

printout

Keystone MacCentral Macintosh Users Group ♦ <http://www.keystonemac.com>

Starting the new year

Apple is having Special Event in the new Steve Jobs Theater. From this point in time (before the Event) we are looking forward to seeing new iPhones (7's and 8), new Apple Watch Series 3, and maybe some features of the new iOS 11. We will review highlights of what actually happened at our meeting.

It's time to update your iPad and iPhone with some new games.
We will have an introduction to a handful of games.

64-bit processors deal with instructions and data in 64-bit chunks. These processors often have multiple cores, which allows for faster processing. Another advantage is that they also support memory amounts over 4 Gb, the limit for 32-bit processors. Apple has been supporting both 32- and 64-bit applications for years. But that is about to come to an end. iOS 11 will only run 64-bit apps. And macOS High Sierra, the next version of macOS, will be the last to support 32-bit applications.

What's a user to do??

We will discuss how to determine which applications will crash and burn and what to do about. It's not pretty. ☹

Meet us at

Bethany Village Retirement Center

Education Room

5225 Wilson Lane, Mechanicsburg, PA 17055

Tuesday, September 19th 2017 6:30 p.m.

Attendance is free and open to all interested persons.

Contents

Starting the new year	1
A Prairie HomeKit Companion: The Elgato Eve Room	
<i>by Josh Centers</i>	3 - 6
Apple Focusing on Autonomous Driving Systems	
<i>by Adam C. Engst</i>	6 - 7
ARKit: Augmented Reality for More Than Gaming	
<i>by Josh Centers</i>	8 - 11
Software Review	11 - 12

Keystone MacCentral is a not-for-profit group of Macintosh enthusiasts who generally meet the third Tuesday of every month to exchange information, participate in question-and-answer sessions, view product demonstrations, and obtain resource materials that will help them get the most out of their computer systems. Meetings are free and open to the public. The *Keystone MacCentral printout* is the official newsletter of Keystone MacCentral and an independent publication not affiliated or otherwise associated with or sponsored or sanctioned by any for-profit organization, including Apple Inc. Copyright © 2017, Keystone MacCentral, 310 Somerset Drive, Shiresmanstown, PA 17011.

Nonprofit user groups may reproduce articles from the Printout only if the copyright notice is included, the articles have not been edited, are clearly attributed to the original author and to the Keystone MacCentral Printout, and a copy of the publication is mailed to the editor of this newsletter.

The opinions, statements, positions, and views stated herein are those of the author(s) or publisher and are not intended to be the opinions, statements, positions, or views of Apple, Inc.

Throughout this publication, trademarked names are used. Rather than include a trademark symbol in every occurrence of a trademarked name, we are using the trademarked names only for editorial purposes and to the benefit of the trademark owner with no intent of trademark infringement.

