

Introducing the Intel Smart 'Tiny House': Exploring Smart Home Technology in 210 Square Feet

Nov. 2, 2015 — Intel recognizes there is a gap between today's connected home and the “promise” of the smart home that people desire, as revealed in the findings of the new [Intel Architecting the Future of the Smart Home 2025 survey](#). To explore the possibilities that the Internet of Things holds for our lives at home, Intel built a tiny, connected home with the intention of creating a “living lab” to highlight what is possible today, and also explore the foundational capabilities required to take the home from “connected” to truly “smart.” The home is an experimental showcase that will evolve over the next 12 to 18 months as Intel explores the opportunities, experiences and tensions of creating a smart home.

It's a Journey, Not a Destination

Thanks to the Internet of Things (IoT), our homes and the world at large are becoming a collective intelligence of enormous capability and increased complexity. To advance, the industry must work together to future-proof the infrastructure supporting the smart home. For example, the underlying connectivity must be present before the consumer can truly receive the benefits of the smart home. It would be impossible to add furniture to a house before there was a foundation and walls; the same is true of the smart home. Before smart homes are widely adopted, connectivity has to be made simple, industry standards adopted, security ensured across the physical and digital worlds, and data between devices and between neighborhoods must lead to insightful actions.

Intel is committed to working across the expanding ecosystem to aid the transition from a series of connected point devices to a fully integrated smart home. Beyond the home, Intel envisions a smart world where people's homes talk effortlessly to smart cars, and their neighborhoods communicate with a whole smart city network. Intel is uniquely positioned to connect these dots, as it is able to see from “things” out to the cloud, providing hardware, software and powerful data connectivity.

Intel's Internet of Things Outlook for the Home

Intel creates the processors and other computing technology that serve as the brain powering a myriad of devices. Increasingly, as the home moves from connected to smart, this technology will enable a new breed of consumer electronic devices – everyday things such as lightbulbs, thermostats, smoke detectors, electrical outlets and cameras – to become connected and smart. These tiny brains inside “things” throughout the home will compute and produce data at the device level for real-time intelligence. Intel-based gateways connect the home's smart devices, providing advanced analytics and storage, allowing the home, people and devices to work together in an intuitive, intelligent fashion. Cloud connectivity, advanced device management and built-in security will connect consumers to a variety of new services, features and cost savings.

Intel's current smart tiny home is not designed as a utopian showcase; it is a living, breathing expression of the challenges and opportunities facing the industry. In order to address the current industry issues, Intel has developed the Intel® Smart Home Development Acceleration Platform to connect “things” in the home. It was created to overcome immediate operability issues that arise between connected devices, technology platforms and third-party service providers. The kit, optimized for Intel® processors, supports and manages development environments for a range of capabilities and compute needs –

from basic hubs to connecting devices securely to advanced home controllers that provide audio, video and voice analytics – helping developers build and deploy new apps while ensuring compatibility across OS updates. The platform allows OEMs to focus on larger product goals and deployment strategies and build with a common platform in mind. The Development Acceleration Platform will be showcased in the home and will be available in Q1 2016.

What's Inside the Intel Smart Tiny Home Today?

The Intel smart tiny home will continue to evolve as the company works with developers and the ecosystem, empowering them with the Intel Smart Home Development Acceleration Platform software development kit, to test and unveil new uses and experiences.

The intention is for the Intel smart tiny home to go beyond the four walls of the home to incorporate all of your smart and connected devices, such as new smart watches and bracelets from [Fossil*](#), the [Basis Peak Titanium*](#) and [Recon Instruments Goggles*](#), as well as the sleekest compute devices, such as the [Lenovo Horizon 2* All-in-One PC](#), that are incorporated into the tiny home.

Harmonious Connectivity

While today's connected home devices provide exciting features and conveniences, the experience of using multiple apps and interfaces to control your devices is confusing and disjointed.

Use case: Intel's vision is to make the home of the future connected and smart via a single app interface that enables homeowners to control all the home's devices in one place across a variety of device and sensor manufacturers. From smart lights and outlets to automated door locks, a camera doorbell and motion sensors to smart thermostats and water sensors, coupled with automation profiles for waking up, going to bed and leaving the house, the Intel smart tiny home will demonstrate a seamless experience.

Utilizing open standards, such as the [Open Interconnect Consortium](#), Intel has enabled interoperability between three distinct lighting solutions: Philips Hue*, Cree* and Osram*. Despite each light's propriety connectivity protocols, the app can recognize each light and allows them to work together, thanks to the established interoperability.

Problem-solving: Through testing technologies in the home, Intel found that everything could go awry when using the wrong firmware, demonstrating the need to seamlessly manage devices within the house and eliminate the need for manual firmware updates.

Home Away from Home

Security is a primary homeowner concern, and the smart tiny home features technologies that allow for peace of mind, whether homeowners are just around the corner or thousands of miles away.

Use case: Remote locking and the ability to remotely control and monitor devices, such as lights and motion sensors, provides users the security they crave. [True Key™](#) by Intel Security facial recognition technology provides convenient, hands-free security when you arrive home; allows access to trusted friends and neighbors when you're not home; and alerts you of suspicious activity when you may not be looking. The home goes into away mode, turning off lights and locking the door, when no occupant presence is detected. The home automation is also capable of detecting when glass breaks or a smoke alarm is triggered, and could even be programmed to alert to the sound of a crying baby.

Problem-solving: Intel's ongoing innovation in facial recognition products, including [Intel® RealSense™](#) and True Key, will continue to garner improvements in speed. Already, Intel has decreased the time required by the recognition algorithm from 15 seconds to about three seconds and is working to make the recognition and response time just milliseconds. For homeowners, this means increased convenience, reliability and faster response times for securing the home.

Protection Against the Unknown

Unpredictable snafus are a homeowner's nightmare. With smart home technology, users are alerted immediately of home damages and offered actionable responses to avert a costly or inconvenient crisis.

Use case: The smart tiny home can detect water leaks using an off-the-shelf moisture sensor, notifying users via their mobile app. Without being prompted, the smart home digital assistant provides a list of recommended plumbers for the homeowner. Upon arrival, the smart home confirms the plumber's identity, grants them access, and secures the home when they leave. "Things" to cloud applications like this one will enable a new services marketplace – a "plumber in the cloud" – and will help homeowners effortlessly manage their home remotely and act on data feedback immediately.

Problem-solving: Using pattern recognition algorithms and Intel's API management solution, the Intel Smart Home Development Acceleration Platform provides a "things" to cloud solution that recognizes a problem, anticipates a need and provides a solution to the homeowner.

For more information, visit <http://www.intel.com/newsroom/iot>.

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