HOME
Smart Home

Life under control

TREASURE OF THE SIERRA MADRE

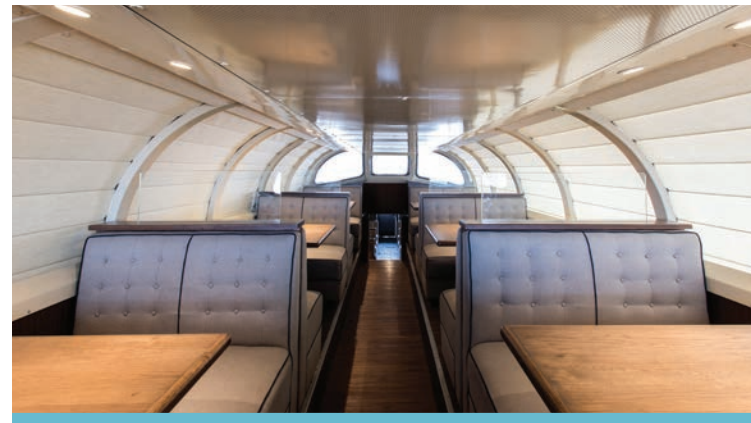A train with a brain—one of the world's most spectacular locomotives.

A VILLA WITH VANISHING TECHNOLOGY

Sitting poolside in Portugal with powerful automation.

ELEGANCE AND INTELLIGENCE

A hundred-year-old home fit to throw a party that most Chicago socialites would be envious of.

contents

editor's note

In the earliest part of my life, my father was entrenched in the world of real estate and property flipping. I'd spend countless summer days with him while he transformed battered dwellings into charming abodes. I even broke my leg at one of "our" job sites when I attempted to move five pieces of sheetrock and failed miserably. But I was a dedicated neophyte nonetheless.

Due to his life of relentless movement, it was necessary for him to stay connected to clients, contractors, and well, mom. Therefore, he was an early adopter of one of the world's first cell phones (though you'd never know it considering he just conquered the 💩 emoji). I still remember that grey brick-like hunk of hefty plastic resting on the dash of his old red Ford Ranger pickup. Its weight was comparable to an average-sized toddler and it boasted an antenna that could double as a fencing sabre. But still, I was in awe of that piece of technology; that he could simply pick it up, punch in a series of numbers, and be instantly connected to someone on the other side from wherever we were at that exact moment.

Fast-forward 30+ years and that same piece of technology that was once a rarity is now a fraction of the size and weight, and you'd be hard-pressed to find anyone who doesn't own one.

In the pages ahead, we'll not only break down the evolution of the cell phone since the introduction of the Motorola DynaTAC, we'll also showcase instances where technology in general has evolved so significantly, that it has allowed the most interesting of worlds to collide. From a wine brand that has tapped into augmented reality, to a major locomotive that is automated to the hilt, I invite you to jump aboard and join me for an issue that's straight off the rails.

New &
Noteworthy

SEEING IS BELIEVING

Can you imagine if your house was a carbon copy of the one next door? Being forced into the same Corian countertop as the Thompsons? The same paint palette as Fred on the corner? Pre-specified tile flooring neighborhood-wide? Of course you can't. That's why design centers exist. You want to see, touch, and compare the different components that will soon make your new house *home*. Smart home technology is no different. In fact, it should be viewed through the same lens. When you visit a Control4 Certified Showroom, you'll touch a button that turns your morning from miserable to magical, transforms the kitchen from chaotic to convenient, and the living room from boring to brilliant. And the best part of it all, it's all customized to your liking. Isn't it time to #C4Yourself?

control4.com/dealer_locator

HERE. THERE. INTERCOM, EVERYWHERE!

It's like Facetiming with your house. From anywhere in the world, receive calls from your porch, the gate, or from anywhere inside of the house. Your doorstation will ring you when a service worker has arrived, and you can give instant access to the house from the same convenient app. Alternatively, use your smartphone to call any touch screen in the house, so you can see how the kids are doing with the new caretaker. Peace of mind is now always in the palm of your hand.

control4.com/o/intercom-anywhere

SMILE! YOU'RE ON CAMERA.

The Control4 family of Pakedge cameras continues to grow, and this time we've upgraded to 4mp. These new high-definition video surveillance cameras integrate seamlessly with many smart home systems, are compatible with NVR to allow playback of recorded events and feature great visual quality—day or night.

control4.com/solutions/peace-of-mind

ALEXA, TURN ON MY HOME

WE'VE ALL BEEN THERE...

You're walking through the door into a dark house, arms full. Wouldn't it be nice to ask your house to offer a helping hand? Now you can. A simple voice command—such as "Alexa, turn on Welcome"—lights up the hallway and kitchen and starts your favorite Spotify playlist while the door locks itself behind you. With just a few words, raise the shades while getting ready for work or adjust the temperature from bed. Verbally set a "Dinner" scene that dims the chandelier and turns on your favorite playlist. Or create a "Bedtime" scene that turns off the lights, locks the doors, and arms the alarm.

This is Control4 home automation with Amazon Alexa.

CONTROL4.COM

Control4

The "INTELLIGENT" Home Investment

MOST MILLENNIAL BUYERS WILL PAY MORE FOR A HOUSE IF THEY CAN INTEGRATE THEIR CURRENT SMART TECHNOLOGY WITH THEIR NEW HOME.

When it comes to boosting resale value, not every smart-home device is created equal.

Kelsey Down

It's likely no surprise that most millennials believe technology enhances daily life[1]. You may be more surprised, however, to hear that millennials and Gen Ys have grown into the largest group of homebuyers[2] in the United States.

The dominance of these rising generations in the housing market is reflected in a recently heightened demand for smart homes. According to the National Association of Realtors (NAR), 42% of real estate professionals note that their clients have expressed interest in smart-home devices[3]. This interest is only bound to increase as smart technology becomes more universal among consumers.

If you are looking to sell your home in 2018, or in the coming years, you should consider investing in at least a few smart-home features to entice prospective buyers. But it's not as simple as buying up every flashy new gadget imaginable; you should aim to recoup any dollar you spend on smart technology when you sell your house.

These guidelines will help you choose devices that actually appeal to buyers and could potentially increase your home's value.

Prioritize security and privacy over comfort

That same NAR survey found that homebuyers value security functions above all else when it comes to smart-home technology. Other top concerns include privacy, cost savings, and energy savings. Though important to many, only 38% of homebuyers ranked comfort as an essential function of smart-home devices.

Take your cues from these statistics and prioritize your purchases based on what homebuyers want to see. Invest first in products that protect a family's safety. That can include more obvious solutions, such as security systems with smart locks, as well as other types of devices that protect against more subtle dangers. For instance, carbon monoxide detectors keep homeowners safe by preventing environmental poisoning.

Once you've installed smart security devices, you can decide whether you want to invest in other products, as well. Smart thermostats that help homeowners save money and energy might also be a worthwhile investment.

Prioritize interoperability and ease of use

More and more consumers are buying their own smart-home products every day. For example, 39 million Americans own a smart speaker[4]. As that number rises, it will be increasingly important to install devices that are compatible with other products. Potential buyers will be less inclined to pay more if they cannot integrate their current smart technology with their new home.

You may also encounter some buyers who are not yet comfortable operating smart-home devices. To avoid putting off these less tech-savvy buyers, you should opt for intuitive products that come with a more shallow learning curve, and little need for user interference after installation. You can even choose a professionally installed system, accompanied by trained specialist support, to ensure that your home's future owners never have to struggle to control their smart technology.

The guiding rule to follow is to put yourself in the shoes of potential homebuyers, rather than thinking primarily about your own desires or needs. If you install smart-home devices that appeal to universal concerns like security, ease of use, and integration, you will be much more likely to see an increase in your home's value. ∎

statistics

1 **Ad Week: Survey:** 90% of Millennials Believe Technology Creates More Opportunity.

2 **National Association of Realtors:** Home Buyer and Seller Generational Trends Report 2017

3 **National Association of Realtors:** Smart Homes & Realtors 2016 Report

4 **TechCrunch:** 39 million Americans now own a smart speaker

Opinion: The DIY Delusion of Home Automation

Guidance from a Geek who Prefers to Go-It-Alone

Ted Haeger

When I bought my modest 2,300-square-foot suburban home, I was pretty keen on the idea that I would automate it myself. Seriously, how hard could it be? Or, so I thought.

The typical person who gets the itch to automate their own home is a lot like me: technical and self-reliant. And possibly a little cheap.

I'm a technical guy. I've worked in software for several years, and I can get around most basic scripting or programming challenges. I used to build my own computers and perform hardware upgrades. I get into a lot of emerging tech trends; currently it's electric vehicles and Internet of Things gadgets. So smart-home technology tickles my techie tendencies.

I'm also handy. I do a lot of my home's upkeep and upgrade needs. I can replace a light switch, install a hardwood floor, replace a sconce or appliance, and patch a wall and then paint it. I call an electrician only when a job gets into really high voltage and amperage.

I'm something of a spendthrift. I don't enjoy paying someone else to do something that I could do as well myself. In fact, I resent it...an attribute that sometimes tries my lovely wife's patience.

If any of these qualities—technical, handy and thrifty—describe you, then you might be inclined to try automating your own home, just as I was. But before you dive into your own do-it-yourself debacle, allow me to share a few of my hard-earned discoveries from my own attempt.

Although it's not a complete list of how DIY goes wrong, here are three of the common pitfalls that often foil a would-be smart home when done by a DIY enthusiast.

THE PITFALLS OF DIY

The inscrutable interface

One of the most recognizable aspects of a DIY "smart home" is that the only person who understands how to use it is the person who implemented it. We all have that gadget that presents a confusing array of cryptic buttons or a software application with an unfathomable user interface. Sure, it makes sense to the engineers who designed it. But for the average user, it's just frustrating.

An automated home is much more complex than a single device or app. It integrates multiple devices and orchestrates them to work together. It takes the pile of entertainment remote controls and consolidates them into one, and then extends that control to lights, climate control, shades, door locks, the hot tub, the garage door, and…well, you get the idea. A smart home is one of the most complex systems there are. Making it simple to use is a complex task. The DIY hobbyist

A SMART HOME IS NOT AN ARCHIPELAGO OF SMART DEVICES.

typically ends up with an array of light switch buttons, entertainment system controls, and other interfaces that confound anyone but him or herself. For a spouse or family, this experience can cause, shall we say, "domestic friction." And when you demo all the "conveniences" you implemented to guests, it leaves them less than impressed.

The work of professional installers gets you an entirely different experience. They aren't mere techies. They're user-interface designers. They understand that technology is simply the means to automate a home. They apply their technical acumen, experience, and education to create a smart home that actually feels smart and leaves the homeowner with a system so simple and sensible that anyone can use it.

The dis-integrated home

Directly related to the "inscrutable interface" problem is the tendency for few DIY automators to ever bring their various smart devices together to create a single integrated system. Just getting the shades or lights automated feels like a major accomplishment. My house is now automated! But the novelty of "there's an app for that" wears out quickly when you have to launch a separate tool for each different subsystem of the home. The result is an experience that is disjointed for the owners and inaccessible to visitors.

To make this clear, let's take another example. A Nest thermostat is, at first, fantastic. A Ring doorbell, convenient. A Sonos whole-home audio system, grand. Likewise, a network security camera or a Philips Hue smart light bulb. But each uses a separate mobile app. There's no integration point between them.

Now apply that to the dream of a "smart home" as expressed by an evening at home. You come home to relax, pour a glass of wine, and read for a bit. Dimmed lights set the mood. The room warms or cools to your comfort. Your favorite music cues in the downstairs. And when someone comes to the door and rings the bell, the music pauses, the front porch light turns on, and your smartphone shows you who's there.

