Ditch Your Passwords with BluStor

Interview with Mark Bennett, COO/CIO, BluStor

Cayenne, the World's First Drag-and-Drop IoT Project Builder

Recruiting the Future: Generation Z

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Welcome to Inside the Lab with Arrow Electronics, the web series dedicated to exploring the latest in technology and electronics. In this episode, we’ll discuss TI’s SensorTag and Arrow’s BeagleBone Black.

TI’s SensorTag is a kit for the Internet of Things, and enables rapid prototyping for connecting sensors to the cloud. Powered by TI’s CC2650, which is a SimpleLink multi-standard ultra-low-power wireless microcontroller, it enables developers to connect 10 sensors to the cloud in three minutes.

Arrow’s BeagleBone Black is an open-source hardware computer for makers. From kindergarten to Kickstarter, BeagleBone Black will get you started programming electronics within minutes of opening the box.

For this demo, we’ll use a BLE for connecting the SensorTag to the BeagleBone Black, which acts as a gateway. Once connected, data will be taken and uploaded to AWS cloud using mqtt. Then, the near real-time will be pulled back into a browser and displayed in displayed in the TI SensorTag dashboard.

TI’s SensorTag and Arrow’s BeagleBone Black make it easy for IoT connections and the uploading and retrieval of near real-time data to and from the cloud. For more information, visit Arrow.
EEWeb Tech Lab
IBM Watson IoT

In this installment of EEWeb’s Tech Lab, we used the IBM Watson IoT Platform and a couple of Raspberry Pis to control a dinosaur.

The Watson IoT Platform gives developers access to a wide range of tools and capabilities, including getting devices quickly connected to the cloud, intelligent analytics, enterprise-grade security and device management. For this demonstration, we used Watson IoT with Node-RED and Raspberry Pis to send the sensor data back to Watson IoT, process it, and trigger our dinosaur when certain criteria are met.

To get started, visit the Watson IoT developer resources page. Once there, you can start your trial using Watson IoT Platform. With built-in security, the setup is simple, and connecting projects to the Watson IoT is easy.

While we’ve used the Watson IoT Platform to control a toy for this example—specifically, making the dinosaur dance—the same principles apply to devices of all types. Whether you are making robots on a manufacturing line move, industrial process controllers respond, or door locks open, Watson IoT can help to bring cognitive computing to your factory, advanced analytics to the home, or make operations more efficient. Watson IoT gives you the tools to make data more meaningful and devices more impactful. Being able to capture and utilize data from devices, anywhere—on site or remotely, gives you the ability to understand and act on critical data both in real-time and over an extended period of time. For more information, visit the Watson IoT developer resources page.

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HARDWARE DESIGN MADE EASY.

PCBWeb Designer is a free CAD desktop application for designing and manufacturing electronics hardware. The tool supports schematic capture and board layout, including integrated "click-to-order" manufacturing.

www.PCBWeb.com
Create and Control Projects with Cayenne, the World’s First Drag-and-Drop IoT Project Builder

Setting up a Raspberry Pi for IoT projects can be time-consuming and complex. But it doesn’t have to be that way. In fact, it can be done within a matter of minutes. Thanks to IoT solutions start-up myDevices and its project building app, Cayenne, developers and makers can quickly create and prototype projects with their single-board computers.
Cayenne works in conjunction with the Raspbian Operating System, which runs on Raspberry Pi and with Arduino. One of the best parts about the app is that you can get your Pi or similar computer connected to the internet and hit the ground running—not much coding is required. Creating an account is free, and you can work on an unlimited amount of projects. Because it’s user-friendly and allows control of hardware remotely, techies of all levels can use Cayenne to build projects that interface with IoT devices, sensors, LEDs, actuators, and other gadgets.

“Our goal is to make IoT accessible to everyone,” said marketing manager of myDevices, Vu Nguyen. “Because it simplifies coding, anyone who doesn’t know how to code can get started with automation and IoT, which is huge.”

With Cayenne, you can store data collected by your hardware components and set up automation projects using that data to trigger other actions. You can also make custom dashboards to display your entire project with drag-and-drop widgets, and schedule events to occur on connected hardware and devices.

