Disrupting the coffee ecosystem with IoT Innovation

Coffee is a cherished daily ritual for many of us and a powerful economic force. Unfortunately, the journey from farm–to–mug can be long and arduous with income disparity along the way. Bonaverde and Gemalto are leveraging the power of the IoT to transform the way one of the world’s favorite beans is traded, brewed, perceived and enjoyed.
Coffee is a powerful economic force and the second most valuable traded commodity in the world, topped only by petroleum. Every pot represents a long journey comprised of farmers, processors, roasters, shippers, traders, retailers and more. Traditionally, coffee beans touch about 14 different intermediaries before reaching the consumer in a value chain laden with inefficiencies and income disparity. Small profits are carved away at each transaction point: 10-15 percent goes to farmers, 55 percent to roasters and shippers, and 25 percent to retailers. Thankfully, a Berlin-based tech start-up, Bonaverde, is disrupting the supply chain and altering the way coffee is traded, brewed, perceived and enjoyed.

The Bonaverde coffee revolution

Bonaverde is transforming coffee from a commodity into a direct consumable by leveraging the Internet of Things (IoT) and the Bonaverde “Coffee Cloud.” The company’s revolutionary business model connects coffee drinkers directly with farmers, reducing the six-month time to market for fresh beans.

Bonaverde teamed up with digital security leader Gemalto to unleash the power of the IoT and shorten the farm-to-mug journey. Gemalto enables IoT connectivity for the centerpiece of the operation - the Bonaverde Roast-Grind-Brew Coffee Machine. This groundbreaking smart coffee maker allows consumers to easily order and roast their own green coffee beans, freeing them from dependence on the current coffee supply chain. Like inviting a barista into your kitchen, the connected device leverages data from the Coffee Cloud for a perfectly roasted, ground and brewed cup of coffee. The Coffee Cloud consolidates and analyzes data from across the entire Bonaverde ecosystem for the world’s freshest and fairest coffee.

So, how does it all work?

The coffee machine meets the IoT cloud

It starts with the Bonaverde Coffee Machine. Customers purchase a machine and download a free app to connect to the “Coffee Cloud” marketplace. Using a smartphone or mobile device, they can explore growing regions, learn about different taste profiles, order beans, virtually visit farms and even chat with farmers. They can also use it as a social media channel to connect with other “coffee changers” in the Bonaverde community, sharing favorite blends and a passion for farm-to-mug goodness.

Customers use the app to order directly from farmers who, with the help of a regional packaging and distribution partner, manage their own made-to-order coffee distribution. Beans are cleaned, coded and shipped in RFID-embedded packages encoded with the ideal roast, grind and brew instructions and a unique serial number on each coffee filter. The packaging data is shared with the Coffee Cloud where it is securely stored until the brewing process begins. The Coffee Cloud tracks coffee consumption and manages ordering, billing and payment information for all stakeholders.

The personalized pot

Each Bonaverde Coffee Machine is equipped with a Java™ embedded wireless module, the Gemalto Cinterion® EHS6, which enables 24-7 cellular connectivity plus processing power. The machine thus benefits from one single 3G modem that connects worldwide and offers plug-and-play activation in Gemalto’s IoT device-to-cloud platform. The secure module is engineered to ensure reliability in extreme temperatures and humidity and it receives data from all points in the distribution channel: sensors in the coffee machine, the customer app, the coffee packaging, and more. This data is sent to the Coffee Cloud where it can be analyzed and combined with contextual data to determine how best to serve customers.

1 http://www.globalexchange.org/fairtrade/coffee/tip
When the customer loads coffee beans in the machine, the RFID chip and Coffee Cloud tell the machine exactly how to treat the beans for the most delicious brew. Consumers can use their smartphone to customize their cup and adjust the roast-grind-brew settings to suit their tastes. They can also use it to remotely control the coffee maker and even sync it with their smartphone’s alarm clock so coffee is ready upon waking. The Coffee Cloud can also provide access to rich media content about the roast they are about to enjoy. Similarly, coffee farmers can see their customers on a live map, and visualize where the fruits of their labor are being enjoyed throughout the world.

Behind the scenes, the Gemalto IoT device-to-cloud platform hosts the Coffee Cloud, managing IoT technology complexity with ease while removing the burden from Bonaverde. The platform ensures seamless data communication between all ecosystem stakeholders as it monitors coffee inventory or consumption frequency and suggests timing for reorders. It can even recommend local restaurants that serve a customer’s favored beans. This strengthens brand loyalty and provides Bonaverde with greater visibility of coffee lovers’ needs to ensure the best possible experience. In addition, the platform enables a flexible “pay as you grow” business model that allows Bonaverde to continue developing and evolving the ecosystem without worrying about platform scalability as the company expands. Gemalto is also consulting with Bonaverde on digital security architecture to protect the ecosystem for the long lifetime of devices.

“With decades of experience in IoT and digital security, Gemalto was the ideal partner to complement Bonaverde’s ambitious start-up vision,” said Hans Stier, Founder and CEO at Bonaverde. “Gemalto’s expert consulting helped us from the very beginning. First, they carefully studied our specific challenges and then offered a complete technology solution for connecting our coffee machines and implementing an intelligent cloud solution that can adapt and scale easily, as the ecosystem expands.”

Your coffee klatch just got bigger
Bonaverde isn’t just about brewing great coffee. It’s also about building a community. A Bonaverde customer isn’t just someone who uses the machine – it’s everyone who loves coffee. Anyone can use the Bonaverde app to locate the nearest commercial machine or enthusiast willing to host a coffee break. The result is a network of conscious coffee drinkers, working together to shake up the coffee industry.

Ensuring coffee quality and equality
The possibilities for the Bonaverde system are very exciting. Thousands of farmers, distributors and consumers have already signed up. In just six months, the company has garnered a dedicated and involved customer base of more than 10,000 coffee lovers. With a goal of increasing income equality across the ecosystem, early results indicate that participating farmers have doubled their proceeds to 30 percent of total ecosystem profits. Bonaverde’s direct-trade marketplace leverages the IoT and innovative technology to provide independence and transparency in the coffee ecosystem.
About Gemalto

Gemalto (Euronext NL0000400653 GTO) is the global leader in digital security, with 2016 annual revenues of €3.1 billion and customers in over 180 countries. We bring trust to an increasingly connected world.

Our technologies and services enable businesses and governments to authenticate identities and protect data so they stay safe and enable services in personal devices, connected objects, the cloud and in between.

Gemalto’s solutions are at the heart of modern life, from payment to enterprise security and the internet of things. We authenticate people, transactions and objects, encrypt data and create value for software – enabling our clients to deliver secure digital services for billions of individuals and things.

Our 15,000+ employees operate out of 112 offices, 43 personalization and data centers, and 30 research and software development centers located in 48 countries.

For more information visit [www.gemalto.com](http://www.gemalto.com), or follow @gemalto on Twitter.