A smart home makes all that possible with the press of a single button, maybe on a keypad on the wall, or from a single app in your hand. But with the usual smart devices that the typical DIY enthusiast installs, the setup requires a couple minutes of juggling between different apps to get everything set just right for relaxing. And then it's another multi-app scramble when the doorbell rings.

My point here is that a smart home is not an archipelago of smart devices. That experience is frustrating even for the person who knows all the different apps. It's impossible for the person who doesn't. That's why professionals use advanced home automation systems. By having an intelligence layer that connects a home's various subsystems, the pro installer can orchestrate them to the homeowner's lifestyle. The result is a qualitative difference that is immediately apparent. No more jaunty-jumping between disjointed interfaces. Things just work.

The tyranny of expediency

Another common DIY mistake is corner cutting: time cuts, effort cuts, and cost cuts.

There is nothing wrong with the DIY homeowner seeking to save money by going DIY. Saving money is one of the major reasons we do things ourselves. And for most DIY projects, we can make up for inexperience through a wealth of online resources that demonstrate how to get the job done. Replacing a garbage disposal? You can find a hundred examples on YouTube. Fix an uneven subfloor? Flip through an inexpensive book from a home improvement superstore for several ways to approach it.

But automating a home is different from most home improvement projects. It requires vast amounts of domain-specific knowledge, from how to get the best 3D sound for an Atmos theater to determining the best wireless sensors for detecting if a window has been accessed or a door has been left ajar. Without a background in this domain, you can't assess the compromises you're making until late in the project. That's when the system won't work as you want, and you're stuck figuring out why not.

Here's what I call the "everything wireless" path to failure. The rationale goes like this: "In this modern age of WiFi, I can just connect everything wirelessly!"

And the current world of devices presents you with a picture that makes it look like you really can. Just about every other device you might want to connect in the home—wireless speakers in various bedrooms, the Apple TV and audio/video receiver in the theater, the video doorbell at the front door, and the security cameras from Best Buy—can all connect to a WiFi network.

So you think, "Cables? We don't need no stinking cables!"

It's cheaper. You don't need to buy Ethernet cables and switches.

THE NOVELTY OF "THERE'S AN APP FOR THAT" WEARS OUT QUICKLY WHEN YOU HAVE TO LAUNCH A SEPARATE TOOL FOR EACH DIFFERENT SUBSYSTEM OF THE HOME.

It's easier. You don't need to run Ethernet cables through walls to hide them.

It's faster. You probably already have the wireless router from your ISP set up and ready.

Sadly, you're betting on the wrong horse. The vendors who make these solutions seldom consider that you want all these solutions to work at the same time.

So, movie night on the DIY system goes like this…

Your spouse sits down to watch Netflix from the wirelessly connected smart TV. Your daughter starts a YouTube video on her tablet upstairs. Your son downloads a game to his laptop. The now-overloaded WiFi network chokes with demand and delivers nothing well.

A professional installer knows that the only devices that should use wireless are wireless-only devices. They specify a wired network for major bandwidth-consuming devices like an Apple TV, smart TV, or music streamer because they know that your smartphone or tablet have no choice but to use WiFi. Essentially, the professional installer clears the air for your best experience by designing a wired network tailored to connect any device that can use it.

Yes a wired network will cost more, for the equipment, labor to properly run cables, and the effort to design for performance. The payback is in reliability and responsiveness you'd expect from an automated home. Like that of a crystal-clear, unpixellated Netflix movie night.

Most DIY enthusiasts will tell you that a vitally important part of home improvement is doing it right the first time. But home automation does not lend itself to achieving that goal. Professional integrators have learned through apprenticeship, experience,

and, frankly, failing a lot along the way. It is nearly impossible for a DIY enthusiast to achieve that kind of background and expertise.

A failure of imagination

While we're on that idea of domain-specific knowledge, let's hit one other big way that DIY often comes up short: you don't know what you don't know. If you have never lived in a properly automated home, you probably lack adequate context to understand what you really want. This was certainly the case for me.

Prior to having my home automated, I had the idea that "smart lighting" meant lights I could turn on or off by a schedule, or from a mobile phone. But I still saw my home as the switch and dimmer circuits it came with: kitchen overhead lights, counter pendant lights, family room lights, etc.

I didn't have adequate context to understand that humans prefer lighting based on areas of use rather than circuits installed by an electrician. Most often when you go in the kitchen, you want the counter pendant lamps and the recessed ceiling lights to come on together. With a modern open floor plan, you may want the family room illuminated at the same time. Out of innocent naivety, the DIY enthusiast imagines that automation is the control of circuits. Consequently, they produce a quirky, gadgety interface: this button turns on this light, and that button turns on that light.

The professional thinks about setting "scenes." They know that a kitchen serves different functions at different times:

A "Cooking" button turns on all the right lights to a relatively bright level, so you can actually see what you're doing.

A "Cleaning" button turns them even brighter, so you can sterilize those nooks and crannies.

A "Homework" button dims most of the lights except where they're needed, keeping the youngsters focused.

An "Entertaining" button dims the lights down and plays the "Party" playlist overhead.

PRESCRIPTIONS FOR AN ASPIRING DIY-INCLINED HOMEOWNER

The pitfalls I described above are just some of the ways a home automation project can go wrong when done by DIY rather than DIFM (do-it-for-me).

As fellow tech enthusiasts, most professional installers love sharing what they do. It's their passion. Asking them to show you a project site or give you an idea of what you can do in your own home costs you nothing. One visit to a job site will open your eyes more than any further examples and admonishments I could lay out in written form. ∎

A SMART HOME MAKES ALL THAT POSSIBLE WITH THE PRESS OF A SINGLE BUTTON, MAYBE ON A WALL KEYPAD, OR FROM A SINGLE APP IN YOUR HAND.

PARTY ON

A Chicago socialite's spectacular 1917 row house has been transformed with the help of smart technology. But its contemporary elegance and sophistication retains echoes of its colorful celebrity history.

On a leafy avenue bordering Lincoln Park on the shores of Lake Michigan sits an elegant brick-and-limestone house which can be counted among Chicago's most historically significant residences. Modeled on the townhouses of Georgian London, 2704 North Lakeview Avenue is the star of a small row built more than 100 years ago by celebrated architect David Adler for his close friend, the wealthy socialite and artist Abram Poole Jr.

Poole mixed with the bohemian in-crowd of the day—writers, poets, actors, artists and intellectuals. His wife, Mercedes de Acosta, was renowned for her love affairs with some of early Hollywood's most famous leading ladies, including Isadora Duncan, Eva Le Gallienne, Greta Garbo, and Marlene Dietrich—many conducted during her 13-year marriage to Poole. (Poole was apparently comfortable with his wife's eclectic passions, but they eventually grew apart and divorced amicably in 1935.)

While we don't have the guest lists for Poole's parties, it's fairly certain that more than a few famous names have enjoyed the hospitality of this spectacular house and its famous, fun-loving residents. Despite its modest sidewalk footprint, the grand double front door with its neoclassical columns and fan-motif transom gives a strong hint of the splendor within. This becomes apparent as soon as you step into the marble-clad entrance hall.

A grand oval staircase winds over three floors as the house stretches back to reveal six bedrooms, four full and three half bathrooms, several living and dining rooms, two kitchens, a theater, gym, study, breakfast room, walk-in closet, laundry room, garage, and terrace. The pièce de résistance is the breathtaking central gallery. Natural light streams in through Adler's soaring frosted glass ceiling, illuminating the paneled walls where one of Poole's original paintings hangs above the gleaming-white molded fireplace.

High-spec black-and-white fittings and finishes exude an elegance and sophistication that is simultaneously contemporary and classic. And while retaining many original features, the

house now brims with state-of-the-art technology, including smart heating, lighting, security, and entertainment. In short, it is today what it was originally designed to be—Chicago's ultimate party house, worthy of any wealthy socialite looking to live in luxury and host the best bashes in the city.

Less than two years ago, it was a different story. The previous owners, Floyd Abramson and his late wife, psychologist and author Jane Beber Abramson, had bought the house in the late 1960s. They moved out in 1997 once their children had grown up, but Abramson put the house up for sale only in 2016. It was snapped up late that year for $1.8 million by Steve Bouwman, an enterprising Chicago real estate developer on the lookout for his firm ReduHome's next big project—one that has proved to be Steve's biggest and boldest renovation to date.

IT IS TODAY WHAT IT WAS ORIGINALLY DESIGNED TO BE—CHICAGO'S ULTIMATE PARTY HOUSE, WORTHY OF ANY WEALTHY SOCIALITE LOOKING TO LIVE IN LUXURY AND HOST THE BEST BASHES IN THE CITY.

Having stood unoccupied and untouched for more than 20 years, the house was looking decidedly dated. The décor, while not out of place for the home of a progressive 1960s psychologist, reportedly had disturbing echoes of Stanley Kubrick's "A Clockwork Orange," while the plumbing and electrical had not been touched for many decades. Yet, although the house was creepy and creaky in parts, it clearly had immense potential—an unrivalled location, architectural excellence, original features, and craftsman-like construction.
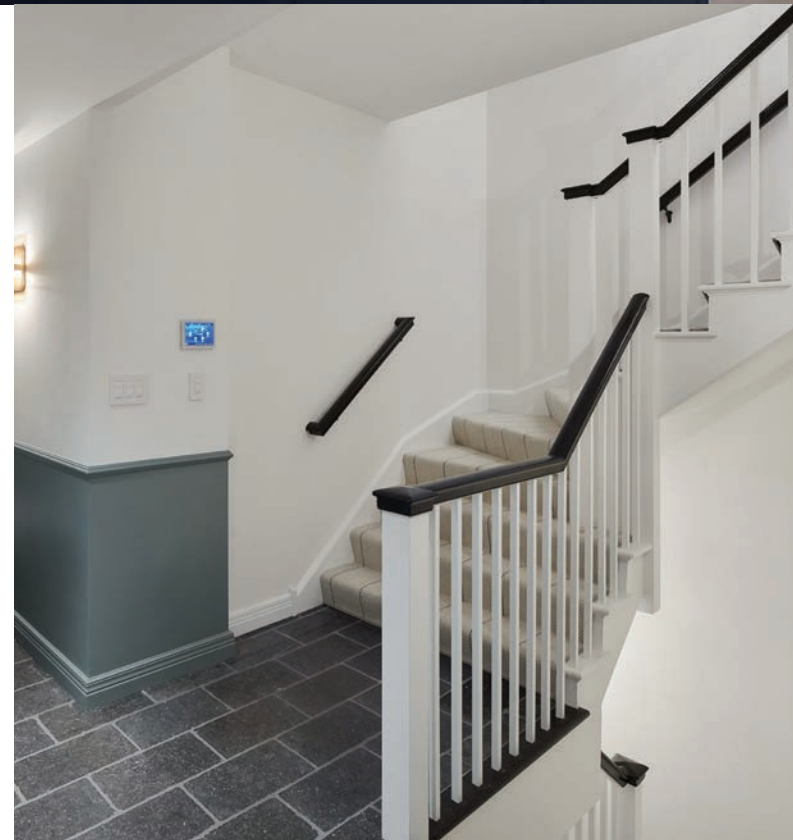
Steve diligently set about restoring it to its former glory. He knew he wanted the house to be fully automated, so he called Dan Ciupe of Control4 Dealer Residential Networks, his long-time, go-to guy for smart technology. Dan says: "We've been working with Steve for 15 years. Starting with small projects in the early days, every year he's been growing the size and scope of his developments, and this was his most ambitious yet."

