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CST 1100

Research Paper: Raspberry Pi 2

Raspberry Pi 2

The Raspberry Pi 2 is a wildly popular single board computer created by the Raspberry Pi Foundation. The Raspberry Pi Foundation, is a UK registered charity first thought up by Eben Upton, Rob Mullins, Jack Lang and Alan Mycroft in 2006, a group of entrepreneurs, hardware designers and college professors based at the University of Cambridge’s computer lab after they, “became concerned about the year-on-year decline in the numbers and skill levels of the A Level students applying to read Computer Science” (raspberry.org, 2015). They created this SBC with the goal of putting affordable PC’s with preinstalled content that makes programming fun, easy, and accessible to students, programmers and hobbyist alike. Institutions and tech companies such as Wolfram, Olswang, Mythic Beasts, and the University of Cambridge support the Foundation today.

Single Board Computers (SBC’s), like the Raspberry Pi 2, are complete computers built on a single circuit board. They for the most part have all the features needed for a normal functional computer, which consist of microprocessors, memory, and input/output slots. The benefit being they are much cheaper to make and buy with todays SBC’s typically being the size of something as small as your credit card. The most common use of the Raspberry Pi 2 today is in the education of basic computer programming, open source hardware and software capabilities and general hobbyist.

The most recent version of the SBC by the Raspberry Pi Foundation released in 2015. The Raspberry Pi 2’s hardware specifications include “ an [ARM11 processor](http://www.makeuseof.com/answers/arm-architecture-laymans-terms/) running at 700MHz with a powerful Video core 4 GPU” (Brookes, 2012, makeuseof.com); this makes the Raspberry Pi 2 five times faster than the original Pi. The ARM11 processor is able to run the full range of ARM GNU/Lynux as well as Windows 10 operating systems. Raspberry Pi 2 features four USB ports that allow for the connection of full USB keyboards and mouse functions, Full HDMI support, a 10/100 Ethernet port, Micro SD slots and a 3.5 audio and composite video jack. The Raspberry Pi 2 also has built in overclocking abilities.

The software specifications on the Raspberry Pi 2 vary giving the user many options in terms of choosing which operating systems they would like to run on their Pi2, but the official supported OS of choice goes by the name of Raspbian. Raspbian is “a free operating system based on Debian optimized for the Raspberry Pi hardware.” (Raspbian.org, 2015). The Raspbian OS comes preloaded with ”over 35,000 packages, pre-compiled software bundled in a nice format for easy installation on your Raspberry Pi.” (Raspbian.org, 2015). The software includes tutorials on how to operate and create on the Pi2 as well as its own web-browser called Epiphany. In an attempt to garner the attention of children who might be interested in trying their hand at programming, a stripped down version of the popular game “Minecraft”, was also installed in the software.

Programming tools that can be installed on the Raspberry Pi 2 include, but are not limited to Python, Scratch, Eclipse, Biicode, Adafruit Web, Coder, Virtual Box, QEMU, WinSCP, and Microsoft Visual Studio (Curtis Franklin Jr., 2015, informationweek.com), to name a few. These programs are used to ease beginners into understanding computer programming allowing the user to eventually have enough of an understanding they might be able to even write their own codes. In recent years the Raspberry Pi Foundation have aligned with various celebrities, companies, business moguls like Richard Branson and even the President of the United States to help create and promote an interactive tutorial event named the “Hour of Coding”. This program promotes and encourages beginners of all walks of life to pick up and start learning to computer program. The aim is to have each user, at minimum write a few lines of code on their own, all the way up to writing their own simple game.

The outlook on the future of computer programming skills in individuals young and old is extremely bright. The younger generation having the advantage of far more advanced technology at a much more attainable price tag, making the progression and innovation of the computer-programming field almost inevitable. Foundations like the one that created the Raspberry Pi 2 are at the forefront of this SBC movement putting technology in the hands of every and anyone willing to put the effort into learning this fascinating and constantly growing field of technology.

References

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