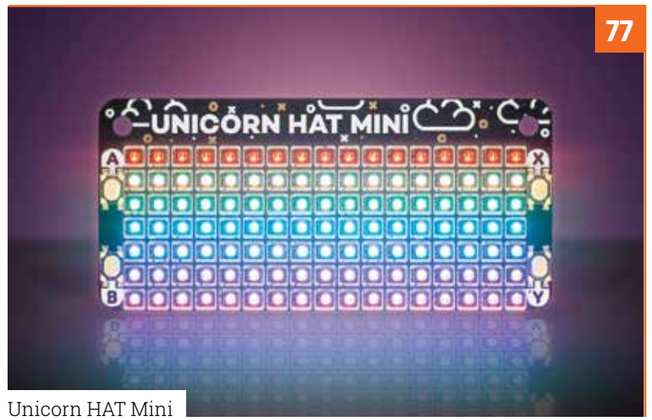
28 BeeMonitor

DISCLAIMER: Some of the tools and techniques shown in The MagPi magazine are dangerous unless used with skill, experience, and appropriate personal protection equipment. While we attempt to guide the reader, ultimately you are responsible for your own safety and understanding the limits of yourself and your equipment. Children should be supervised. Raspberry Pi (Trading) Ltd does not accept responsibility for any injuries, damage to equipment, or costs incurred from projects, tutorials or suggestions in The MagPi magazine. Laws and regulations covering many of the topics in The MagPi magazine are different between countries, and are always subject to change. You are responsible for understanding the requirements in your jurisdiction and ensuring that you comply with them. Some manufacturers place limits on the use of their hardware which some projects or suggestions in The MagPi magazine may go beyond. It is your responsibility to understand the manufacturer's limits.

50 Make a 3D camera



62 Rotary encoders – part 3



77 Unicorn HAT Mini

84 Caroline Dunn interview

Tutorials

46 High Quality Camera guide – part 2
50 Make a 3D camera
54 Java electronics – part 2
58 Make some noise with Raspberry Pi
62 Rotary encoders – part 3

The Big Feature

66

High Quality Camera Projects

Reviews

74 Strato Pi CM Duo
77 Unicorn HAT Mini
78 Top 10 robot kits
80 Learn Python

Community

84 Caroline Dunn interview
86 This month in Raspberry Pi
90 Events calendar

WIN 1 OF 10 MAKER PHATS!

95