But when he saw the extent of the work that was needed, Dan knew it was going to be an especially tough challenge. "All the plumbing, air conditioning, heating, and electrical needed to be re-done, and Steve wanted the whole place wired up for maximum automation. At the same time, he wanted to keep many of the original features, like the molded plasterwork, while making the technology as unobtrusive as possible," says Dan.

Because the house was constructed so solidly—brick, stone, and concrete with steel mesh supporting the plaster in the ceilings—wiring the place up was going to be extremely tricky. Fortunately, Dan, who is originally from Romania, had plenty of experience working on similarly solid, old houses in Europe, so he knew what was needed. "We couldn't touch certain walls or trims, so we had to channel the floors to get the ducting and wiring in. It was challenging, but we did it. We also had to break through

"We've installed invisible speakers behind the walls in both the main entrance hall and the gallery, so there's nothing unsightly to spoil the elegance of these showpiece rooms."

the concrete between floors, as well negotiate the metal mesh holding up the ceiling plaster," he says.

A little over a year later and the smart transformation was complete. ReduHome had completed the external and internal restoration and decoration—including extending the floor space from 9,000 to 10,000 square feet, installing high-spec character windows, new copper plumbing, and a mix of top-spec flooring with underfloor heating. At the same time, Dan's team ensured all the technology was installed in a way that it was either invisible or subtly integrated into the design. In fact, were it not for the odd screen on the wall and a few convenient but unobtrusive control panels, you could easily feel you were back in the last century. Spend any time in the house, however, and you'd soon be dispossessed of that delusion.

As far as smart automation goes, this place is truly state of the art.

Using either the wall-mounted touch screens, handheld remote controls, or an app on their smartphone or tablet, residents can use Control4 automation to schedule and manipulate everything from their audiovisual entertainment, to lighting scenes, heating and cooling, security cameras, and door locks—whether they're at home or away. "You can open the gates and doors remotely, for example, to let in a delivery driver if you're out, while monitoring them in real time from your phone via a smart camera," says Dan. And, of course, there's high-speed WiFi accessible throughout the house.

One particularly innovative feature is the stealth acoustics. "We've installed invisible speakers behind the walls in both the main entrance hall and the gallery, so there's nothing unsightly to spoil the elegance of these showpiece rooms," says Dan. But there are speakers and screens placed unobtrusively all over the house. "In total we have about 12 zones of audio set up, all of which can be automatically controlled. There are also a number of screens, including

a Samsung screen in the kitchen and Sony TV in the theater, where there's also a surround sound system. We've also pre-wired for surround sound in the master bedroom and one of the family rooms, in case a future owner wants to add even more smart capabilities," he adds.

Indeed, Dan points out that his team did a lot of prewiring to make it easy for people to add more screens, speakers, cameras, and other smart tech as required, or as new capabilities become available.

And that should mean this house will continue to swing with party-goers well into its second century. As to who'll be throwing those parties, we don't know—but any well-heeled socialites looking to settle in the Chicago area take note: at the time of writing, the house is back on the market for anyone who has the odd $6.5 million to spare. ∎

1   Recounted in Robert Schanke's book, "That Furious Lesbian – The Story of Mercedes De Acosta".

State Of The Smart

Savvy builders with high-tech minds

From first-time homes to multimillion-dollar semi-custom builds, MHI's adage is the same for all clients: "BUILT AROUND YOU." (And the technology is no exception.)

McGuyer Homebuilders, Inc. (MHI)
Gary Tesch, President

C4: What does the term "smart home" mean to you and your clients?

MHI: Well, every homebuyer will have a different definition. For us, it's providing a single-system solution that just works, rather than individual devices and apps. It's having the proper wiring put in place from the beginning. If a homebuyer wants their lights to come on at sunset and turn off at sunrise, they want to be sure the house is locked while they're away, or they want their TV, audio, or certain lighting to come on when they walk through the door, we want to ensure that all of this is going to happen for them. Every time.

C4: What does the process look like for a homebuyer?

MHI: They will be introduced to Control4 right within one of our model homes. That demonstration will help them to truly understand the experience brought to life by the technology. Then, as they visit the design center to select flooring, cabinets, countertops, and so on, there will also be a technology discussion with someone who can show them all the potential options available—from lighting to locks, thermostats to audio/video—so they can decide how they want to customize it in their own home, managed appropriately with their budget in mind.

"One of our objectives was not to sell devices, but instead offer experiences and solutions."

C4: Tell me a little bit about MHI. What's your mission? Your vision?

MHI: MHI has been in the business for 30 years, building under our signature brands, Plantation Homes, Coventry Homes, and Wilshire Homes, in all major markets in Texas—Houston, Dallas/Fort Worth, Austin, and San Antonio. Instead of "What You See Is What You Get," our motto (and tagline) is "Built Around You" because we're passionate about allowing our customers to customize their homes in the best way to suit their individual lifestyles.

C4: What was the deciding factor in adding smart technology into your projects?

MHI: Our buyers are demanding it. They are using it in all other facets of their life, so why not in their homes? So we decided it was time to come up with a solution. We found it valuable to offer a platform that would allow our buyers an easy way to customize the technology experience as they like it.

C4: Why is it an important offering for your business?

MHI: Everyone is talking about the smart home. It's coming. We wanted to get ahead of it to be an industry leader and really provide something that is reliable, expandable, and affordable. That's why we are excited about our partnership with Control4.

C4: So, why did you choose Control4?

MHI: Actually, we looked at about 15-20 other platforms. But Control4 has become more cost-effective for the everyday buyer and for a builder to include into an affordable package. And we just needed something reliable and simple to understand. Control4 was the only platform where everyone on our team said "Yes, that's the one we want to use."

"The advantage of future expandability is yet another reason we chose Control4 as the smart-home offering for our buyers."

Celebrating 30 years in Texas!

Over 100 locations throughout Austin, Dallas/Fort Worth, Houston and San Antonio

C4: What about when a homebuyer wants to add more to their smart home down the road?

MHI: The smart home professionals we work with want to be the homeowner's resource post-close to help them upgrade or add on to the technology in their homes when they are ready for it. But they also have the flexibility to use a different Control4 pro, should they choose to.

C4: What is the most rewarding part about what you do?

MHI: We are in business to help families achieve the American dream of home ownership, and that is pretty special. Speaking for all of us at MHI, if the thought of 1,700 new families each year celebrating the holidays together and making lifelong memories in their new MHI home doesn't choke you up inside, I don't know what else would. ∎

"We have a 98% customer satisfaction rating, so one of our goals for the technology is that it just works."

98% Customer Recommended ▪ Nationally Recognized Energy Program

Flexible Floor Plans ▪ 10 Year Structural Warranty

MHI
CELEBRATING
'88 **30** '18
YEARS

PLANTATION HOMES

COVENTRY HOMES

WILSHIRE HOMES®

MHI
McGUYER
HOMEBUILDERS, INC.

EQUAL HOUSING OPPORTUNITY

Built Around You

Envision the Future with
AUGMENTED REALITY

SURPRISING WAYS AR IS APPEARING IRL

Imagination paves the way to discovery. Augmented reality takes the world as we know it and adds a layer of computerized graphics over the top, allowing us to see new possibilities in our everyday environment. Advancements in this technology are driving fashion brands, educators, even wine companies to develop surprising applications for its striking sensory capabilities. Read on to find out why AR is the future of digital storytelling.

Crystal Watts

The pairing of wine making with cutting-edge technology seems at first to be a risky gamble. Luckily, Australian wine brand 19 Crimes has masterfully preserved the historical allure of wine when bringing it up to speed in the ultra-modern field of augmented reality. The brand was established in 2012 and holds its place as the first to introduce AR to the wine industry through a partnership with creative technology firm Tactic and marketing communications company J. Walter Thompson.

Both brand and app were developed and inspired by the nineteen petty crimes (some too outlandish to believe in modern times) that would condemn British criminals between 1783 and 1868 to a grueling journey aboard the convict ships heading to Australia's penal colonies. 19 Crimes pays homage to the lawless sentenced to banishment for such crimes as "bigamy," "stealing letters," and even "impersonating an Egyptian," stories that consumers can

learn about through the monologues hidden behind each label, unlocked via the Living Wine Labels app.

19 Crimes has always implemented quirky strategies to engage with consumers. One sales campaign attracted customers by printing one of each of the nineteen crimes on the corks of their bottles, enticing buyers to collect all crimes and enter a sweepstakes if they discover the 19th. In the fashion of well-aged wine, a little time has only matured 19 Crimes' creativity as they developed their app and the stories behind the labels—from three wines to all seven—with the Living Wines Label app, an updated and expanded version of the original 19 Crimes app, which hosts AR experiences for a range of wine labels.

The first female face amongst the seven bottles, and the only white wine, is Jane Castings—a woman who was exiled to Australia for receiving stolen goods of cheese and bacon after having trained a band of young boys to steal the goods. Tactic

developers for the app do a great job of giving a voice to Jane and capturing her somber demeanor as she admits to her thievery and sentence of seven years. Whether you are an avid reader on wine or just a casual drinker, 19 Crimes designs a new bonding experience integrating devices, history, wine, and the sharing of stories—and at an affordable bottle price, it would be quite easy to make their selection a staple in any liquor cabinet.

19 Crimes is not the only brand that showcases Tactic's artful ability in exploring the identity and history of a brand through augmented reality. Tactic developed an AR app for Jose Cuervo tequila that displays a real-time journey through the history behind the brand through game engines that appear on the camera screen of your device. All one must do is place the sensor over the tequila bottle to unleash a delightfully animated Cuervo world.

Tactic's affinity for apps and liquid is not limited to alcohol—they have also developed a virtual reality

19 CRIMES DESIGNS A NEW BONDING EXPERIENCE INTEGRATING DEVICES, HISTORY, WINE, AND THE SHARING OF STORIES.

VIRTUAL REALITY (VR):
Replaces the real world with
a virtual world which one
can enter and interact with.

AUGMENTED REALITY (AR):
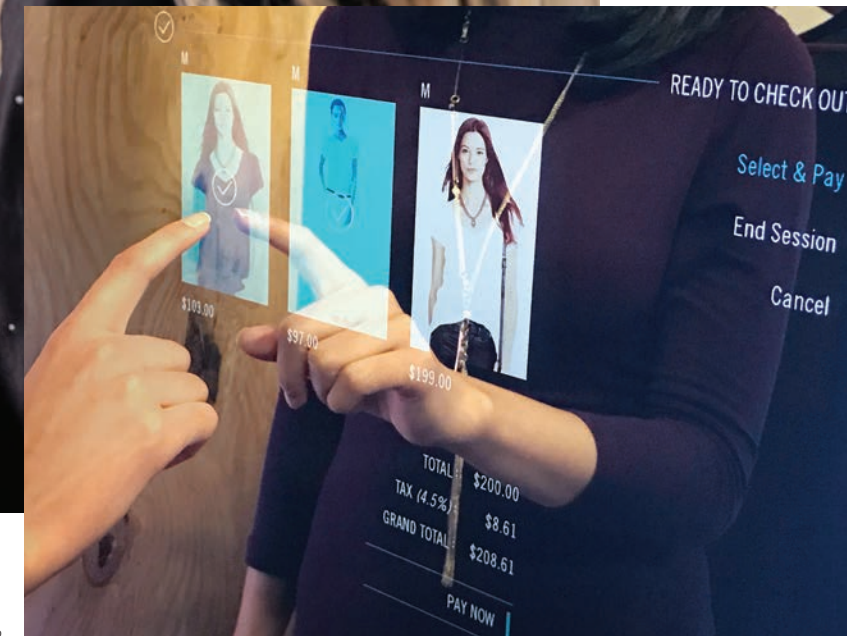Uses the real world and
incorporates virtual content
to enhance it.

campaign, in partnership with the nonprofit Water is Life, called Hidden Dangers. This VR experience is used as an educational tool to teach rural children in Thailand about the dangers of their polluted drinking water and to provide instructions on properly purifying home water supplies. The project was originally conceived by Deutsch in NY and a production partnership with m ss ng p eces in Brooklyn. Upon the release of the campaign, a tutorial was held for a group of children in Thailand and provided them with water filters and instructions on how to properly use them. The VR experience is downloadable through the Oculus Rift store, making it appealing to gamers and children, as there are few more effective learning devices than a game simulation.

