

## Customer story

# Sisyphus

## Powered by Raspberry Pi, this mesmerising sand table artwork proved an international, interactive hit

Compact, affordable control hardware was required for Sisyphus Industries' flagship product, a sand table with dual function as furniture and as an interactive artwork. Raspberry Pi provided a "seamless" experience with highly reliable hardware and, invaluable, a vast community.

<b>Raspberry Pi solution</b>	Raspberry Pi 3 Raspberry Pi 3B+ Raspberry Pi 3A+ Raspberry Pi 4
<b>Size of business</b>	SME
<b>Industry</b>	Visual arts, home furniture

Artist Bruce Shapiro creates mesmeric kinetic art that constantly undulates, fascinating the viewer. He grew up "enchanted by music, electronics, and making things" and took tentative steps towards his own creations using motors from unwanted floppy disk drives and a 286 computer. He quickly realised that discarded industrial automation parts could be picked up for peanuts via surplus outlets, and that CNC machines and motors were effective for motion-control tasks.

Bruce's knack for creating kinetic art as a means of self-expression took off and, after originally working in medicine, his experiments in electronics and computing control led to a new career. He became a [solo kinetic artist and science educator using motion control technology](#) to create large scale installations for museums. (His eye-catching artworks continue to be displayed in museums and art galleries in Australia, Germany, Switzerland and USA.)



In 2015, Bruce created a new kinetic art table, [Sisyphus](#), again using CNC and polar stepper motors. This time the precision CNC machine that Bruce used to create cutouts for his kinetic sculptures became a piece of art in its own right. The Sisyphus Table took inspiration from the legend of Sisyphus constantly pushing a boulder up a mountain: in Bruce's work, a ball bearing in place of a rock creates a constantly shifting pattern on a layer of sand. A stepper-controlled magnet underneath the sand table directs the ball bearing's motion. The robot controlling everything, the Sisbot, used the same essential design Bruce had invented for his first motion control device back in 1990.

## The challenge

There was plenty of interest in the design from the art world and science museums, so Bruce founded Sisyphus Industries and set about designing a sand table with dual function as furniture and a playable piece of art. Crowdfunding seemed an obvious route. The choice of operating software and hardware to drive it was less so – until Bruce spoke to those he knew and trusted. “It was clear that smaller, less expensive control hardware would be needed.”

## The solution

Hardware costs, reliability, and community support for the technology driving the kinetic table led Bruce to consult his software engineer son, the embedded software engineer he was working with, and the younger members of the nearby makerspace in Minneapolis. The vote for Raspberry Pi was unanimous.



**“The hardware has proved highly reliable, both in the production facility and in the field”**

## Why Raspberry Pi?

In commercialising something that was previously simply an art installation, issues of customer support and maintenance became important. In addition, some “painful” dead ends led the change-averse artist to look for a new means of powering and controlling his Sisbot. “I don’t like change when it comes to something that works,” Bruce admits. “Through many trials, and sometimes painful dead ends, I’ve learned that community matters.”

It was the Raspberry Pi community that convinced Bruce to switch over to a low-cost microcomputer. This was “more important than form factor and low cost,” he tells us.

“The choice to use Raspberry Pi in the new home versions of Sisyphus was driven by all the 30-somethings that I listen to,” says Bruce. The community informed him that JavaScript is essential and Node.js runs well on a Raspberry Pi.



## The results

“As a musical instrument plays songs, Sisyphus plays paths,” the 2016 Kickstarter pitch explained. The aim: to “get Sisyphus into people’s homes for them to enjoy as both furniture and art, but also, to inspire a community of composers to write ‘music’ for it.” The Sisyphus Sand Table became – and remains – the most funded art project in Kickstarter’s history, Bruce tells us, proudly.

Five years after launching Sisyphus Industries, the company now has 15 full-time employees at its Minnesota headquarters and recently shipped its ten-thousandth Sisyphus Table, with customers across the globe and recent installations in Dubai and Oslo.

**“the original reason we chose Raspberry Pi – its vast community – has proven to be invaluable”**

“Looking back over this time, our experience using thousands of Raspberry Pis, including 3B, 3B+, 3A+, and now 4, has been relatively seamless,” says Bruce. “Our software developers have been able to rapidly deploy our firmware across different Pi versions. The hardware has proved highly reliable, both in the production facility and in the field. “And the original reason we chose the Raspberry Pi – its vast community – has proven to be invaluable in recent experiments using kinetic art within STEM education.

*Images by Scott Streble used with permission.  
Other images are by Sisyphus Industries.*



*Image by permission of Scott Streble*

**Connect with us**