Makers to watch: 5 stand-outs from World Maker Faire

Suzanne Deffree - September 30, 2015

World Maker Faire drew masses of crowds to the New York Hall of Science in Queens last weekend for the largest gathering of the maker community on the East Coast of the US.

While final numbers are yet to come in, as an attendee who has been to 5 out of 6 World Maker Faires, this most recent event seemed to be the highest attended, as well as the highest exhibited.

Of the makers EDN met with and embedded projects previewed, here are 5 that stood out as ones to watch for their strong engineering and future potential.

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- World Maker Faire 2014: engineering, creativity, and inspiration
- Maker Movement Turns 10
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The Third Industrial Revolution

If you can foresee a future when robots will be as much a part of the societal landscape as tablets and smartphones are now, Haddington Dynamics is a start-up to watch.

Launched just last week at MakerCon (the maker conference ahead of World Maker Faire), Haddington came to the New York Hall of Science with Dexter, a high-precision, high-performance 3D-printed, open-source robotics platform powered by advanced supercomputing technology.

Dexter's design comes from Kent Gilson, company co-founder and a pioneer in FPGA-based reconfigurable computing with a strong background in supercomputing. See Dexter's board and robotic arm with Gilson below.
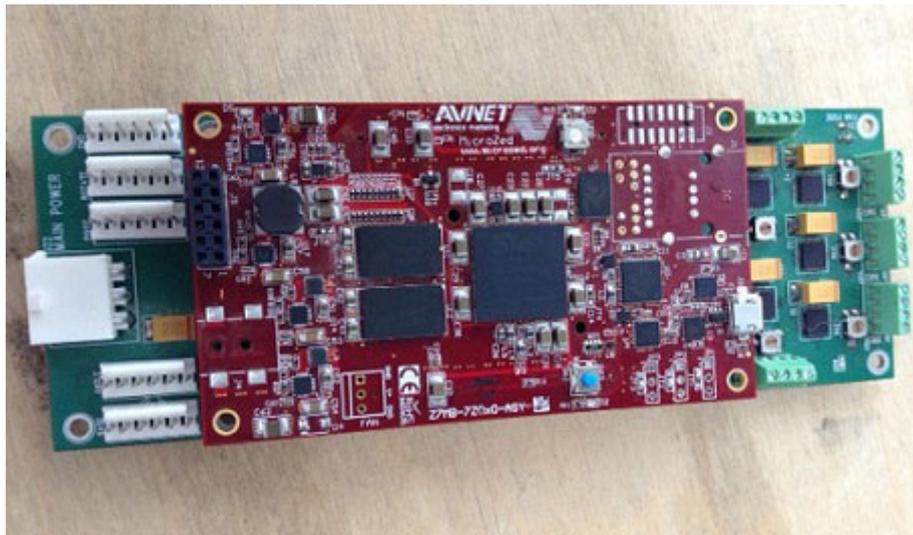
The robot's impressive force feedback, which Gilson demonstrated at World Maker Faire, helps it achieve 50 micron repeatability and feather light touch, making it applicable to tasks including 3D printing, CNC (computer numerical control), and PCBA (printed circuit board assembly). With the right tools and instruction, Dexter could build its own duplicate.

[Haddington Dynamics](#)

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Get to know Qtechknow

Quin Etnyre is smart, successful, and one of the most curious engineers I've ever come across at a Maker Faire. He attended his first Maker Faire in 2011, discovered Arduino, and has built his own company, Qtechknow, for his embedded electronics line.

Most recently Qtechknow successfully funded the [Qduino Mini](#), an Arduino-compatible tiny board with a battery charger and monitor. To do so, Etnyre raised $45,000 and shipped on time with

SparkFun just last month. And did we mention he's 14?

The first time I met Etnyre was at an Atmel-sponsored panel on the Arduino and maker movement, where he demonstrated his [Fuzzbot](#), a sensor-enabled mini mobile robot with a cleaning cloth attached to its end to pick up dust and dirt off floors. At this World Maker Faire, the teenage maker was showing off a camera linked to a portable printer fitted with thermal paper (like the kind used to print receipts)—sort of a new spin on instant photos.