For those who are unfamiliar with the differences between augmented reality and virtual reality, here is a little guide: Whereas VR replaces the real world with a virtual world which one can enter and interact with, AR uses the real world and incorporates virtual content to enhance it. Tactic's creative handling of VR and AR span the gamut—from gaming as a tool to educate, to interactive displays that share stories and history, widening our scope for how both technologies enhance our experience in the world.

Beyond headsets, we enlarge the display on how many other industries are using innovative tech to improve the consumer experience. Creating technology for retailers and understanding the digital as being a vital component of shopping nowadays, Oaklabs Inc. has developed fitting-room smart mirrors that allow shoppers who are trying on clothes to adjust lighting and the language display, search for sizes/colors of clothes, alert shopping attendants as to which items they are interested in trying, and provide recommendations for the items

they have chosen (think Cher's closet from Clueless). Using radio-frequency identification (RFID) tags, the mirror can detect which items are in your hand when in front of the mirror. Oaklabs-enabled fitting rooms are closer to artificial intelligence as they behave more as personal virtual stylists—doing everything from manipulating lighting to texting you a summary of all the clothes you tried on.

Dubai tech company SenseMi goes beyond the realm of retail, bringing this technology out of the shops and into our personal dressing rooms. These intelligent mirrors are not
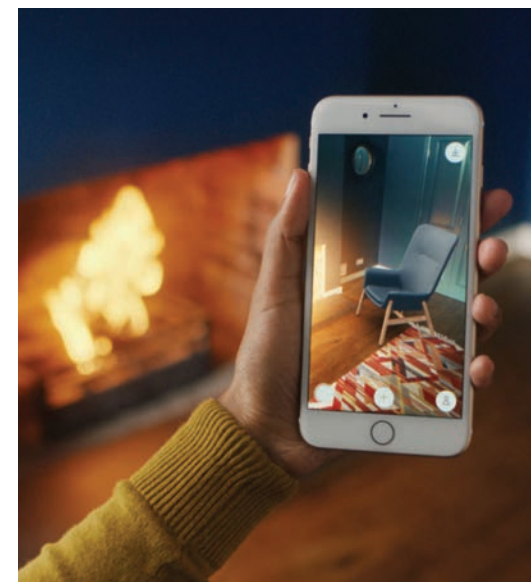
OAKLABS-ENABLED FITTING ROOMS ARE CLOSER TO ARTIFICIAL INTELLIGENCE AS THEY BEHAVE MORE AS PERSONAL VIRTUAL STYLISTS

only your personal assistant and enlarged phone device, but a fashion consultant, too. The SenseMi solution is able to remember what its user has worn recently and offers daily weather reports (for example, "maybe you will need that raincoat after all"). Additional capabilities include 3D body mapping and facial recognition, "makeover" functionality, video chatting, and even live updates on your usual traffic routes. Of course, there's also a selfie feature.

Another smart-AR app changing the furniture buying experience in a massive way, is IKEA Place, an

ARKIT app that empowers shoppers by allowing them to virtually place furniture selections in their space through the use of 3D and true-to-scale models. Soon to be gone forever are the days of last-minute measurements and anxiety over trying to visualize how well that Strandmon armchair will fit next to the coffee table. Using the app is simple: Scroll through your IKEA catalog via the app, tap what interests you, and point the camera in the direction where you'd like to view furniture—and like magic, a digitized version hovers over your rug! IKEA Place is incredibly user friendly and effectively demonstrates how AR enhances the real world and the decisions you make in it.

From wine to interior design, we're only beginning to discover how the field of AR tech will expand the possibilities of what our world can be. ∎

Top Right: Easily chop and sauté like the pros using AR right on your counter.

Above: Shopping made simple. No more wandering the stores, these smart screens bring all the selections right to you.

Left: Try before you buy, VR style. See how that new piece of furniture fits with the rest of your décor without breaking the bank.

LINKS:
TACTIC: https://tactic.studio/
J. Walter Thompson: https://www.jwt.com/en/
Water is Life: https://waterislife.com/
Deutsch: http://www.deutsch.com/
m ss ng p eces: http://mssngpeces.com/
Oak Labs, Inc.: http://www.zivelo.com/
SenseMi: https://www.amd.com/en/technologies/sense-mi
IKEA Place: https://highlights.ikea.com/2017/ikea-place/

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You need to experience an orchestrated smart home to understand how the technology can fit into your life. When you visit a Control4 Certified Showroom, you'll be able to see firsthand how we blend disparate home technologies to work in unison, creating experiences that will make your life more enjoyable, convenient, comfortable, and safe. You'll be able to converse with some of the best smart home professionals in the industry, and revel in the quality of their work and creativity to craft unrivaled and unique smart home experiences; experiences that no DIY device can begin to replicate.

Visit a showroom and #C4Yourself.

CONTROL4.COM

GET SPACE SAVVY
Creative ways to re-imagine unused spots at home

Lisa Montgomery

A report from the Joint Center for Housing Studies of Harvard University estimates that Americans will spend a record $340 billion total on home remodeling in 2018. Although bathrooms and kitchens commonly received most of the makeover money, maybe it's time to take a good, hard look at some of the lesser-used areas of your home and apply your remodeling dollars towards converting them into fun, functional spaces.

A consumer study by LiftMaster found that 81 percent of homeowners would rather optimize their current space than buy a bigger home. Man Caves, She Sheds, Listening Rooms, and Reading Nooks are trending, as homeowners look for inventive ways to utilize otherwise unused spaces and ways to relax, unwind, and enjoy time spent at home.

Here are some inventive ways to re-imagine the less-populated spaces in your home:

Guest Bedroom Gone Wild

How often do you use the guest bedroom? A couple of times a year maybe? With good dimensions and a door to shut off the rest of the house, a guest bedroom offers the perfect environment for a home cinema. The redo requires a big screen and surround-sound system, along with draperies to block out the light from the windows. Swap the bed for a comfy couch, and you've got the makings of a fantastic, private movie viewing venue.

If music is your passion, a guest bedroom is also ideally suited as a listening room. So dust off your old vinyl collection and reconnect with all your favorite tunes in the solitude of your own home.

Shed on Steroids

Located away from your house, a shed can function as a great getaway for anyone. With a little TLC, any outbuilding can morph into an office, yoga studio, meditation room, library...whatever. Because it's detached, you won't feel compelled to follow the decorating scheme of your main living quarters. You can personalize it to the hilt, experiment with colors, and get creative with the furniture layout.

Garage Greatness

If you're willing to purge and organize, there's likely some space in your garage for pursuits other than parking cars and tinkering with tools. It can become a special destination for entertaining guests to a night out—without the expensive cover charge or outrageous bar bill. Complete the vibe with music, a big-screen TV, pool table, dart board, libations, and colored lighting.

Stairway to Heaven

The space underneath the stairs might be small, but you don't need a lot of elbow room to cozy up with a book. A comfy chair, good lighting, and shelving can bring this largely wasted space into the limelight.

No matter the size or style of home, there's probably an underutilized area just begging for attention. By modeling the space around your hobbies and interests, you can create a comfortable, functional, personalized haven for all your pursuits. ■

TREASURE OF THE SIERRA MADRE

SMART TECHNOLOGY IS BREATHING NEW LIFE AND LUXURY INTO ONE OF THE WORLD'S MOST SPECTACULAR RAILROADS. TODAY, MEXICO'S MUCH-LOVED TOURIST TRAIN EL CHEPE EVEN KNOWS WHERE IT IS—AND CAN SHARE ON-SCREEN STORIES ABOUT ITS SURROUNDINGS TO ENLIGHTEN AND DELIGHT PASSENGERS.

Past tumbling waterfalls and towering canyons tinted with mineral deposits…through forests, deserts, valleys and tunnels…across breathtaking bridges… The Chihuahua al Pacifico ("El Chepe" for short), Mexico's Copper Canyon railroad, is among the world's most spectacular train journeys. One of only two passenger routes in the country, this 650 km (~404 mile) "ride in the sky" takes 13 hours to wind its way northeastward along the Sierra Tarahumara (part of the Sierra Madre Occidental mountain range).

The journey runs from Los Mochis on the northwest coast to Chihuahua in central northern Mexico, rising from sea level to almost 2,500 meters (~8,000 feet) at its highest point. A masterpiece of engineering, the railroad took a century to construct. It was originally conceived in 1861 by American civil engineer Albert Kimsey Owen, and the last section was finally completed 100 years later in 1961. El Chepe was launched shortly afterwards by the (then) state-run railroad and has remained a popular tourist train for more than 50 years. TripAdvisor reviews pay testament to its enduring popularity and awe-inspiring vistas.

Since the privatization of Mexico's rail system in 1998, the route has been run by giant rail conglomerate Ferromex, the bulk of whose business comes from freight transportation (it carries more than half of all cargo transported in Mexico). It's fair to say El Chepe has not been a strategic priority for the company over the past two decades. By 2017, the train was showing signs of age: the dining car was quite basic and the well-worn seats in the passenger cars reportedly weren't as comfortable as they might have been, especially on some of the route's bumpier sections.

Yet while El Chepe may not be able to match the money-spinning potential of Ferromex's core freight business, it continues to hold a special place in the hearts of managers and employees, as well as among tourists and the wider public. So the company decided it was time to make the train as sumptuous inside as the view from the windows.

Enter smart automation specialist Control4 México. Over the course of more than a decade, the independent technology dealership has built up a strong profile as the country's premier smart tech installer, with prominent retail outlets and demo smart homes in several prestigious shopping plazas. CEO Albert Mizrahi says: "People can come in and try out all the technology in a realistic setting—sitting in a working home theater or smart bedroom, for example."

But when representatives from Ferromex walked into his showroom one day last year, it was to be the start of a project like no other. Wowed by the smart technology on display, the rail giant was intrigued to find out

Chihuahua ●

CREEL

DIVISADERO

EL FUERTE

LOS MOCHIS

Overview of area.

UNITED STATES

MEXICO

THE COMPANY DECIDED IT WAS TIME TO MAKE THE TRAIN AS SUMPTUOUS INSIDE AS THE VIEW FROM THE WINDOWS.

whether and how it could be adapted for El Chepe. It wanted to offer passengers not just a comfortable ride, but the ability to enhance their journey with information that would give them an even deeper appreciation of the experience. "Although they didn't have a precise idea how smart automation could best help, they knew they wanted to go beyond the basic audio system on the original train and asked us to come up with some ideas," says Mizrahi.

