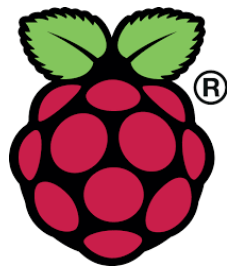


## Design Effectiveness Awards 2017



Project Title:	<b>Raspberry Pi Official Case</b>
Industry sector:	<b>Technology Hardware &amp; Equipment</b>
Client Company:	<b>Raspberry Pi</b>
Design Consultancy:	<b>Kinneir Dufort</b>
Submission Date:	<b>30 June 2017</b>
Publication:	<b>For Publication</b>

## Executive Summary

**Raspberry Pi** is a low-cost (\$35), high-performance computer developed in by UK charity, the Raspberry Pi Foundation, whose mission is to put the power of digital making into the hands of people all over the world, by:

- Providing low-cost, high-performance computers that people use to learn, to solve problems, and have fun
- making computing and digital making more relevant and accessible to more people through outreach and educational programmes
- helping people to learn about computing and how to make things with computers through resources and training

Launched in 2012, with an original ambition to sell 10,000 units, Raspberry Pi has gone on to be an international phenomenon, with over 12.5 million units now sold, it is the UK's top selling computer, and the third best-selling computer of all time (after Apple and Microsoft).

Set against the achievements of the core product itself, the role of the **Official Raspberry Pi Case** may seem somewhat trivial, but the commercial value that this modestly clever low-cost (\$6) ABS plastic case contributes, as well as the demonstration of how potent the addition of design to a technology product can be, should not be underestimated.

With **860,000** Pi Cases sold in the two years since its launch in May 2015, plus **133,000** sold for its smaller sibling the Raspberry Pi Zero, the case products have generated **£725,000** of profit for the Foundation. In addition to this new revenue contribution, the cases have opened up new ways to use the Raspberry Pi, created new ways to bundle the core products to reach new customers, and have defined a new visual identity for the product and brand, complementing the Pi technology.



*"Every time the Pi is photographed now, it's in the case. It's beautiful enough to become every bit as associated with Raspberry Pi as the bare pcb."*

*"We achieved a 5% increase in Average Revenue per Unit, but it's not just about the money, it's about the number of people reached. It's the mission impact that's important."*

**Eben Upton, CEO, Raspberry Pi**

# Project Overview

## Project Brief

The brief was to design an official case for the Raspberry Pi, that embodied the ethos of the foundation, and elegantly delivered the pragmatic and flexible functionality that the wide range of uses and users would demand and appreciate.

*“Two and a half years ago, I found myself sitting in a car with Eben Upton about three days into my new job at Raspberry Pi. We discussed – among other things – everything we wanted to do with the Raspberry Pi hardware and with the products around the Pi.*

*One of the things we discussed was an official Raspberry Pi case. We thought that it would be great to create something affordable, but with the kind of real beauty and design that our products try to encompass”*

**Gordon Hollingworth, Director of Engineering, Raspberry Pi**

Specific requirements for the design were defined as follows:

- Must accommodate the Raspberry Pi Model B pcb
- Must be simple to assemble, with no fixing screws or similar
- Must be capable of being repeatedly assembled and disassembled but the user
- Must include sufficient internal space to accommodate a wide variety of connected electronic and other components
- Must be low cost (specific cost targets not defined, but, given that the Pi itself retails at \$35, the case needs to be a suitably proportionate price)
- Should accommodate the needs of, and appeal to, a wide variety of users; including schoolchildren, tech adopters, hobbyists / enthusiasts, and professionals
- Should be adaptable to wide variety of uses and environments; desktop, home, office and portable applications
- Should accommodate physical connection of a wide range of peripherals (keyboards, mics, HDMI, USB devices, Ethernet cables) and help provide a more stable, neater “base” for the Pi pcb in connected use
- Should showcase the Pi as the “hero” by providing visibility of the pcb
- Should reflect and embody the ethos of the foundation’s mission
- Should, if possible, like the Raspberry Pi itself, be produced in the UK

