Contents



SPARK

Top Projects Brilliant builds made by human hands

Objet 3d'art A to-scale functional banana print

Martian House

On voting (good) and Voron (also good)

Is there life on Mars? We go to Bristol to find out

Kickstarting Automate your wood carving



Internet of Things

Incredible objects that people have attached to the internet

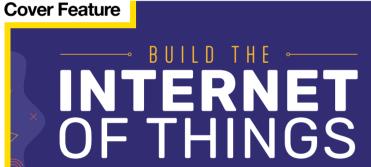
102

How I Made: A dive watch Like a dive bar, but more water-resistant

Interview: Debra Ansell The chief geek of Geek Mom Projects

Improviser's Toolbox Tiles Ideas for fired and glazed clay

In the workshop Recreating a Victorian stage illusion







Next year our tomatoes will be grown in composted filament





A four-legged friend that you can build yourself



FORGE

SoM 3D printing Slicing and dicing

Tutorial PHA filament Our worms test compostable filament

Raspberry Pi Robotics Add sensors to a Raspberry Pi-based robot

Tutorial RP2040 W Let MicroPython take the strain

Tutorial Flat-pack rocket Laser-cut, assemble, and fly to the moon!

Tutorial Smart plant stand Monitor greenery with a Raspberry Pi Pico

Tutorial Pinhole photography Who needs lenses, anyhow?



CONTENTS



FIELD TEST

Keyboards your fingers will love

78

102 Best of Breed

Why a project is never done

until it can be replicated

110 Review Game Boy Camera Wi-Fi printer Grainy, low-fi images to take you back to 1989

112 Review Bittle A pet that won't bark at the postman (unless you program it to)

Some of the tools and techniques shown in HackSpace 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. HackSpace Magazine is intended for an adult audience and some projects may be dangerous for children. Raspberry Pi Ltd does not accept responsibility for any injuries, damage to equipment, or costs incurred from projects, tutorials or suggestions in HackSpace Magazine. Laws and regulations covering many of the topics in HackSpace Magazine are different between countries, and are always subject to Anapes. 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 HackSpace Magazine may go beyond. It is your responsibility to understand the manufacturer's limits. HackSpace magazine is published monthly by Raspberry Pi Ltd, Maurice Wilkes Building, St. John's Innovation Park, Cowley Road, Cambridge, CB4 0DS, United Kingdom. Publishers Service Associates, 2406 Reach Road, Williamsport, PA, 17701, is the mailing agent for copies distributed in the US. Application to mail at Periodicals prices is pending at Williamsport, PA. Postmaster please send address changes to HackSpace magazine c/o Publishers Service Associates, 2406 Reach Road, Williamsport, PA, 17701.

HackSpace **Hack**Space