On track to automation

Train blueprints were shared. Meetings and conversations ensued. "We explained all the technologies they could potentially deploy—everything from individual passenger screens with a selection of movies and TV shows to seat-mounted controls
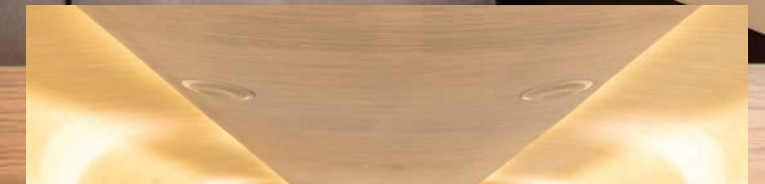
for the window blinds," says Mizrahi. "But much of it would have been unnecessary. When passengers ride El Chepe, they're there to enjoy the view. They don't want distractions."

What Ferromex knew passengers did want, however, was an informative guide to their journey. There are so many stories to tell about the route—from the geological formation of the gold-and-green Copper Canyon, to tales of the shy indigenous Rarámuri people who dwell in remote villages high in the canyons and can reportedly run for hours up near-vertical slopes. Could Control4 México help Ferromex bring these and other trip-enriching stories to life for passengers? Mizrahi proposed a novel solution. By using a technology known as "geofencing," the train would know when it had passed from one part of the route to another

and trigger relevant videos to be shown automatically on screens in each of the rail cars.

Being such a large company, Ferromex already had sufficient in-house expertise to create a compelling range of audiovisual content to bring the route to life. "We'd not done anything like this before, but I managed to find and set up a great independent product that uses geofencing to trigger the right videos at the right points on the journey," says Mizrahi.

Meanwhile, Ferromex commissioned its in-house design team to completely remodel and modernize the interior of the rail cars, working alongside a team of six people from Control4 México to ensure all the tech was seamlessly integrated into the design.
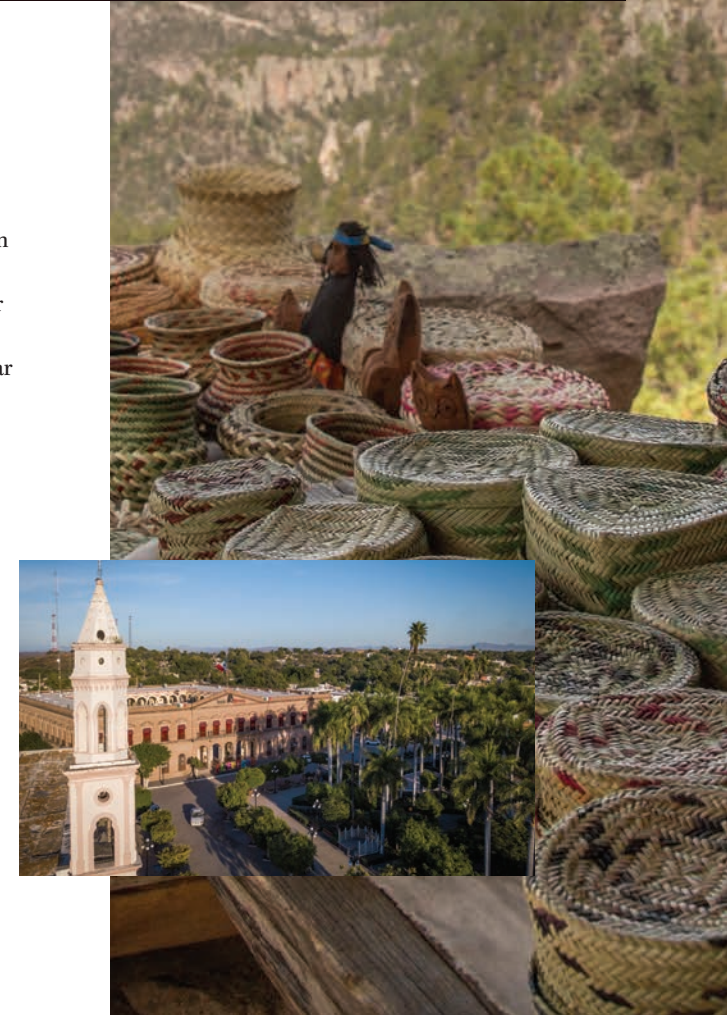
The pilot project encompassed nine rail cars—six passenger cars, a bar car, a two-story dining car, and an uncovered terrace car where passengers can admire the spectacular scenery in the open air. "The new interiors are stunning. The refurbished rail cars now look more like the inside of a luxury private jet," says Mizrahi. Roomy, chocolate-brown leather seats complement a wood-finished interior in multiple tan tones that exudes natural warmth, comfort, and sophistication. In the bar, passengers can relax in one of the sumptuous curvy couches or hop on a sprung, leather-seated stool around the impressive marbled bar. Meanwhile, the luxury dining car invites passengers to enjoy a meal at their leisure sitting at the large wooden tables while the scenery whizzes by.

Much of the technology is hidden, but any that's visible only enhances the smooth elegance of the design, while simultaneously adding a splash of modernism. Wall-mounted smart lanterns and flush-mounted smart ceiling lights throughout the train can be remotely controlled or set to automatic lighting scenes that suit the time of day and location. Every rail car also has giant, pin-sharp screens, as well as an integrated audio and PA system, security cameras, and automated temperature control.

Smart moves

Typically, Control4 México installs smart tech in private homes, restaurants, shops, and hotels. It has worked on projects ranging from $1,000 to $5,000,000 and has a wealth of experience managing different types of smart automation installation. Kitting out a train presented a whole new set of challenges, however. For one thing, buildings stay where they are. You can wire one room to another, safe in the knowledge that no one is going to swap a couple of rooms around or remove them completely because the house isn't full of people. And bar the odd power cut, buildings pretty much always have access to the juice they need to keep their technology running.

"We couldn't run a cable across the length of the train because all the rail cars are interchangeable. That meant we had to build an independent system for every car and install a WiFi antenna in each one, says Mizrahi. "Power was an even bigger challenge. Any automated system needs a constant source of electricity. The train has its own generator, but it creates an irregular current, so we had to install devices in each rail car to stabilize it—a bit like the surge-protected power strips you use for your computers at home, only on a much larger scale."

The initial project to kit out all of the rail cars on one of the route's nine trains was completed in January at a total cost of just $150,000.

Chepe staff have a Control4 touch screen that lets them play music, operate the PA system, adjust the lighting and temperature, play content on the screens, and monitor the security cameras. They also have a smart Control4 keypad that allows them to trigger predefined scenes. For example, there's a "welcome" scene that switches the lights on and plays an introductory video before the train sets off," says Mizrahi. ∎

Since Home Smart Home spoke with Mizrahi, the remodeled El Chepe has made its maiden voyage and is now open for general bookings, and with such a high level of comfort and luxury, there's no doubt this awe-inspiring journey will continue to delight and exhilarate those who make it for many decades to come.
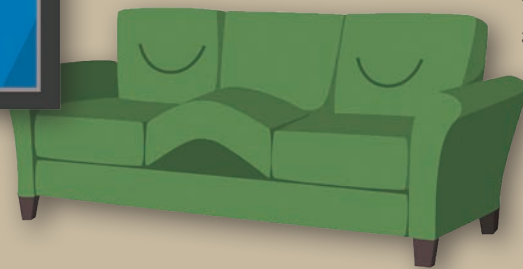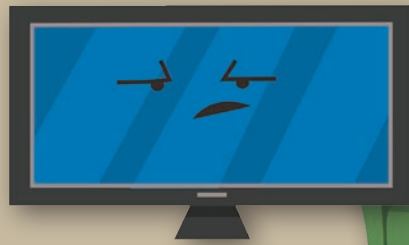
When your home gets *too chatty*

Luke Burns

It's all well and good to be able to have a conversation with Siri and Alexa, but if other household objects could **TALK BACK TO YOU**, you might want them to just keep their **THOUGHTS TO THEMSELVES**.

COUCH

"Gee, you've been sitting on me for a while. Might I suggest that you go take a walk? Netflix will still be here when you get back. What's that? You're trying to relax after a hard day? Don't worry: I'll remind you again in another 15 minutes."

TV

I agree with couch.
Also, do you really need to re-watch all of Cheers for the third time? I know you don't have the attention span to watch, like, an arthouse movie or foreign film on FilmStruck, but could you at least try a new show?"

COMB

"I have detected that your hair is 2% thinner than it was yesterday. I also found seven new gray hairs. Thought you'd like to know."

TOILET

"Let me know if you don't want me to make small talk while you're here. How 'bout that weather, huh?"

PILLOW

"Come on, don't go to sleep. It's boring when you're asleep. Let's stay up and talk. I want to hang out. Hey. Hey. Are you asleep yet? Did you fall asleep? Hey."

PANTS

"I definitely didn't shrink in the wash. If you're having trouble putting me on, that's on you, bud. I've been talking to the plates, and they've been telling me all about all the pizza you've been eating."

PLATE

"Pizza again? You know, according to data collected and shared with me by other plates in the Plate Network, other people have all kinds of fancy exotic food for dinner all the time. I'd like to have some French food put on me someday. You could at least get a side salad."

MIRROR

"Is that really what you're wearing today? No, no, you look great. Really. It's just not what I would have picked. You have such a... quirky sense of style."
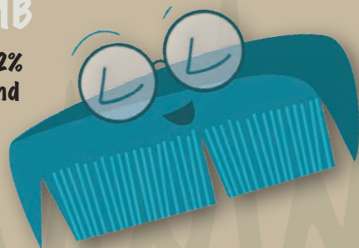
BED

"Before you turn out the lights, can you check and make sure there are no monsters under me? Hope I'm not being a bother. I was programmed to be terrified of monsters.
WHAT WAS THAT?!"

CUP

"Can't you just hold me? The coasters are real whiners.

COFFEE TABLE

"Would it kill you to use a coaster? You're ruining my varnish."

COASTER

"Do we always have to go on top of the coffee table? He's so uptight. And why do we always have to be under a cup? It's not very comfortable."

DOORMAT

"I'm sick of you walking all over me"
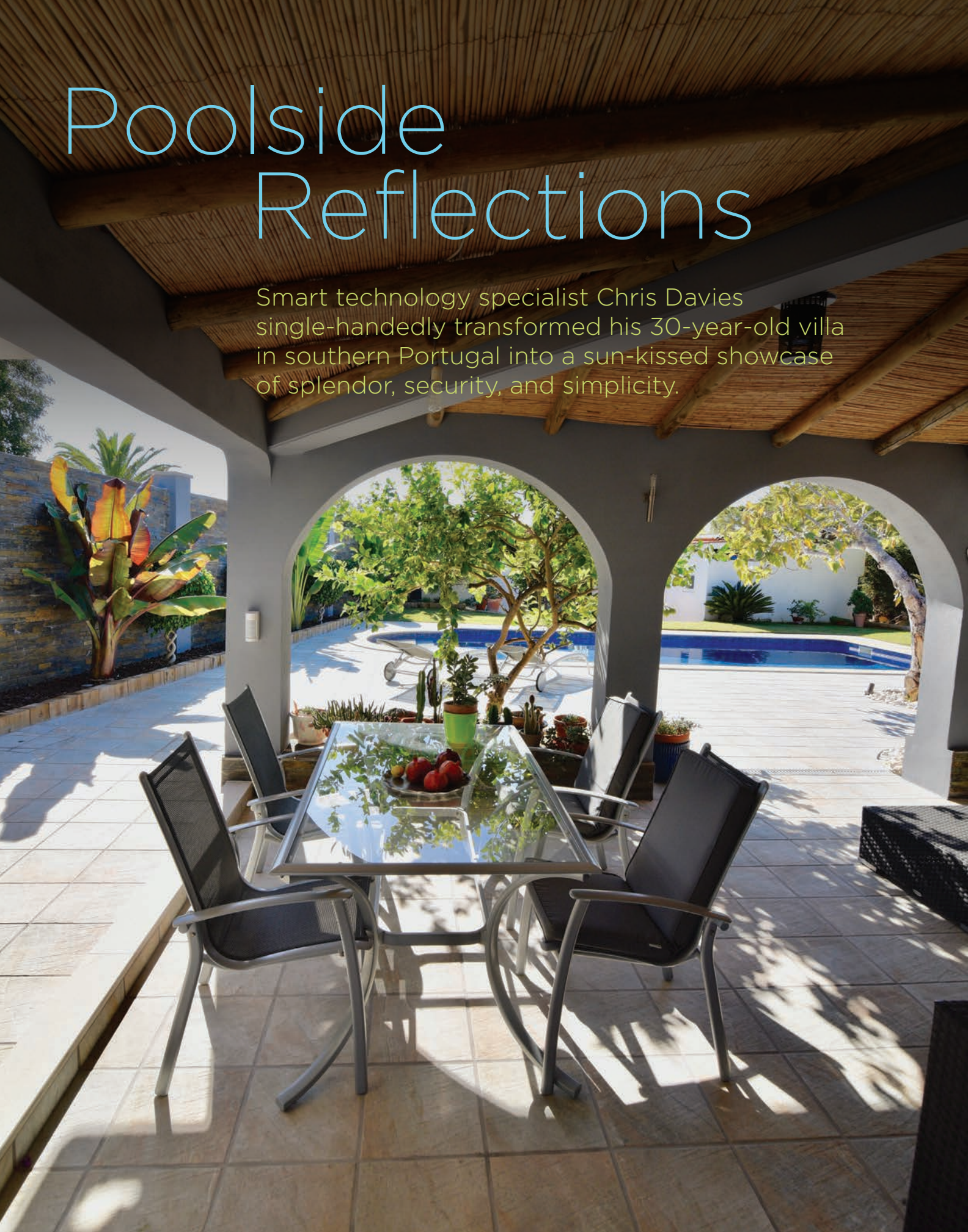
YOGA MAT