## Description

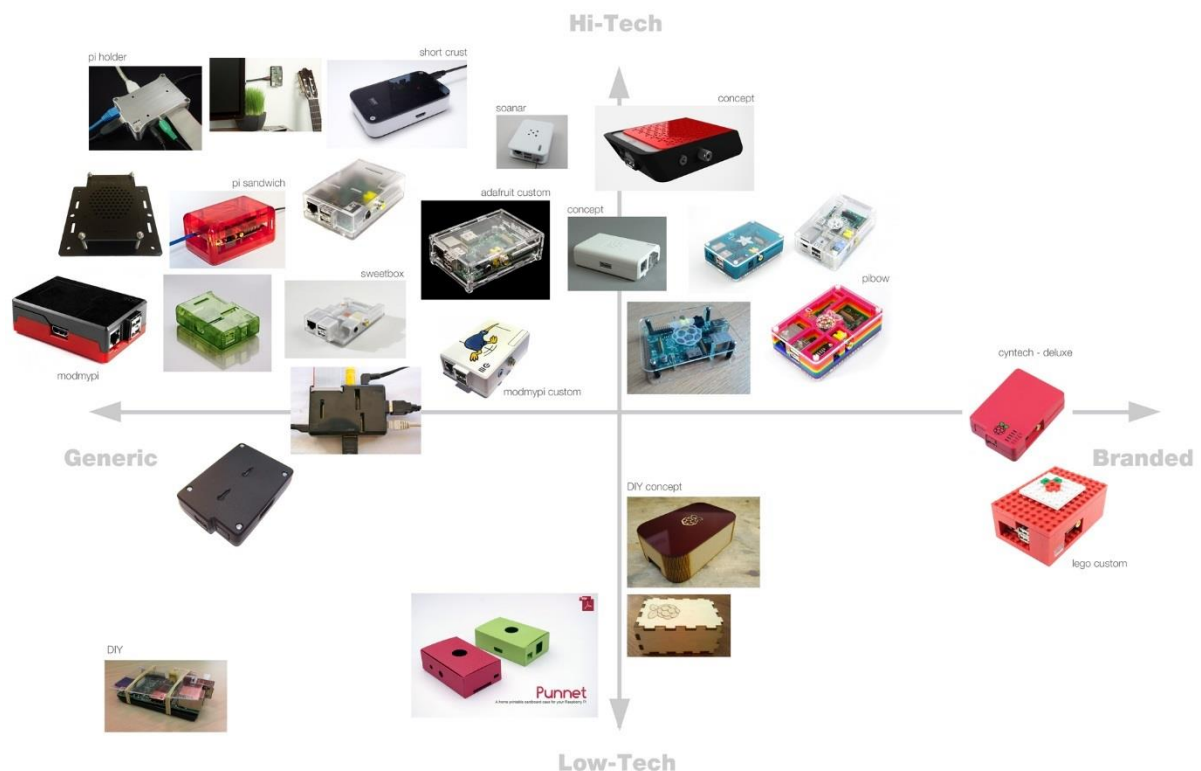
Raspberry Pi is a low-cost (\$35), high-performance computer, build and delivered on a single credit-card sized printed circuit board.



The Pi can be used to perform a multitude of functions, combined with hardware and software resources provided by its adaptable range of connectors and open source software. When connected to power supply, keyboard, mouse, display and wireless or Ethernet connection, the Pi becomes a fully functioning PC. In many instances, users wish to “complete” the product by housing the Pi in a protective case.

## Overview of Market

As part of the ethos of Raspberry Pi, the development of bespoke ways to use the product had led to a wide range of cases being created and sold. These range from one-off / home-made cases to volume manufactured solutions in a variety of forms and materials. Whilst there was a wish to “take some market share” from these third-party products, there was no desire to exclusively reclaim the case market.