On a side note, hats off to Atmel for finding this diamond in the rough when Etnyre was just starting out, encouraging him, and helping him grow his own knowledge and brand.

[Qtechknow](#)

Oh, it's an O Watch!
Oh, it's an O Watch!

At 8 years old, Omkar Govil-Nair is the youngest maker on this list of makers to note, but his potential should not be judged by his age. His enthusiasm drew crowds, as did his DIY smartwatch kit that's on Kickstarter now.

The O Watch is an Arduino-based smartwatch kit aimed at kids. The base kit, at $85, includes a 3D printed case, Arduino Zero + OLED 16-bit color screen (Atmel processor, micro USB programming port, TinySheild connector for add-ons), LiPo battery, and a watch band. The sensor kit at $109 includes the base kit items plus a sensor board with a Honeywell 3-axis compass, Silicon Labs temperature and humidity sensor, and Bosch barometric pressure sensor. Plus, there is now a TinyShield Bluetooth LE add-on for $29.95.

The O Watch frame
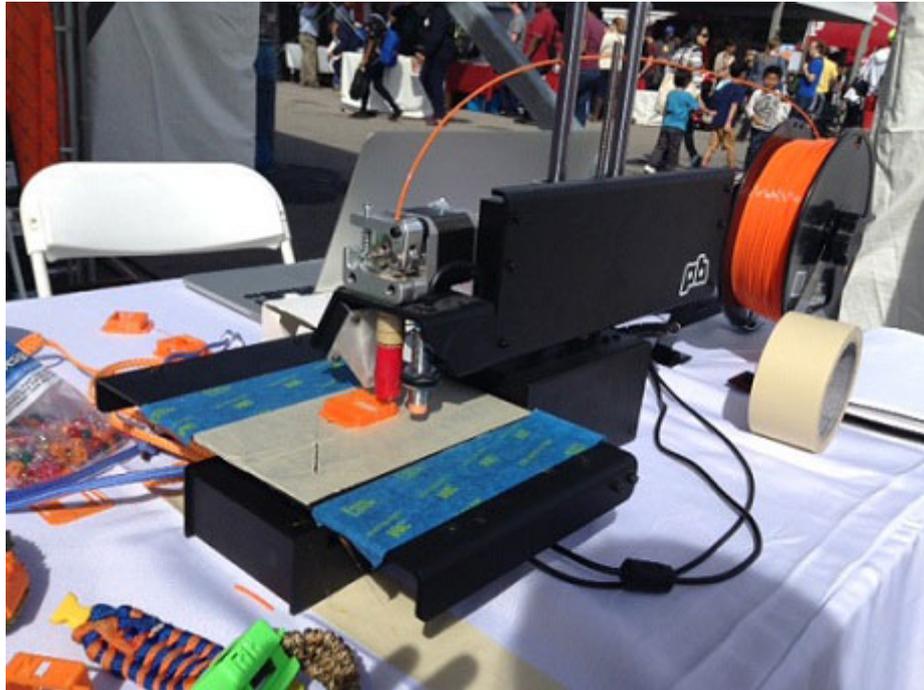
The O Watch frame being 3D printed.

The idea is that while making their own customizable smartwatch, young ones are inspired to learn basic programming and 3D printing. Being inspired to start down a STEM path is something Govil-Nair understands firsthand. This young maker was inspired by Qtechknow's Quinn Etnyre when they met at a previous Maker Faire, and has been programming since around age 5.

[O Watch](#)

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Maker neuroscientists
Maker neuroscientists

Mixed in among the LED crafts and [giant robots](#) was OpenBCI, or open-source brain-computer interface, a versatile and affordable bio-sensing microcontroller that can be used to sample electrical brain activity (EEG), muscle activity (EMG), heart rate (EKG), and other applications beyond medical (including fun [mind-controlled flying sharks](#)). It aims to harness the power of the open-source movement to accelerate ethical innovation of human-computer interface technologies.