Board of Directors

President

Linda J Cober

Recorder

Wendy Adams

Treasurer

Tim Sullivan

Program Director

Dennis McMahon

Membership Chair

Eric Adams

Correspondence Secretary

Sandra Cober

Newsletter Editor

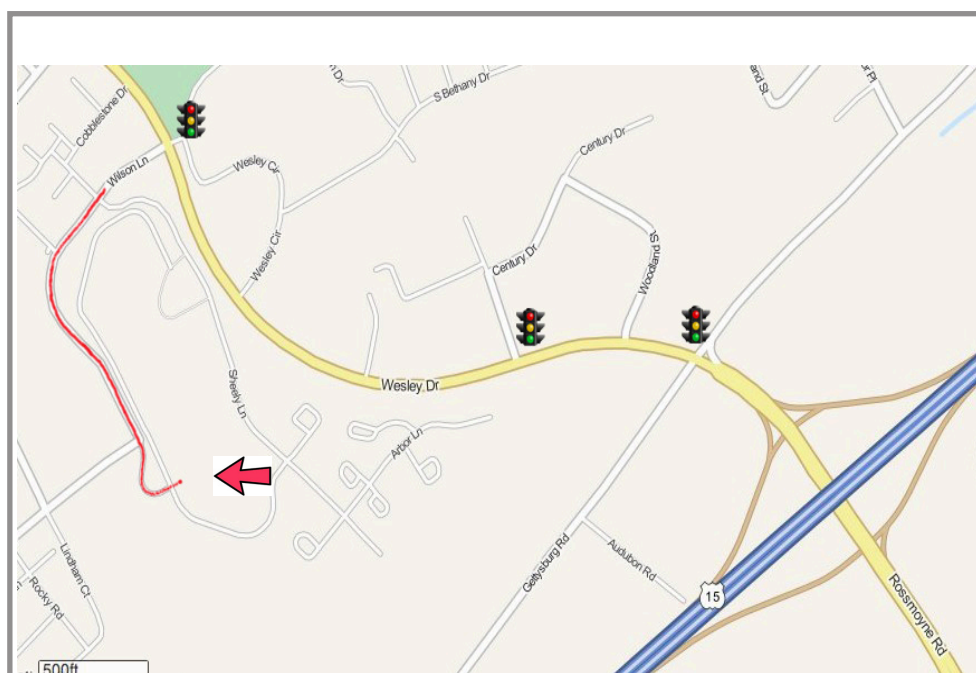
Tim Sullivan

Industry Liaison

Eric Adams

Web Master

Tom Bank II



Keystone MacCentral Essentials

Meeting Place

Bethany Village West
Maplewood Assisted Living (Bld 21)
5225 Wilson Lane
Mechanicsburg, PA 17055

Web Site

<http://www.keystonemac.com>

Mailing Address

310 Somerset Drive
Shiresmanstown, PA 17011

A Prairie HomeKit Companion: The Elgato Eve Room

So far in “[A Prairie HomeKit Companion](#),” I’ve focused on HomeKit hardware that does things, like smart outlets and smart bulbs. But that’s not the entire HomeKit hardware story. HomeKit also supports sensors that can monitor your home and either report data or use it to trigger actions.

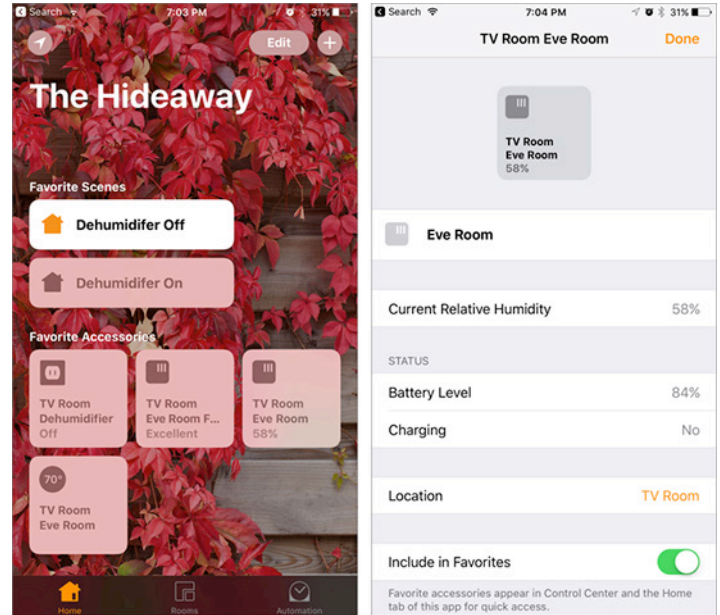
Perhaps the best-known HomeKit sensor is the [Elgato Eve Room](#), which monitors temperature, relative humidity, and air quality. It’s a small box, powered by three AAA batteries, and it costs \$79.95.



(If all you need is temperature and humidity monitoring — with an attractive display and historical data — look at Elgato’s new [Eve Degree](#), which I haven’t tested yet.)

Because the Eve Room is small and battery-powered, it’s unobtrusive and easily moved between rooms. In my experience, the batteries last about three months before needing to be changed, but you may want to consider rechargeable batteries.

Apple’s Home app presents the Eve Room as three separate Accessories, one for each of temperature, relative humidity, and air quality. The Home app displays the Eve Room’s temperature data in degrees (Celsius or Fahrenheit), humidity as a percentage of water vapor in the air, and air quality as a verbal rating from Poor to Excellent (more on that shortly). 3D Touch or long press an Accessory and tap Details for more detail, including Eve Room remaining battery life.



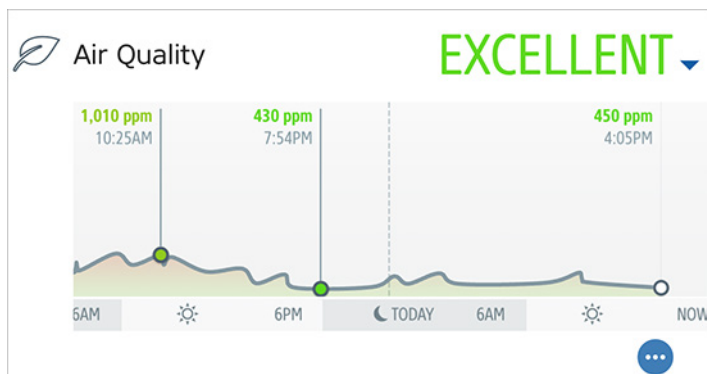
Elgato publishes a [PDF document](#) that explains the Eve Room’s air quality ratings. The Eve Room detects both carbon dioxide and volatile organic compounds, such as furniture off-gassing, paint fumes, and smoke in parts per million (ppm). Here’s what each of the verbal ratings means:

- Excellent (450–700 ppm)
- Good (700–1100 ppm)
- Acceptable (1100–1600 ppm)
- Moderate (1600–2100 ppm)
- Poor (above 2100 ppm)

If you want to view the exact ppm measurement, you’ll need [Matthias Hochgatterer’s Home app](#), which I reviewed in “[A Prairie HomeKit Companion: Fine Tuning with the Other “Home” App](#)” (21 February 2017).