Raspberry Pi Case Market mapping (prepared by KD as part of project immersion)

### **Project Launch Date**

The project was kicked-off in May 2013. The project included some delays, caused by: resourcing / prioritisation from the Raspberry Pi team, tactical timings to coincide with new Pi version, and moving of the tooling and moulding to a new manufacturer (advised by Kinneir Dufort to achieve the quality required). The project programme was as follows:

Product launch	May 2013
Final design selected	Oct 2013
Toolmaking started	Feb 2014
Product sampling	June 2014
Switch to new manufacturer	Dec 2014
Product launch	May 2015

### **Size of Design Budget**

Kinneir Dufort's total design budget was £50,000, which covered: concept exploration, design development, modelmaking & prototyping, design for production, and project management support to the Raspberry Pi team throughout.



## Design Solution

The project was run in close collaboration with the Raspberry Pi team, in order to align with the aspirations of the brand and foundation, and to align with the needs and wishes of the Raspberry Pi community, with whom the foundation maintain an open relationship, through social media and outreach events.

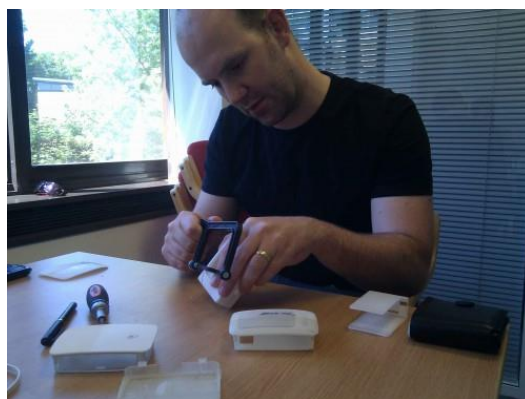
Having convened an initial immersion workshop to explore directions for the design, the KD team generated a range of concepts which addressed the brief in different ways.



The project made extensive, iterative use of 3D printing to communicate the design intent and to provide hands-on involvement from the Raspberry Pi team.



Early 3D printed prototypes



Eben taking a hands-on approach

The final design solution comprises a set of 6 high quality injection moulded parts: a Base and a Top Frame into which the Raspberry Pi is located and securely held by two satisfyingly secure integral spring clips. In this condition, the case acts as a “roll cage”

protecting the pcb assembly whilst providing open access to connectors on the board. Depending on the usage requires, the case may be “completed” by adding clip-on sides and top panel. A transparent light pipe provides external visibility of the status indicators.



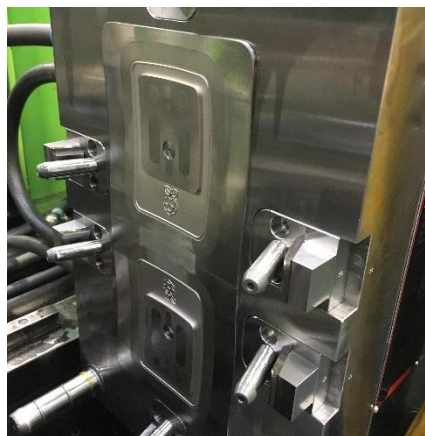
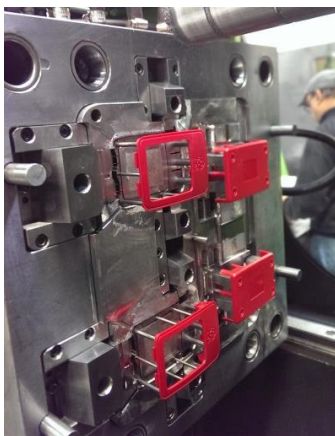
Raspberry Pi in case “frame”



Case with Top and Side panels attached

Aesthetically, the case provides a 3D identity and embodiment of the Raspberry Pi brand. Eschewing obvious technology stereotypes the case is sleek, friendly and fun, encouraging play and adaptation. Launched with a price of £6, the case meets all the requirements of the brief, and a few more besides: hidden within the case are features to encourage hacking, such as bosses to mount additional components, and “knock-outs” features to allow the case to be wall mounted.