"Sorry the other devices are always giving you such a hard time. If you ever need to talk, just know that I'm really nice and not judgmental—though you'd already know that **IF YOU EVER USED ME.**"

NOISE-CANCELLING HEADPHONES

"I am cancelling all noises. All noises are being cancelled. I am cancelling all noises. All noises are being cancelled. **YOU'RE WELCOME.**"

Poolside Reflections

Smart technology specialist Chris Davies single-handedly transformed his 30-year-old villa in southern Portugal into a sun-kissed showcase of splendor, security, and simplicity.

Eleven years ago, Chris bought a villa in one of the country's most desirable locations, Fonte Santa. This beautiful, rustic village—set in a pine forest by the Atlantic coast—lies within the Algarve region's exclusive Golden Triangle, an area replete with landscaped luxury resorts, golf courses, tennis clubs, marinas, sun-kissed beaches, and lush, natural beauty spots. "I was very lucky to get it on my budget, because this has always been a desirable area, but back then the villa was already 20 years old and a bit tired: single-glazed and no pool."

When Welshman Chris Davies arrived in Portugal from the UK as a 17 year old in 1992, it was supposed to be for a week's vacation. More than 25 years later, he's still here. "I spent my first year partying and going to the beach, but then I ran out of money so I came to the coast to see what I could do," he says.

As an electrical engineer, Chris soon spotted a niche installing satellite TV systems. He built up a healthy customer base, and as in-home technology advanced, the focus of his business CPD Sound & Vision shifted—first to flat screens, then on to integrated audio systems. "Nowadays, everyone wants smart home technology—which was a natural progression for us," he says.

Eleven years ago, Chris bought a villa in one of the country's most desirable locations, Fonte Santa. This beautiful, rustic village—set in a pine forest by the Atlantic coast—lies within the Algarve region's exclusive Golden Triangle, an area replete with landscaped luxury resorts, golf courses, tennis clubs, marinas, sun-kissed beaches, and lush, natural beauty spots. "I was very lucky to get it on my budget, because this has always been a desirable area, but back then the villa was already 20 years old and a bit tired: single-glazed and no pool," he says.

About 18 months after moving in with his wife and daughter, Chris gave the villa a minor makeover and installed an impressive 12 m × 5 m pool. But by 2016 he was itching to transform the family home into something more akin to the state-of-the-art, luxury properties he was routinely kitting out for his customers. "We do around 25 installations a year, mostly high-end properties in the Golden Triangle, although we've also worked on luxury yachts and a couple of vast properties on Lake Geneva in Switzerland. I knew exactly what I wanted, and as a Control4 Dealer, I was confident I could create the most modern and impressive smart home possible," he says.

But he had to switch on all his powers of persuasion to convince his German wife, Rita—a self-confessed technophobe—it would be a worthwhile project. "I promised to deliver the most user-friendly system anybody would ever experience," he says.

PHOTOS COURTESY OF RUSSELL LONGMUIR PHOTOGRAPHY

Heated mirrors fight off the fog caused by steam and provide extra warmth in the bathroom.

PRECISION PLANNING

Chris spent a year designing the rebuild and smart tech installation. "We planned everything in meticulous detail—building work, interior design, landscaping, right down to the perimeter walls surrounding the property. I wanted to complete it all in eight weeks, so I brought the various tradespeople together and project-managed the whole thing like a military operation. No one working on it had ever seen such an intensive project," he says.

The remodeled villa is a spacious (1,700 m²), single-story property, with lounge, dining room, kitchen, office, and four bedrooms with ensuite bathrooms. "I designed the structural rebuild myself and planned the extension. The aim was to modernize the villa and create the optimum smart home for easy living, both inside and out. We extended by about 20%, put on a new roof, doors, windows, and added the office and new ensuites, as well as redoing the plumbing and electricity," says Chris.
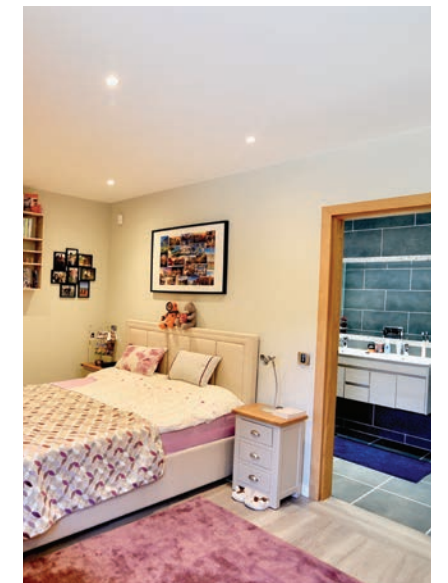
He also had firm ideas about decor, although he did bring in an interior designer. "I had a big bee in my bonnet about the Norwegian smoked oak floor dictating the rest of the color scheme. I wanted to bring in some oranges and aquas, since gray throughout would have been too bland. In the end, the designer persuaded me to go a little bit darker on the walls that I might have otherwise," he says. He adds that he's tried to keep things fairly minimalist, with the odd quirky touch provided by artworks and ornaments. "My wife would probably put more stuff up if it wasn't for me," he admits.

Two of the bathrooms feature fairly traditional decor, with mosaic stone tiles, while the one in his daughter's bedroom has a more modern, dark gray stone effect. "We also put in giant, half-glass, floor-to-ceiling showers in two of the three principal ensuites, which makes it really easy when you come in from the pool or beach," says Chris.

He paid particular attention to the outside space, where the family frequently spends time and entertains friends—the garden, covered terrace, barbecue, and poolside areas. "When I landscaped the garden, I thought about the

placement of the trees and plants in terms of creating the perfect lighting scene in tandem with the Control4 system," says Chris. Sculpted cloud pines and palm trees dapple the space, while an impressive spray of

Portugal for the summer, loved the ease and flexibility of flicking between video sources, selecting music, using Airplay to stream content from her phone, having a touch screen in the bathroom, and so on.

"There are screens in the lounge, master bedroom, Nianina's room, and the guest annex. Audio can be fed to any part of the house, including the exterior spaces. "I can be sitting outside tending the barbecue while streaming music from Deezer, at the same time as my wife's in the kitchen listening to German radio and my daughter's using Airplay in the bedroom," says Chris. "I'm most proud of the lounge, which has a JBL Synthesis audio system that's phenomenal—when you're

cerise bougainvillea overhangs the arches on the pool side of the villa. "When the lighting scenes come on at night, everyone says it absolutely transforms the place—it feels like you're in a luxury resort in Mauritius," he says.

VANISHING TECHNOLOGY

As for the technology, apart from some simple control screens and keypads, you'd never know it was there, despite the fact it took 7 km of cabling and 6 km of tubing. "I put in false ceilings throughout and plaster-boarded all the walls. As well as hiding the technology, it gives us excellent insulation," says Chris.

"I also built a new office and new

entrance. The office houses all the technical kit, and beside the new entrance I've built a big cupboard, which hides the fuse board for the Control4 modules," explains Chris. My wife was happy as it meant I got a new office and she got a huge shoe and coat cupboard," says Chris.

The technology may be invisible, but it is incredibly powerful. Using simple controls on an in-wall touch screen, keypad, or smartphone app, the family can control pretty much every aspect of their environment with ease—including home entertainment, security, lighting, curtains, air conditioning, and heating. It can also all be controlled via

smartphone when they're away or set to pre-defined schedules.

EVERYTHING UNDER CONTROL

"There is always music playing somewhere, mostly the kitchen—the hub of the house. My wife previously used the original Sonos system, and didn't want anything more complicated, so I made it even easier for her by putting a keypad in the kitchen just for her music and volume control—one touch of a button and no scrabbling 'round to find a remote.

Meanwhile, my 21-year-old daughter Nianina, who recently graduated from University in the UK and returned to

watching a movie it feels like you're in a cinema. Everyone who visits is just blown away."

Although the Golden Triangle is a major tourist area, Chris's estate is largely residential and around 80% of the residents are fellow expats, giving the area a friendly, neighborhood atmosphere. "We socialize a lot—and most activities are outside. I'm a serious, fairly high-level tennis player and play at a local club twice a week. Rita's often at the gym, and sometimes drags me along, too," he says. A self-confessed wine "fanatic," he also enjoys visiting the many bars and restaurants the area has to offer, and rarely a week goes by without a night with friends at one of their villas. "We also host plenty of our own gatherings throughout the year, so it's great the villa now has the 'wow' factor."

Automated security controls have also been a major boon for the family. The main house and the perimeter border have separate alarms. "Because it's such a spread-out property, if I was on one side I wouldn't have a clue what was happening on the other. Now we can stick on the perimeter alarm at the touch of a button and feel perfectly safe leaving all the doors and windows open. There's also a door intercom and automated gates which can again all be controlled remotely using the Control4 system—even when the family are away. "We travel quite a bit, and now if the maid, pool man, or gardener rings the bell, I'm instantly notified on my phone wherever I am and can turn off the alarm and open the gates to let them in," says Chris. "I also set schedules

for the lights, shutters, and curtains when we're away. And when we're coming back, we can switch on the air conditioning or hot water to be ready for our return," he adds.