Unfortunately, Apple’s Home app can’t take full advantage of the Eve Room, but you don’t need to buy Hochgatterer’s Home app to do so.

The Elgato Eve app for iOS offers more information, like graphs of air quality over time, in addition to being a full-featured HomeKit control app. I usually prefer sticking to Apple’s Home app for most things, but if you want to set up Automations that rely on the Eve Room, you need the Eve app.



I'll warn you that the HomeKit terminology in this article will come thick and fast, so make sure you're caught up on the other articles in [this series](#) before proceeding.

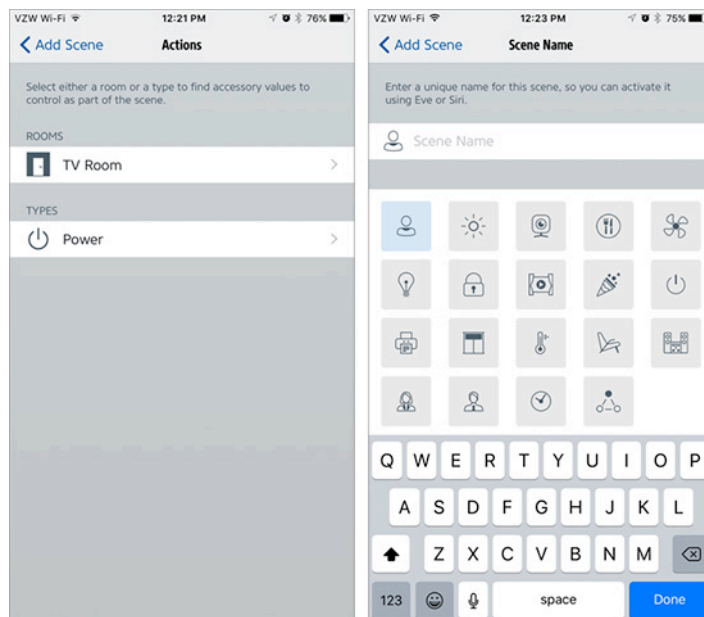
Eve Room Plus Eve Energy — I've had a review unit of the Eve Room for a few months now, but I didn't have a real-world use at first. I saw the potential: if your air quality drops below a certain threshold, you could have HomeKit activate a smart outlet that turns on an air purifier.

But it wasn't until I moved to a house with a below-grade room that the Eve Room clicked for me. We have to run a dehumidifier down there to prevent mold and mildew, but the dehumidifier is loud, which is particularly annoying given that we watch TV in that room. Although I can adjust the humidity level on the dehumidifier, that setting controls only the compressor; the fan runs continuously.

This is where the Eve Room paired with a smart outlet like the Elgato Eve Energy can come in handy (see "[A Prairie HomeKit Companion: Two Smart Outlets](#)," 1 May 2017). As I noted, Apple's Home app can only display data from the Eve Room, not trigger actions based on that data, so I turned to Elgato's Eve app.

Create Scenes for Eve — Although the Eve app is attractive, it isn't immediately obvious how you use it to create Automations, which it calls "rules." First, Eve rules only work with HomeKit Scenes (which group sets of actions together), so you have to create Scenes for whatever actions you want. Follow these steps:

- Go to the Scenes tab, tap Edit, and then Add Scene.
- In the Scene, tap Add Actions, and enable the Accessories you wish to control. You can filter them by room or type of Accessory.
- Choose the actions for the Accessories. In the case of the Eve Energy smart outlet, that's simply On or Off.
- Tap Done, then tap Next, name the Scene, and choose an icon.