If you’re an advanced user, don’t think you’re missing out. According to Nguyen, you’ll soon have the option to code and customize the way you want. Product manager of myDevices, Benny Estes, said that over eighty thousand engineers and developers are already using Cayenne and that there are greater things to come. “One big upcoming feature is the ability to add any hardware using the API, which will make Cayenne even more powerful for advanced users and from there, make the platform take off,” Estes said. “With Arduino integration, we provide all the code, but those who want can use their own code and customize in the framework. The app is great for new users, but it’s also really useful to advanced users.”

So what kind of projects can you build with Cayenne? From dimming household lights from afar to creating a water system for your garden to automating your pool, it’s really up to your imagination. And if you think you’ve envisioned everything you could possibly create, odds are you haven’t.

Thanks to Cayenne’s huge following, the company’s online community is chock-full of ideas, and other members are always up for offering suggestions.

“We have a community of engaged, enthusiastic, committed users who help each other out,” said Estes. “The community has become an entity of its own, and people share advice and feature ideas there. It’s a community by users, for users, and their feedback drives the product development roadmap.”

When it comes to standing out and making a difference, myDevices aims to solve problems. What the company found is that most IoT platforms build a board and try to sell it based on its power, price, or ease of use. myDevices saw their niche by coming up with an easy way to build an IoT project—to solve a problem for a community that already existed.

“We’ve gotten a worldwide response,” said Nguyen. “From Asia to Europe to South America, people of any economic background can access Raspberry Pis, Arduinos, or other low-cost hardware, and they don’t need a fancy education to get into IoT—they can use Cayenne.”

With a tool such as Cayenne, the IoT industry and makers from all walks of life—from garage tinkerers to those in top engineering firms—can take the next step into the future of engineering and technology.
Recruiting the Future: GENERATION Z

By Mark Proctor, EU Automation

We’ve heard a lot about millennials: they are often portrayed as narcissistic and entitled, yet social media savvy, or at least that’s how the cliche goes. While many generalizations about this age group are meant in jest, the so-called Facebook generation does not have a great reputation amongst employers. Obsessed with millennials, many have failed to notice an entirely new generation joining the workforce: Generation Z. Here, Mark Proctor, managing director of EU Automation, discusses the challenges industry faces when attempting to recruit this new generational archetype.
Unlike their millennial predecessors, Generation Z is yet to tarnish its reputation. Born between 1994 and 2004, Generation Z is the most digitally connected generation to join the workforce yet. Whereas their older siblings were wowed by the introduction of the smartphone and the rise of Facebook, this new generation is more likely to consider social media old-fashioned.

Generation Z has engaged with technology—not exclusively social media—from a very young age. In the past decade, smart devices have transformed our homes and classrooms. Furthermore, computer science, with a focus on coding, has gained a place on the national curriculum.

Generation Z isn’t just accustomed to technology; it has never experienced a world without it. The question is, what will this influx of technically astute candidates mean for industry?

Generation Z’s coming-of-age opens the doors to an incredible talent pool for employers operating in the science, technology, engineering and mathematics (STEM) industries. Making the most of their technological skills, Generation Z engineers are likely to develop knowledge beyond traditional, hands-on engineering.

The next generation will be capable of engaging with highly complex software, cloud-based applications and smart equipment, without feeling out of their depth. For STEM organizations, the impending arrival of these candidates may sound like a dream come true, but recruiting them looks to be no easy feat.

Despite growing competition on the jobs market, younger generations are increasingly particular when choosing their workplace, prioritizing company culture and employee benefits over impressive starting salaries or sophisticated job titles.

In contrast to the long-term career habits of older generations, Generation Z is said to believe three years is an appropriate amount of time to spend at their first job—a worrying statistic for companies hoping to nurture and cultivate fresh talent. To counteract these concerning figures, businesses in the engineering sector must understand the distinct requirements of Generation Z candidates.

