

Customer story

Sarawak primary schools Raspberry Pi supports digital skills in every primary school in Malaysia's largest state

The Ministry of Education, Innovation and Talent Development in Sarawak, the largest of Malaysia's 13 states, needed an effective and affordable solution to the lack of computer facilities in its primary schools. Local Raspberry Pi Approved Reseller Cytron developed a Raspberry Pi 4 kit with a bespoke software setup to meet the needs of all 1265 schools.

Raspberry Pi solution Raspberry Pi 4
Size of business Large public sector organisations
Industry Primary education

Digital skills are a vital part of education from primary school onwards, but many schools in Sarawak, Malaysia, lacked basic computer facilities to support the teaching and learning of these skills. The state's education ministry turned its attention to how it might ensure access to a consistently high standard of facilities and teaching for children across the region, including in rural areas where the availability of internet infrastructure can't be assumed.



The local Raspberry Pi Approved Reseller assembled and tested every single unit



“A good learning and teaching tool for children at primary or secondary school level”

The challenge

In 2021 the Ministry of Education, Innovation and Talent Development in Sarawak, Malaysia, set an ambitious goal for supporting the innovation and digital skills of primary school-aged children. They wanted to give students at every school access to computing hardware and software that would help them not only to acquire the ICT skills they will need for work and everyday life, but also to gain experience in coding and physical computing – building electronics projects by connecting components.

With over 1200 schools to equip, the solution would need to be affordable. A further consideration was that schools in some rural areas of Sarawak do not have reliable internet access. Like their peers in other regions, students in these areas need to become familiar with using the internet to access information, but lack of infrastructure poses a problem.

The solution

Raspberry Pi 4 was chosen for the project, and Cytron, a local Raspberry Pi Approved Reseller, supplied over 9400 computer kits for all 1265 schools across the state, with every school receiving several units. As well as a Raspberry Pi 4, each one included a case, monitor, keyboard, mouse, SD card, power supply, and HDMI cable.

Working closely with Sarawak’s Ministry of Education, Cytron also produced a bespoke version of Raspberry Pi’s free operating system, Raspberry Pi OS, that is tailored for local primary schools. Cytron preloaded this custom OS onto the SD cards supplied with the kits.

To make sure that every kit would work right out of the box, Cytron assembled and tested each one before packing it. And in order to address internet infrastructure problems, some of the Raspberry Pi computers supplied were set up to function as internet-in-a-box offline servers that would allow educational content to be preloaded and accessed by rural schools that don’t have reliable access to the internet.

The Ministry of Education planned a Raspberry Pi training programme to make sure primary schools were able to get the most out of their new equipment. Delivered by higher education partners, the programme would provide training for at least one teacher in every primary school throughout Sarawak.

“Raspberry Pi as an internet-in-a-box is a very powerful tool – it can bring learning to pupils without internet access”

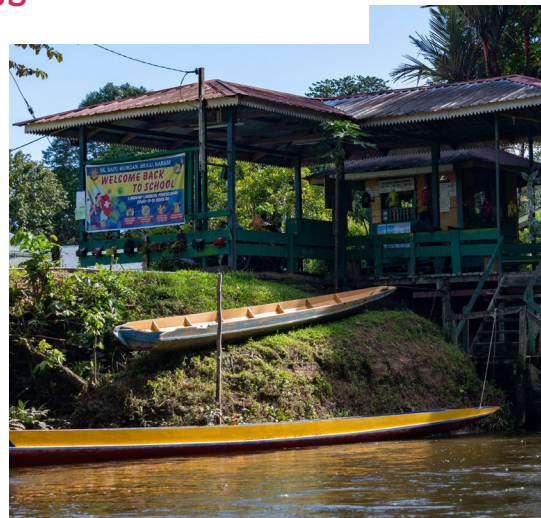
Why Raspberry Pi?

With fast processing power and networking, USB 3.0, dual-display support, and a choice of RAM options for a range of different tasks, as well as a set of 40 accessible GPIO pins for quickly and easily connecting electronic components, Raspberry Pi 4 is Raspberry Pi's most popular and most adaptable computer. It is the ideal choice for teaching and learning a wide range of computing subjects, from physical computing and robotics to programming. Importantly, it's just as well suited for use as a desktop computer, so students can develop a range of essential ICT skills.

Raspberry Pi's recommended – and free – operating system, Raspberry Pi OS, offers a familiar desk-top environment for learning computer science and doing day-to-day classwork. It provided an excellent basis for the customised learning environment that Cytron devised for Sarawak's primary schools.

“The Raspberry Pi computer is a good learning and teaching tool, especially for children at primary school or secondary school level,” says Dr Hudyjaya Siswoyo Jo, master trainer in Sarawak's Raspberry Pi training programme for primary school teachers. “Not only is it able to serve as a normal computer, Raspberry Pi can also be used to teach concepts such as physical computing. And the tools included inside the Raspberry Pi Operating System allow students and teachers to collaborate.”

Meanwhile, the ability to set up some of the computers as offline servers was invaluable. “The Raspberry Pi and its internet-in-a-box function is a very powerful tool to improve the teaching and learning in schools, as it can bring knowledge and learning content to pupils who are offline or without internet access: for example, anybody nearby with an old smartphone, tablet or computer,” said Education, Science and Technological Research Minister Datuk Amar Michael Manyin Jawong.



The results

With Raspberry Pi kits in every Sarawak primary school by the end of 2021, the Ministry of Education was ready to embark on its teacher training programme. By the end of 2022 at least one teacher in every school had received two levels of basic training, with plans in place for further training over the following two years. The aim of the programme is to equip teachers to teach computing skills to students so they can develop apps and games and solve real-world problems.

Both ministry officials and teachers are delighted with the initiative so far. Datuk Roland Sagah, Sarawak's Education, Innovation and Talent Development Minister, commented that it supports the ministry's objective of promoting STEM and ICT education to students in the state. And school staff who participated in the training programme praised the educational value of the new platform as well as how simple and easy it is to use. Raspberry Pi helps empower pupils to learn computing and become confident and more creative in problem solving, enthused one teacher.

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