Having finalised and specified the final design, Kinneir Dufort maintained an important role during the toolmaking and manufacturing process. Firstly working with the toolmaker and manufacturer to ensure the design intent and part quality was achieved, then advising Raspberry Pi to take the difficult decision to move the manufacture to another UK moulder, who KD knew and trusted to deliver the quality of parts that the design, and Raspberry Pi deserved. Whilst this period resulted in significant delays to the original project plan, having an assured production team in place for launch enabled the demand to be met as interest in the new case soared.

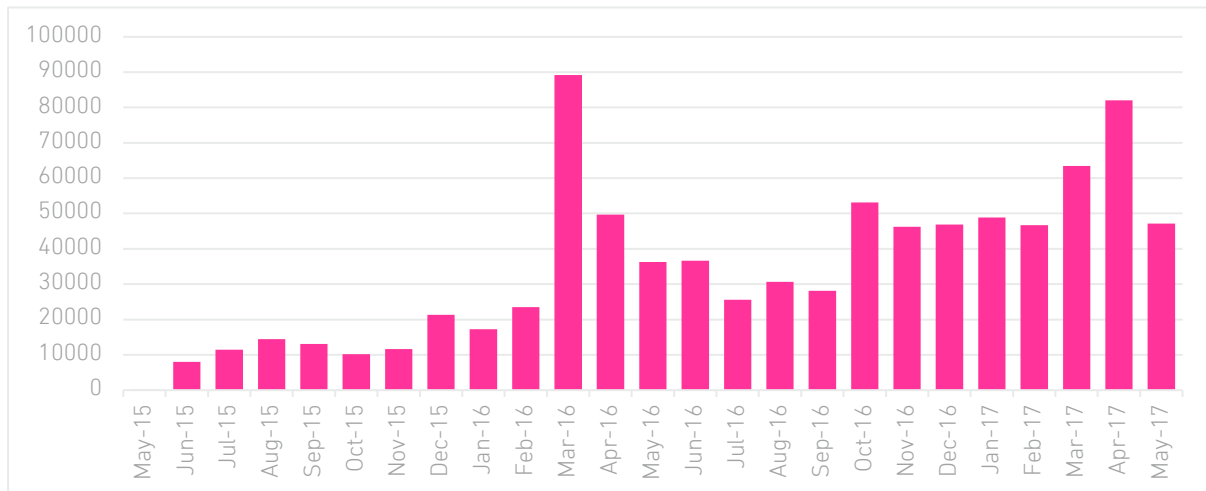


Toolmaking trials and sampling

## Summary of Results

### Sales

In the period from launch in May 2015 to May 2017, the case has sold **861,460** units, with sales continuing to grow steadily, providing an entirely new revenue stream for the foundation



Raspberry Pi Official Case – Monthly sales volumes

### Market and community reaction

The Raspberry Pi “community” is highly active, aware, and vocal. Reaction to the case was, and remains, overwhelmingly positive (see Pi Case Reviews below), fuelling early demand and confirming that the design of the case is well aligned with the Raspberry Pi ethos, and the expectations of its audience.

### Market share

No consistent or reliable sales or market share figures for these products are currently available. Based on a total market size of around 10 million (the number of Raspberry Pi Model B that the Official Case accommodates), and that in many cases, the Pi is used without a case, 860,000 sales represent a significant share of that market.

### Use and application

As hoped, the flexibility of the case has inspired users to adapt it to a multitude of applications, further helping to encourage interest in the case, but also the Raspberry Pi itself. The case also provides options to “bundle” the Raspberry Pi and case in different configurations, providing options for reseller partners such as RS Components, Element 14, The Pi Hut and Amazon.