EASY DOES IT

Just as he promised Rita, he's made everything as simple as possible. As well as the easy, flexible entertainment controls and pre-set lighting scenes and schedules, when leaving or returning to the villa each family member can enable/disable the alarms and lock/unlock the gates in the correct order simply by tapping in their own code. In addition, a single press of the "Good Night" button will completely close down the house for the night, turn everything off, and set the perimeter alarm, while the "Good Morning"

AUTOMATED SECURITY CONTROLS HAVE ALSO BEEN A MAJOR BOON FOR THE FAMILY. THE MAIN HOUSE AND THE PERIMETER BORDER HAVE SEPARATE ALARMS.
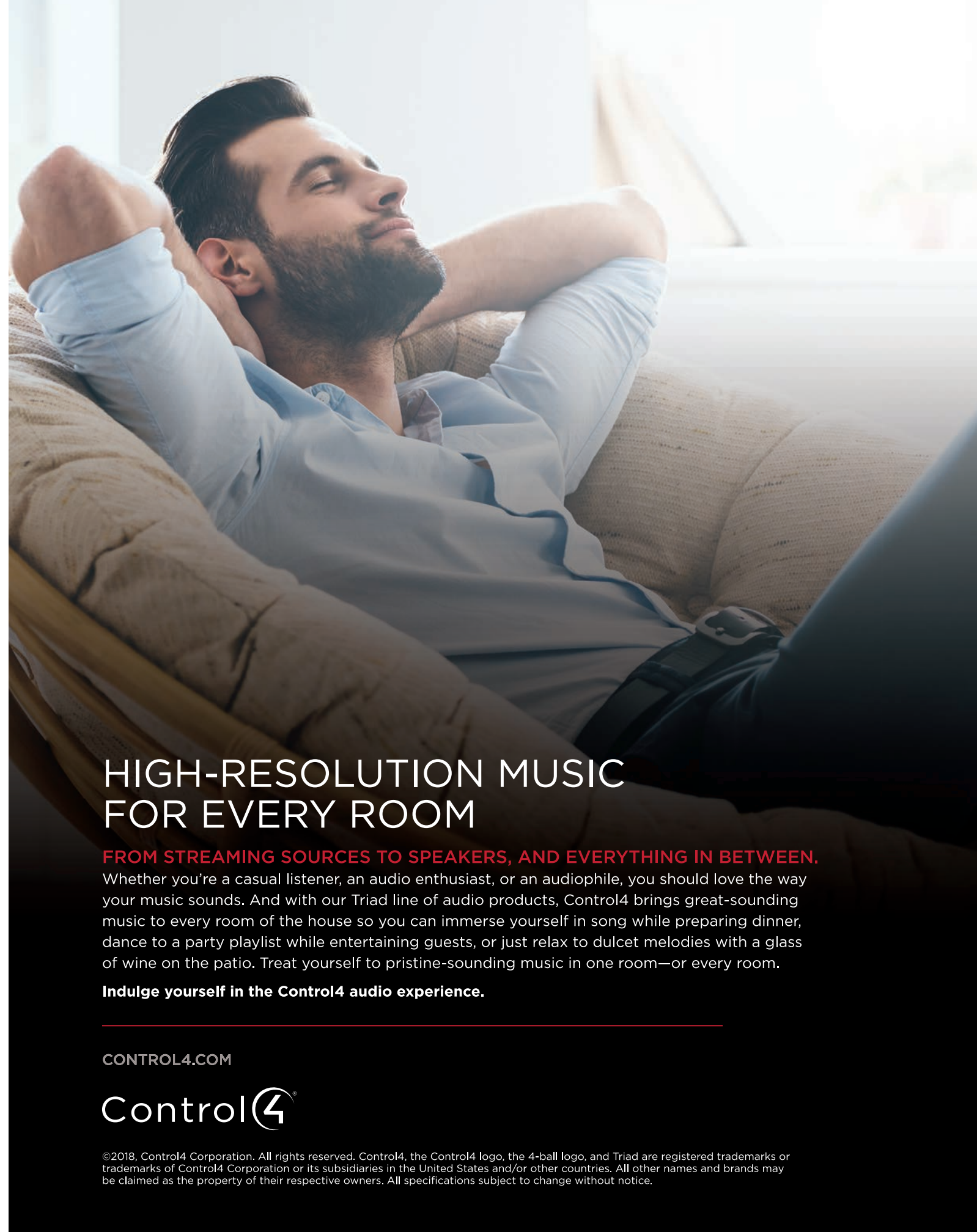
button wakes everything up.

"Rita's now a complete convert," Chris says. "If we ever move now, there's no way she'd move back into a house without smart technology. Even something as simple as opening and closing the curtains brings a smile to her face every time she does it."

And while he admits the smart tech bumped up the cost of the rebuild, it also enabled Chris to optimize energy efficiency. "The lighting's all on seasonal timers so it's never left on unnecessarily, and I've used energy-efficient LED lights throughout. Bathroom extractor fans and heated mirrors automatically switch off after 30 minutes. And because the property is now so well insulated, I took out the central heating, which we just don't need any more. Solar panels heat the water throughout the day, and I only need to set the gas boiler to come on for an hour in the morning to provide extra hot water for showering," he says.

Although Chris says the villa is still "fairly modestly sized" compared to some of the Golden Triangle's more exclusive properties, in terms of luxury and easy living it can't be beaten. "Now, if a customer wants to know what they can achieve with smart-home automation, I can invite them to swing by and have a look. We've also had quite a few passersby knocking on the door begging to buy the place."

Having spent the best part of two years creating the ideal home for his family, though, could he really bring himself to move out? "Well, I know I could double my money, so it is a bit of a temptation. But we absolutely love Forta Sante so I'd only do it if I could buy a similar-sized property here, and they are few and far between," he says. In the meantime, he can ponder any possible future relocation and smart refit over a glass of wine on the terrace, listening to the lapping of the ocean (or his streaming music) in the lap of luxury. ∎

6
SMART HOME UPGRADES
to Add During Your Remodel

Emily Long

Take advantage of your next overhaul and consider incorporating these six smart-home renovations into your living space.

A renovation is the perfect time to customize your living space and take advantage of the latest in smart-home tech. The smart-home market is on the rise, and many companies are starting to offer products that integrate seamlessly into the design of a house. For those brave enough to jump into the deep end, the potential benefits from whole-home automation are nearly limitless. Larger upgrades often involve extensive custom design work, including hardwiring, so it's best to upgrade when you're already renovating to cut down on cost.

Smart-home integration is a strong investment. According to the 2017 Houzz & Home Renovation Study, smart tech has become more of a priority for renovating homeowners—28% say that it's at the top of their lists[1]. And in the luxury home market, these features are now expected[2]. Smart-home technology can set your home apart from other options on the housing market and potentially increase the value of your property's value.

1. USB OUTLETS

If you tear out the backsplash in your kitchen, chances are you'll need to rewire a few outlets. A home renovation gives you the opportunity to upgrade your home's electrical system for your tech-friendly lifestyle. Outlets with built-in USB ports allow easy smartphone and tablet charging without the need for an unsightly power brick, freeing up the outlets themselves for appliances and lighting. Look for a USB outlet that offers 4.8 amp charging for larger devices, and make sure it meets the highest standards for safety.

2. HOME AUTOMATION SYSTEM

If you're planning to install a number of smart-home products during your home renovation project, a smart-home system can help you automate the function of each device. A smart-home system offers compatibility with a range of individual devices across several standards, and it may integrate directly with your digital voice-control assistant. The Amazon Echo is the most popular voice-controlled smart device offered today and is compatible with whole-home automation systems like Control4. Once you've chosen a smart-home automation system, be sure to select smart devices that "play nicely" with it to further the benefits in your home.

3. BUILT-IN SPEAKERS

Speakers and audio equipment can take up a lot of space, and unsightly wires can really break up the aesthetic feel of a minimalist living room. Luckily, several companies offer custom speaker systems that integrate directly into your home's construction. Triad, for example, produces systems that mount directly into your home's walls, ceiling, cabinetry, and even your patio. And they can usually be custom-matched to the painting on your walls or to various wood veneers.

4. MOTION SENSORS AND SMART SECURITY OPTIONS

While it's still very possible in a home that does not require repairs or updates, automating your home security can be much easier during a renovation. Adding sensors that detect motion, door or window access, broken glass, smoke or carbon monoxide, and flooding are individual components that can be integrated into an automation system and customized to the unique layout of your home. When you tie an alarm panel into a home automation system, you can even receive alerts on our mobile device if any door or window has been accessed, or every light in the house can turn on instantly or flash repeatedly to alert neighbors of a potential break-in.

5. HOME SECURITY CAMERAS

Doorbell cameras, perimeter cameras, and interior cameras can be accessed and monitored by the phone in your pocket while you're away at work or vacation. Discreetly camouflaging security cameras into the design of your home's entryway and most frequented areas can help you protect your home and the things inside without making friends or family feel uncomfortable. Doorbell cameras are low-profile and minimally invasive, and you can easily install one during a refresh of your doorway. The faceplate can be customized to match your home, and most units come hardwired, so you don't need to replace any batteries. Should you decide to add one after the fact, there are many wireless options, as well.

6. SMART THERMOSTATS

A smart thermostat is a nice upgrade for your heating and cooling system, but these devices can potentially improve your home's efficiency much more if you install a few extra temperature sensors. During your home renovation, you can hardwire sensors directly into your smart thermostat, allowing it to automatically regulate the temperature in each room. The Ecobee thermostat has sensor capabilities that also incorporate Alexa, Amazon's digital assistant, for convenient voice activation and access to Alexa's huge portfolio of helpful skills. And a thermostat like the one Control4 jointly developed with Aprilaire provides voice control through Alexa, as well as additional control capability of humidity, dual fuel, forced air, and geothermal.

Whether you're hiring a contractor or renovating your home yourself, the opportunity to update your home's technology shouldn't be missed. You'll save on installation time, and the potential increase in your home's value may offset many of the costs associated with these technologies. Your smart home can make everyday tasks and activities more pleasant and convenient, all while keeping your family safer and more secure. It's a win-win for home renovators.

1   2017 Houzz & Home: Overview of U.S. Renovation in 2016 and 2017
2   Investopedia: How Smart Home Systems Impact Home Values

Blast from the Past
The Evolution of Cell Phone Technology

Crystal Watts

Always on, always connected. Digital communication tools have changed our lives drastically. We live in an era where it's possible to send signals instantly, at any time of day, to friends and family—as well as gizmos, gadgets, and machines—all over the world.

We are born to communicate: Sharing information makes life easier and is essential to forming the social bonds at the root of our happiness and self-esteem. Today, technological innovation has made it possible to transmit data farther and faster than ever before, and it all began with the humble mobile phone!

The average American checks their phone once every 12 minutes[1]. Younger people look away even less frequently; members of the millennial generation tend to check their phone over 150 times per day[2], and at least once or twice during the night. We use phones for everything from shopping to staying informed on social media.

So let's slow down for a moment. That tiny rectangle on your bedside table went from a clunky handheld brick to an extremely powerful miniature computing device in what seems like the blink of an eye. But how did this happen? Since the first cell phone call forty-five years ago, these machines have become ubiquitous worldwide. Smartphone adoption reached a saturation point so quickly, and has enveloped our culture so totally, that charting its departure from a simple communication tool to the cornerstone of our digital future demands a brief history lesson.

Back in the spring of 1973, a Motorola engineer made a call from the first "handheld portable cell phone." On a street corner in Manhattan, Martin Cooper called Joel Engel—his rival at Bell Systems—to inform him that, finally, the race to perfect cellular technology was over. For years the two firms had been in close competition to develop the first practical, portable handset.

"People want to talk to other people—not a house, or an office, or a car. Given a choice, people will demand the freedom to communicate wherever they are, unfettered by the infamous copper wire. It is that freedom we sought to vividly demonstrate in 1973," Cooper said in an interview[4]. The Motorola DynaTAC 8000x prototype he'd used that day weighed nearly two pounds and had a very limited battery life, but for the first time in history, it was possible to make a call away from a landline.

