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Avante Arduino

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Technology Will Save Us: part of BE OPEN SPACE at Tom Dixon's Ladbroke Grove canal-side HQ

What's the greatest piece of design to come out of Italy in the last decade? The Branca chair by Mattiazzi? Something by Patricia Urquiola for Moroso? It was the Arduino, a simple microcontroller board, named according to the Wall Street Journal, after its inventors favourite bar in Ivrea, a city 50 km north of Turin. Micro-controllers are miniature computers dedicated to a single programmable task and whose components, a processor, memory and programmable inputs and outputs sit on simple circuit board. They are embedded into every device around us.

Amidst the makers of felt boot and cork wall panelling at Be Open Space at Tom Dixon, Gergely Lorincz from the British collective Technology Will Save Us explains the story: "About ten years ago in a design school, students were struggling with micro-controllers, they wanted to do something interactive. At the time, it was really hard to programme micro controllers and really expensive, so these Italian guys came up with the idea that they should make something easy to use for students and artists: not technically minded people. It became an instant success. In the last 10 years an insane amount of art installations, robots, autonomous airplanes, home energy monitors… have been made with it… You can turn a blender into a MIDI controller with it."

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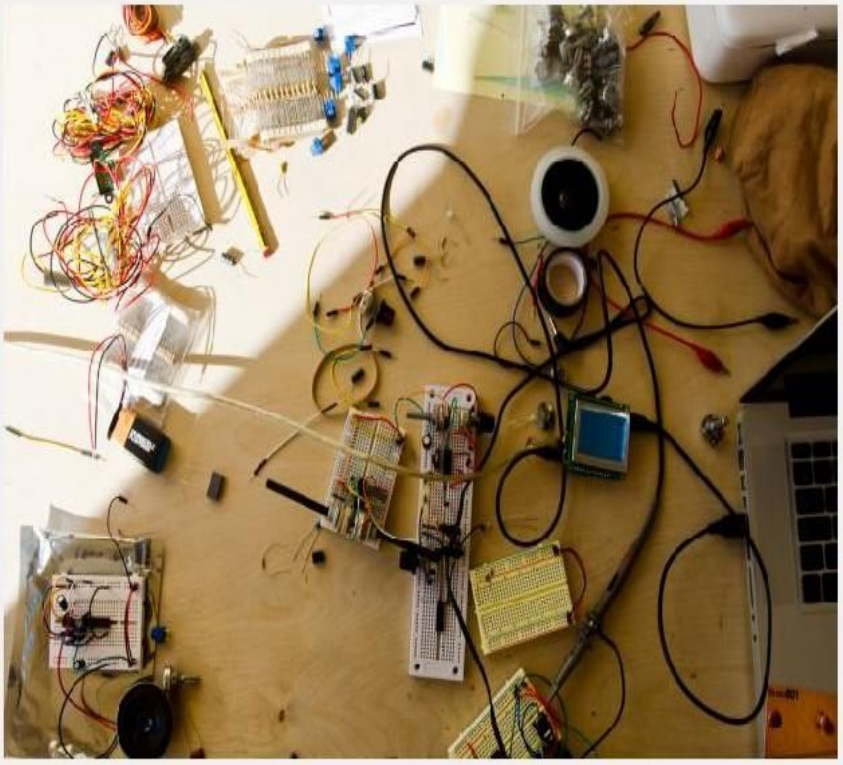
Importantly the Arduino was not made by a chip manufacturer who, along with his competitors has no real interest in promoting open use of their technologies. In 2005, Professor Massimo Banzi at the now closed Interaction Design Institute in Ivrea wanted to free design students from dealing with complex electronics so they could instead focus on its application. Together with David Cuartielles and students, he made a microcontroller that designers could use to incorporate into their work. Significantly they made it open source. Plans for it can be downloaded from the internet, although Gianluca Martino the engineer that was first commissioned to make Arduino's still sells thousands so well conceived were the originals.

Today the Arduino is spear-heading a fascinating development which mirrors the evolution of open-source software, such as Linux or the Apache server software that runs many web sites. Open-source hardware applies the same idea to physical things. As I found, with the help of Lorincz, a layman can use it to make a small synthesiser. In the small stand at Be Open Space at the Dock in West London, the hacker had used it to connect a distance sensor with a sound loop on his laptop. "The same technology is used to make basic robots,' he says and lists the things you can connect up using the platform: and others that can be connected via the Arduino to laptops and on to social media. Remote controls for Apple devices. Radio-controlled lawnmowers.



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In February 2011, Make magazine stated that there were around 100,000 Arduinos on the market. Nothing amazing, but as Phillip Torrone, the influential technologist puts it: 'Every year I read another article about how Italy is struggling to find "their own Google" when they already have it. It's the Arduino — they just don't realize it yet.' The board's drivers and integrated development environment (IDE) works with Linux, Mac and Win so as a bit of hardware it segues nicely with the open source software that was its model. It's light, simple and will accept information from both digital and analogue sensors.

At the moment it is still in the hands of the hackers and the artists. Technology Will Save Us for example are running workshops in Hackney, London to encourage the wider usage and understanding of computer electronics with the Arduino as their platform. However the implications of that are expanding. In the middle of last year, Google chose the Arduino for the Android Open Accessory kit, which allows external USB hardware to interact with an Android-powered device in a special "accessory" mode. There are 500 million activated Android devices in existence and an estimated 1.3 million new activations a day.

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Whilst a busy non-hacker doesn't have time to link their old alarm clock up to their phone, the implications for the opening up of research and development for industry is massive. The hacker community's claim that we will all become involved in the making of bespoke technology is not – I believe – tenable or even desirable. What it does it makes cheaper the ability to explore specialist areas. Here's Banzi himself talking about the way in which the Arduino became the platform for a 3D printing machine and a helicopter. (It is a key technological stepping stone between the online and real worlds that that Chris Anderson has just described in this great article in the Guardian about the internet's relationship with industrial progress.) Far more likely is the that an enthusiastic peer group will embrace the opportunity to explore ways in which the increasing power and ubiquity of the mobile phone can be put to use in our domestic lives.

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