## Brand image

Whilst not ever having set out to become a brand, the Official Case has strengthened Raspberry Pi's position by creating a distinct and recognisable visual identity, helping to assert its brand as a leader in an increasingly active hobbyist / maker market.

## Product line extension

Encouraged by the success of the case, and prompted by a pro-active proposal by KD, Raspberry Pi decided to develop a case for the Raspberry Pi Zero, an even smaller, and cheaper (from \$5) single-board computer. Coincided to launch with the Raspberry Pi Zero W in February 2017, the Zero case, carrying the same functional principles and visual identity, comprises a base and three alternative lids accommodating different functions and uses, including GPIO pin access and camera module fitment. In the two months since launch, the Pi Zero case has sold **133,000** units. A number of other targeted accessories, complementing the core Raspberry Pi computers as also in the pipeline, further exploiting the value created by the first Official Case.




Raspberry Pi Zero Case


## Contribution to Raspberry Pi Foundation

Between them, the Official Raspberry Pi case and the Raspberry Pi Zero cases have generated a total profit of almost **£725,000** for the Foundation. For a not-for-profit charitable foundation committed to providing access to computing via low-cost products, this represents a significant and valuable contribution to the ongoing work and mission. Raspberry Pi believe that the case products have generated a 5% increase in Average Revenue per Unit, but are keen to note that the financial value is not as important as the positive impact on the Foundation's mission, and the number of people reached.


## Customer feedback (reviews and feedback from Raspberry Pi blog, Pi Hut, Amazon)

 **Pat** says: 18th Jun 2015 at 8:57 pm

Beautifully simple, a bit like the pi itself.

 **Rob K** says: 16th Jun 2015 at 3:36 pm


I love everything about this case. Bravo!

 **DalekVoid** says: 18th Nov 2015 at 2:14 pm

I have just received mine and I am totally blown away by the aesthetic and build quality of this case. I especially adore the colour choices, the red is delicious, very raspberry, the exceptionally white blends with the red perfectly.

The sexy curved body provides firm grip on the sides. The matte finish feels just right.

You guys truly nailed it!


 **Corey S.** Verified Buyer 03/31/16

★★★★★

**Great little case**

I love this case! It's probably the best case I've bought for my raspberry pi yet. It's super simple to assemble, it looks stylish and it still makes everything very accessible. I'd definitely look into getting this case again if I buy another pi.


[Share](#) | Was This Review Helpful? [1](#) [0](#)

 **Julien L.** Verified Buyer 04/25/16

★★★★★

**Best case for hackers**

no screw, easy to rip apart to connect whatever you need internally. Simple. elegant with those 2 colors, this is really an easy buy that I gladly recommend to everyone owning a Pi.


 **Gatsbyd F.** Verified Buyer 09/29/16

★★★★★

**Excellent for academics**

My son just going a "Code club" at his school and he's absolutely delighted with the Raspberry Pi and the case it's so sophisticated. Cheers

[Share](#) | Was This Review Helpful? [0](#) [0](#)

 **Jani T.** Verified Buyer 10/10/16

★★★★★

**How RPi enclosures should have been from the beginning**

I have to admit that I was mostly suspicious as to if the case would be any good. The photos simply did not do any justice to it. Now that I have it and been using it, I have great appreciation for detachable sides and top. Even more so as I only have one Rpi 3 and it needs to take "different shapes" in different exercises. Unlike with my old RPi 2 enclosure, now I no longer need to remove the PCB and expose it to potential shortcircuits at the lab bench. [Read Less](#)

### ★★★★★ Great little case.

By [Nathan H.](#) on 13 February 2017

Item Package Quantity: 1 | Colour: Black/Grey | [Verified Purchase](#)

I love how there are no screws or clips to the pi board. It all comes apart and together very easily. Will buy more in the future

### ★★★★★ The best

By [Amazon Customer](#) on 5 March 2017

Item Package Quantity: 1 | Colour: Black/Grey | [Verified Purchase](#)

I've bought many other cases for Pi's, but this is by far the best. The panels clip nicely and don't pop off. The rubber feet are a nice touch to add.