Generation Z will form the next legion of civil, mechanical and electrical engineers, building smart infrastructures, manufacturing life-changing creations and embarking on new developments in the realms of robotics and artificial intelligence. They may already be accustomed to technology, but collaboration with a forward-thinking employer could truly unlock their potential.
Security is consistently a top concern when it comes to computers and mobile devices. Modern cyber criminals move at lightning speed, their ability to access private information increasing at the same rate as security features. Because of this, companies and individuals are constantly working to increase authentication and authorization into a variety of systems. BluStor has presented a solution to security concerns with the CyberGate card, intended to replace the myriad of passwords most people have, giving the consumer both security and convenience. The card works in tandem with BluStor’s propriety security applications and utilizes biometric authentication. EEWeb recently spoke with Mark Bennett to discuss the details of both BluStor and its technological advance with the CyberGate Personal Mobile Cloud.
Tell us a bit about Blustor. How did you get started?

Our founder, Finis Conner, has always had a keen eye for predicting the intersection of technology and market need. He did it in the early disk drive industry when he developed storage solutions that made mobile computing possible, and now he’s turned his eye to digital security and identity protection. For several years, we’ve been looking at the astonishing growth of mobile computing and the obvious lack of security. Just within the last couple of years, the technology has finally matured to the point where we can deliver an unobtrusive and easy-to-use digital security solution that fits into your wallet or purse.

Everything of importance is stored on the card, including all of your secured data and biometric identity information.

If the card itself is broken or stolen, is there any sort of backup location for the data?

For users who are using the CyberGate card as their primary copy of very sensitive data, we will provide a mechanism to back up their data. The data will be encrypted using their biometrics as the key. They can then choose where and how to store those backups based on their security requirements. Blustor never has possession and never stores any of the user’s data.

What is the practical range of the wireless interfaces?

Because the CyberGate card is a security device, we have deliberately limited the useful range of the Bluetooth interface to approximately 5-10 meters. The exact range is dependent on the user’s environment, where the card is stored (e.g., on a lanyard or in their wallet), and other physical factors.

How does the battery charge?

The battery is recharged using a provided cable that magnetically attaches to the back of the card and can be plugged into any standard USB port. The card reaches a full charge in about 45 minutes to an hour and provides many days of use before needing to be recharged.

Are the applications, AutoLogN and File Vault free with the card?

Yes. The CyberGate card comes with the GateKeeper application, AutoLogN, and...
FileVault features. GateKeeper acts as the “bouncer at the door”, leveraging the user’s mobile device to capture their biometrics and then transmitting that data to the CyberGate card over a secure Bluetooth connection. Once authenticated, the user can take advantage of the AutoLogN feature, which automatically logs them into their desktop or laptop computer without the need to enter a username or password or even touch the keyboard. Similarly, once authenticated, the user can also access the secure data storage on the card to store or retrieve sensitive documents, photos, etc. Over time, we expect to see many additional features and applications added to the CyberGate platform, which is effectively a fully functioning high-performance computer squeezed into the form factor of a smart card.

What type of encryption is used for data stored on the card?

The CyberGate card includes a built-in hardware encryption engine that supports a variety of encryption algorithms, including the commonly used AES 256-bit encryption. Depending on the various local laws and regulations dealing with encryption, the hardware is capable of supporting a multitude of algorithms making it suitable for use around the world.

Is there CyberGate-specific encryption utilized for wireless transfers or do you rely on standard encryption schemes for each protocol?

The early prototypes of the CyberGate card use industry-standard encryption mechanisms for wireless communications over Bluetooth. We will be adding layered encryption on top of the existing mechanisms to increase the level of security for those customers who require even higher levels of protection.

Do you plan on opening up to Mac operating systems? If so, when?

Yes. We will be adding full support for Mac OS X and iOS over the coming months in a phased approach, starting with AutoLogN, which is scheduled to be released before the end of 2016.

What hardware are you using in the card?

We use a widely supported 32-bit ARM microprocessor manufactured by STMicroelectronics. This provides developers with an enormous range of tools, libraries, and a large community of experts that are more than happy to answer questions. Ultimately, the CyberGate platform is intended to be an open solution that allows developers to build and distribute their own applications leveraging our technology. When you get down to the nuts and bolts, the CyberGate card is a high-performance credit-card sized computer and the sky is the limit when it comes to the imagination.

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