Compatible with almost any type of electrode and supported by an ever-growing, open-source framework of signal processing tools & applications—plus a community of researchers, engineers, artists, scientists, designers, and makers—OpenBCI believes that the biggest challenges we face in understanding what makes us who we are will be resolved through an open forum of shared knowledge and concerted effort, by people from a variety of backgrounds, and not by one corporation or individual scientist.

OpenBCI showed off its work at their own World Maker Faire tent, plus got a nod from Microchip, which included the group's device in its tent where the above photo was shot. OpenBCI uses Microchip's ChipKit Arduino-compatible PIC 32 uC, as well as other parts from Texas Instruments (high-powered analog front end) and ST (3 axes accelerometer), among its components.

[OpenBCI?](#)

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Is there an Arduino doctor in the house?
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If you have attended a recent [Embedded Systems Conference](#), you might recognize Guido Bonelli and his Dr. Duino, a frequent ESC speaker and World Maker Faire maker to note.

Kickstarter success pulled in 128% of Dr. Duino's funding goal with a tool targeting the ever-growing Arduino platform. Bonelli is a fan and proponent of Arduino, just not debugging the platform.

He writes on his website: "You know what's awesome about Arduino? Ummm everything! You know what's not so awesome? Debugging your megalithic stack of Arduino awesomeness."

Arduino is advancing and picking up steam beyond hobbyists with more developed designs. Once we move Arduino designs beyond the simple, debug, obviously, grows in importance. The Dr. Duino Arduino breakout board for debugging has some key points that ease debug, including:

- All Arduino pins brought out to headers for easy probe access
- Re-Route allows for quick isolation of firmware from hardware issues with the move of a jumper
- External reset button that is not covered by shield above, even when stacked
- Color-coded test pins and built-in RS-232 support

Bonelli isn't solely a huge Arduino supporter, but a supporter of STEM (science, technology, engineering, and math) efforts to encourage the next generation of engineers, as well. In fact, he was a candidate for this year's ACE ([Annual Creativity in Electronics](#)) STEM Impact Award.

[Dr. Duino](#)

Bonus: From quadcopters to power racing to paragliding

Regretfully, I did not make it to Trey German's talk on power racing, so I have no official World Maker Faire details to share (hence, the "bonus" stature), but he's surely someone to know.

EDN named German, an accomplished maker who serves as the LaunchPad applications manager at Texas Instruments, one of [9 makers not to miss for World Maker Faire 2014](#) and this year snagged some time with him in passing.

Maker and contributor to the [Energia project](#), German is perhaps best known among makers for his InstaSpin QuadCopter, designed from scratch using a port of the AeroQuad project firmware and TI's [InstaSpin-FOC technology](#).

Self-described on LinkedIn as strong in "open-source hardware/software, wiring, rapid prototyping, LaunchPad, IoT, and general awesomeness," German's skills range from hardware design and production management with a CM to all levels of software development (low level assembly up to cloud hosted IoT applications).

German's passion is evident and immediately recognized upon first introduction. He's an engineer's engineer, one that spends his days designing at work, then heads home to create DIY electronic contraptions that improve daily life.

He and I chatted briefly before he did a quick LaunchPad demo for World Maker Faire attendees on a table top, drawing in many passersby with that passion for design. A quote from his demo: "I'm a lucky guy. I play with LaunchPads for a living."

When he's not making, he can be found flying his powered paraglider. Between power racing, quadcopters, and a paraglider, it's amazing that German was able to stay still long enough for a photo with this editor.

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If you're a fan of smart people making smart things, register now for the [Designers of Things conference](#), dedicated to Wearable Tech, 3D Printing, and connecting through IoT. Experience two days filled with expert insights, networking, and training at DoT 2015, being held in San Jose, December 2-3. Designers of Things is managed by UBM Canon, EDN's parent company.