When the first generation of cellular phones hit the consumer market ten years later, few could afford them. At $4,000, they cost about as much as a small car. According to Kreg Jones[5], an industrial designer and Industrial Design instructor at The Art Institute of Philadelphia, "They were primarily used in the sales and business world, but not often for personal use like you see today." Phones back then needed 10 hours to charge up for every 30 minutes or so of talk time. They were movable, but hardly mobile in a modern sense.

By the start of the 1990s, however, things were picking up. Two major companies were driving cell phone innovation—Motorola and Nokia. Technology was shrinking quickly, and in 1996 Motorola launched the StarTAC[6], the first ever "clamshell" model and the only mobile device (at the time) you could actually fit into your pocket. Nokia's Communicator[7], also released in 1996, included telephone, fax, email, and Internet connections and was a "smartphone" before that word was even invented. "The Communicator does seem like a practical tool," wrote one reviewer. "It is practically an office in your pocket. No need to enjoy the Internet or receive email only on your PC, it can now be done from the convenience of a cell phone." The world was hardly ready for a mobile device with these capabilities. In 1996, very few people were using the Internet from a desktop computer, let alone from their phone.

How things change! Nokia's next move was to launch a phone that would hook the mass market forever. With the release of its 3210 and 3310[8], the company introduced millions to the concept of cellular communication. You could play new games like "Snake," store information for dozens of contacts, even drop the phone from a tall apartment building or try smashing it with a hammer. These little "candy bar" devices were nearly indestructible.
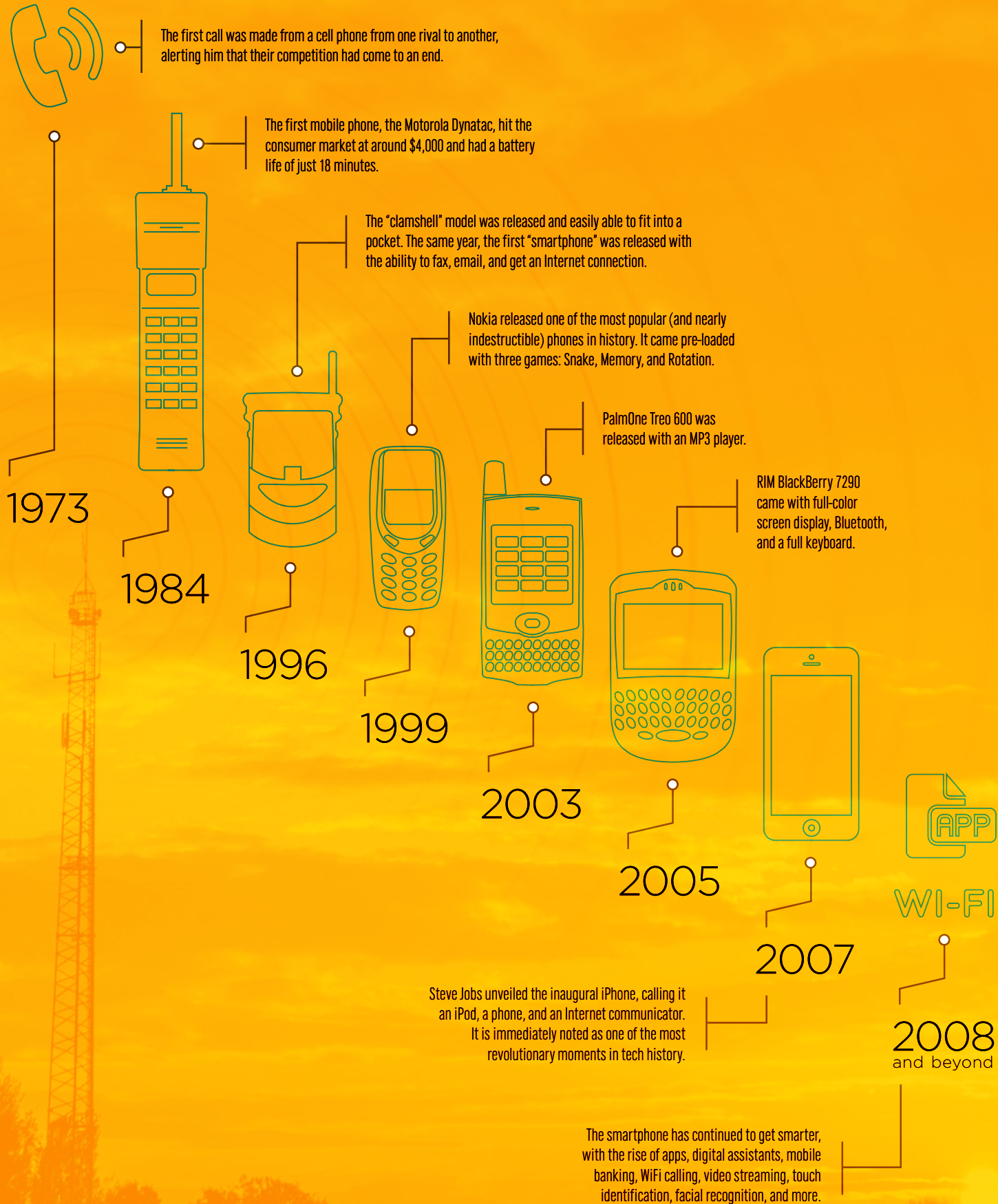
A few years later, BlackBerry and PalmOne were offering for the business set more sophisticated "PDAs"—sleek, computerized personal assistants that gave users a smorgasbord of office features in addition to taking telephone calls. 2003's PalmOne Treo 600[9] had an MP3 player, and 2005's RIM BlackBerry 7290[10] gave users a full-color screen display as well as Bluetooth capabilities and a full QWERTY keyboard. Now the arrival of the iPhone, and a greater realization of the cell phone's potential, was just a shout away.

Announced on January 9, 2007, the first-generation iPhone[11] was immediately heralded by the media and the mobile phone industry as "revolutionary." This would be the phone to rule all others; the device that would not only bring Apple to the forefront of cellular innovation but also change how we view our relationship to the phone itself. Offering a captivating multi-touch screen (which understands finger motions like pinching or dragging), an intuitive "home" screen icon

PLEASE DESTROY CELL PHONES BEFORE ENTERING

ON A STREET CORNER IN MANHATTAN, MARTIN COOPER CALLED JOEL ENGEL—HIS RIVAL AT BELL SYSTEMS—TO INFORM HIM THAT, FINALLY, THE RACE TO PERFECT CELLULAR TECHNOLOGY WAS OVER.

The first call was made from a cell phone from one rival to another, alerting him that their competition had come to an end.

The first mobile phone, the Motorola Dynatac, hit the consumer market at around $4,000 and had a battery life of just 18 minutes.

The "clamshell" model was released and easily able to fit into a pocket. The same year, the first "smartphone" was released with the ability to fax, email, and get an Internet connection.

Nokia released one of the most popular (and nearly indestructible) phones in history. It came pre-loaded with three games: Snake, Memory, and Rotation.

PalmOne Treo 600 was released with an MP3 player.

RIM BlackBerry 7290 came with full-color screen display, Bluetooth, and a full keyboard.

1973

1984

1996

1999

2003

2005

2007

WI-FI

2008
and beyond

APP

Steve Jobs unveiled the inaugural iPhone, calling it an iPod, a phone, and an Internet communicator. It is immediately noted as one of the most revolutionary moments in tech history.

The smartphone has continued to get smarter, with the rise of apps, digital assistants, mobile banking, WiFi calling, video streaming, touch identification, facial recognition, and more.

display, and numerous sensors which are also remarkably responsive, it added up to an almost addictively customer-friendly experience overall.

It goes without saying: You can feel it all around us. The distinction between online and offline has blurred; our lives now are lived just as much on the digital plane as the physical. It logically follows that from the "smartphone" we would soon have the "smart home." The environments where we live, shop, eat, and play are now attuned to the presence of cellular phones using more sophisticated sensors to understand our location, Internet browsing patterns, and more. We're able to interact with our doors, locks, windows, and lightbulbs almost as if they were icons or hyperlinks on a screen.

In 2018, the phone is gaining greater prowess still. Technology to improve facial recognition, augmented reality features, battery life, and smart "assistants" is flourishing; one day we may even be able to bend and fold our devices. The impact of these changes is still unforeseen, but they will undoubtedly have a profound effect on all our lives.

Over the years, phones may have gotten much smaller, but they aren't yet invisible. We are still understanding the many consequences of this creation. In the words of the inventor, Marty Cooper[12], the power of cellular tech should always be underwritten with social responsibility in mind. "We should be focused on how to make people's lives better," he said. "That is the purpose of technology." As we accelerate towards greater digital connectivity and decision-making, the future of cellular technology is still worth keeping an eye on. ■
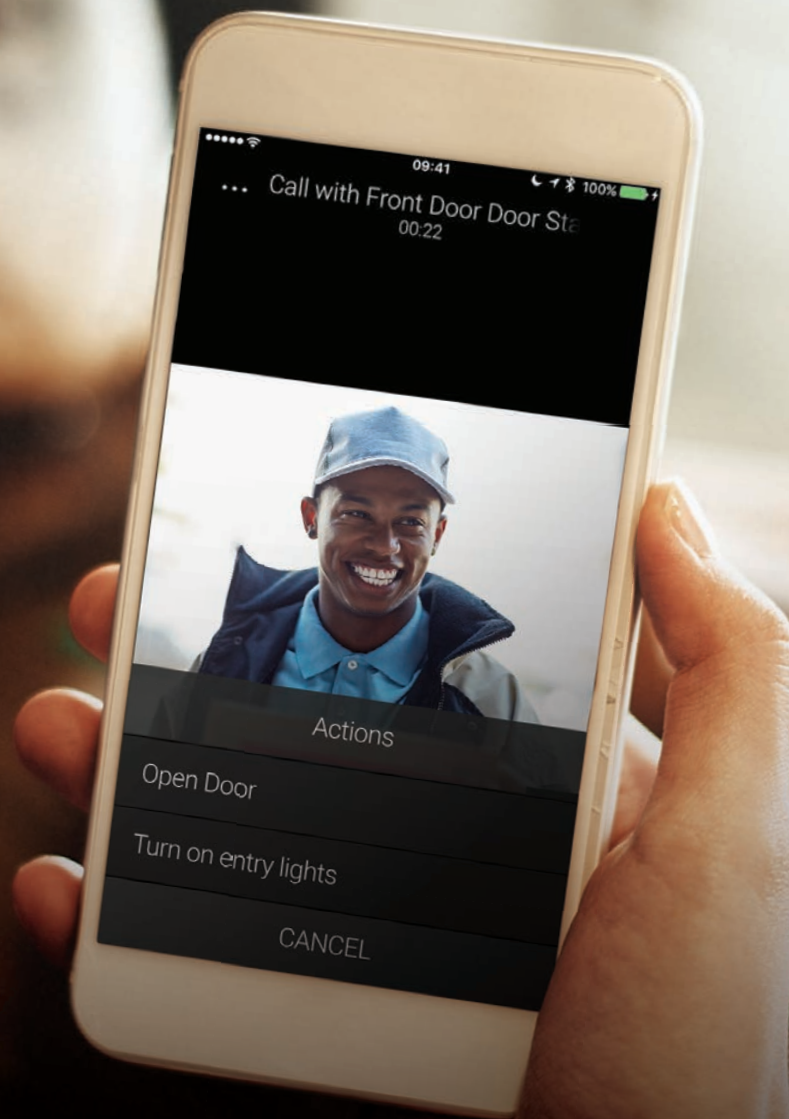
IT LOGICALLY FOLLOWS THAT FROM THE "SMARTPHONE" WE WOULD SOON HAVE THE "SMART HOME."

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