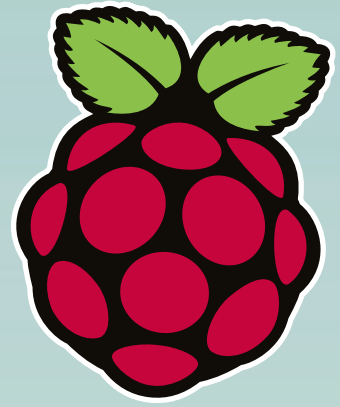# The MagPi

The official Raspberry Pi magazine

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POWER UP YOUR LIFE
WITH RASPBERRY PI

Five fun projects to help you improve & automate your world

BUILD AN INFINITY MIRROR
Mike Cook concludes his cool two-parter

RETRO VISION
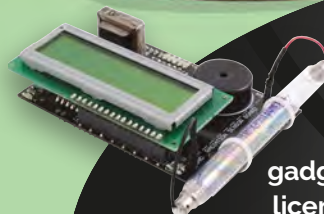**Use an old TV with your new Pi Zero**

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HAMMY CHOW

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THE ONLY PI MAGAZINE WRITTEN BY THE READERS, FOR THE READERS

Photo: Krisztián Hofstädter

Listen to the poetry and music that make up Lichen Beacons

LICHEN BEACON TEAM
The team is made up of Barry Byford, an electronic design automation specialist; Tom Hall, a music technology lecturer at Anglia Ruskin University; and Drew Milne, a poetry lecturer at the University of Cambridge.
ludions.com/projects/lichens

Experience the installation your own way, at your own pace

Search the room for more beacons to complete the story

LICHEN BEACONS

An interactive sound art installation which shows that science and engineering aren't the only applications for the Raspberry Pi

Lichens, apparently, are dual organisms. Fungi and algae living together mutually, they're a good indication of air pollution and the subject of the fascinating Lichen Beacons project. This is a digital sound art installation, involving someone walking around a large room with a portable Raspberry Pi (Pi-in-a-box) and uncovering Bluetooth beacons that activate different responses. The portable Pi comes with a screen and headphones,

The 'lichen beacon' is a Bluetooth beacon; the Pi looks for its signal to trigger the poetry, music, and images.

and the Bluetooth responses to the Eddystone Bluetooth beacons come in the form of music, pictures, and poems.

"The idea with this platform is to make it possible to slow down and take in a digital environment, at a very different pace from the usual hectic screen-hopping and social media hot-desking that seems to define most digital environments," says the team that created the installation. Tom Hall made the music, Drew Milne wrote and read the poetry, and Barry Byford brought it all together with code.

"One of the great things about the Pi-in-a-box we created was that people needed no technical skills to use it," Barry explains. "We had a very wide range of

The humble Pi-in-a-box seems like a very simple affair, but it does exactly what needs to be done

Photo: Krisztián Hofstädter

Photo: Rickey Ramsey

Walking around the installation in this way adds a level of immersion

people, including some that were self-declared technophobes, and because all they had to do was walk and explore the location looking for 'Lichen Beacons', there were no technology usage issues with the equipment. This was a very pleasing result and made the event much more inclusive."

"From my perspective, there's a special affinity between lichens, digital photography, and small screens," Drew says. "The challenge is to find a new grammar of thinking and writing that can echo the world-making symbiosis of lichen life. Our installation offers the perfect platform for

thinking about the poetics of digital environments, and how such environments relate to the world's fragile ecology… There's politics in the poetics, too: a way of thinking about how sound art can respond to the sites in which it is installed, while also opening up the larger questions of our environmental crisis. Our installation is a model for using technology in ways that are both home-made and also at the sharp end of what contemporary technology makes possible."

The sound design is binaural, with music wrapping around the sequential poems to create an

immersive experience. Part of the future plans to improve the installation involve this sound, according to Tom: "Just as the audience can experience the 18 parts of the installation in any order, I'd like to create a musical environment that responded differently to the order in which people visited the beacons."

The installation should be turning up in more places around the UK and Europe, so keep an eye out for information on where you might be able to experience it; the full event schedule can be found on the Ludions website: **ludions.com/events**.

SEARCH FOR BEACONS

>STEP-01
Get your gear

The Pi-in-a-box is a container that has a battery, screen, and headphones attached. All you need to do is pick it up, put it on, and carry it around.

>STEP-02
Find the beacons

Bluetooth beacons are placed around the room, their signal strength activating different parts of the installation. You and the beacons dictate the pace.

>STEP-03
Learn

Listen to the music, hear the poem, and take in the information. It's not just designed to look pretty: it's also trying to impart a message.