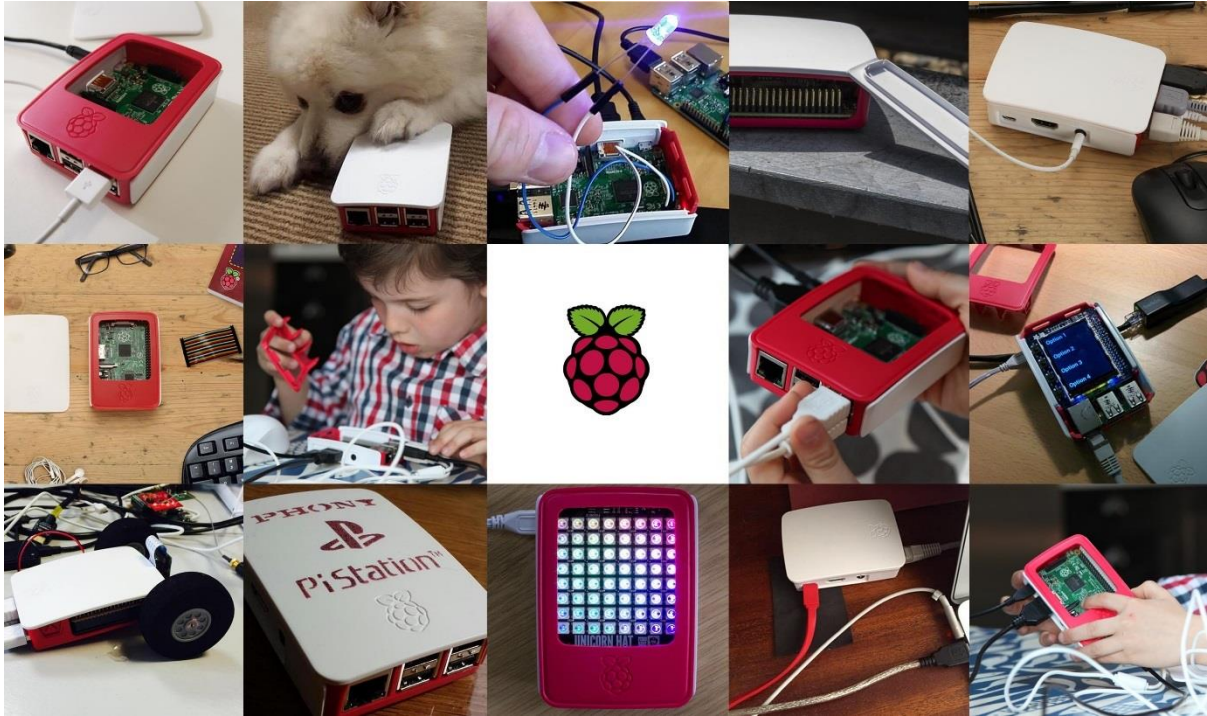
### ★★★★★ Perfect box for your Pi 3

By [phil s](#) on 25 May 2017

Item Package Quantity: 1 | Colour: White | [Verified Purchase](#)

Looks very smart, fits the Pi 3 perfectly but turns it from a barebones project PC into something that looks like a pro piece of kit. Very well made, all the important bits exposed. Very pleased.

## Product in Use



## **Other Influencing Factors**

No significant marketing or advertising activity, other than normal online /social media channels, was used to promote the Official Case, nor was any exclusivity imposed on resellers and distribution channels. Indeed, Raspberry Pi continues to encourage creative and active responses from the maker community, with the Official Case regularly sited alongside third party cases on reseller sites.

## **Research resources**

All information was sourced directly from the team at Raspberry Pi:

Eben Upton, CEO

Gordon Hollingworth, Director of Engineering

James Adams, Chief Operating Officer