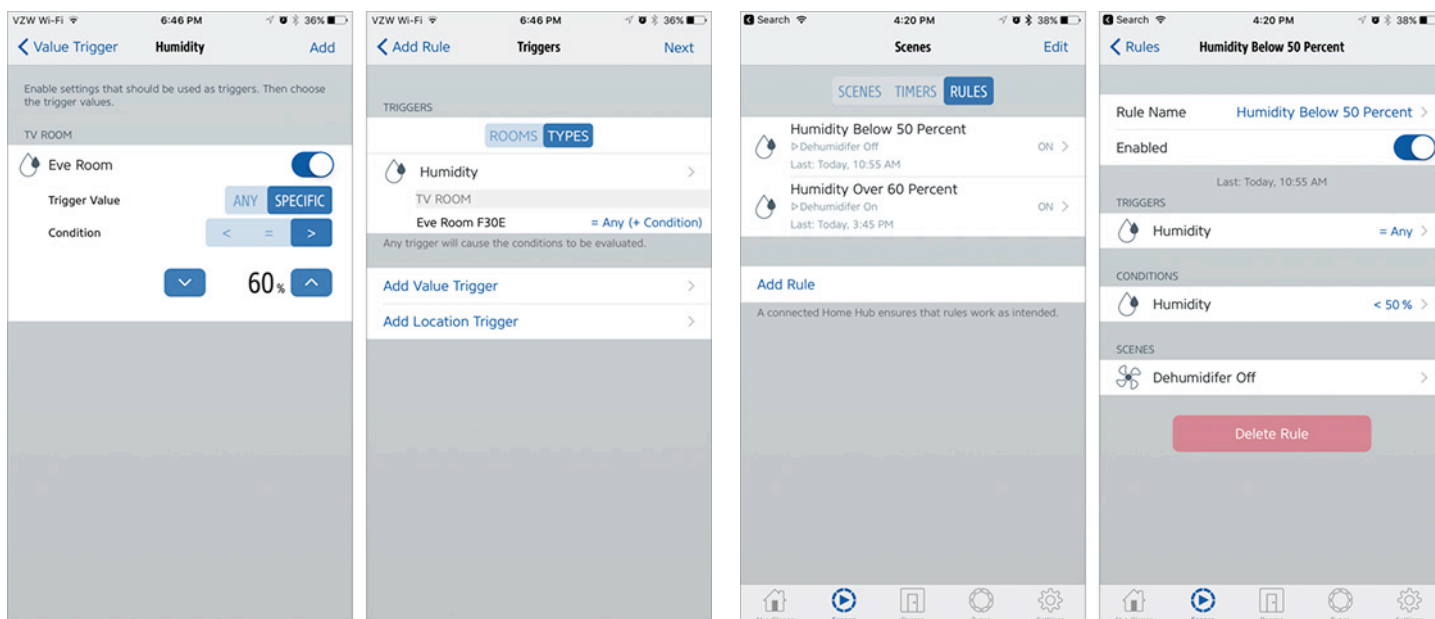
I created two Scenes: Dehumidifier Off and Dehumidifier On. Each one acts upon the Eve Energy in my TV room, which I've named Dehumidifier.

Remember that you could instead create the Scenes in Apple's Home app (see "[A Prairie HomeKit Companion: Controlling Accessories](#)," 16 January 2017), since it and the Eve app work from the same HomeKit data. Just return to the Eve app when it's time to create the rule, as outlined next.

Make Rules in Eve — With your Scenes established, from the Scenes tab, tap the Rules sub-tab. This view lists your existing rules (if you have any) and lets you create new ones.

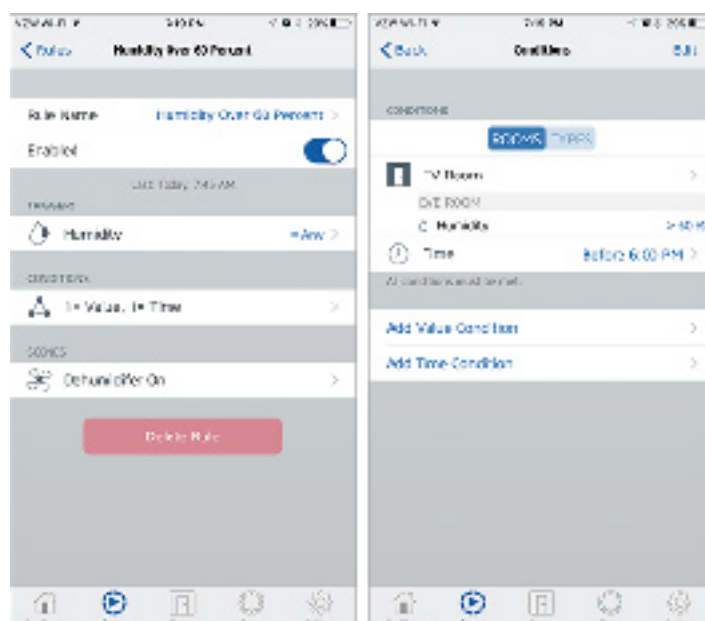
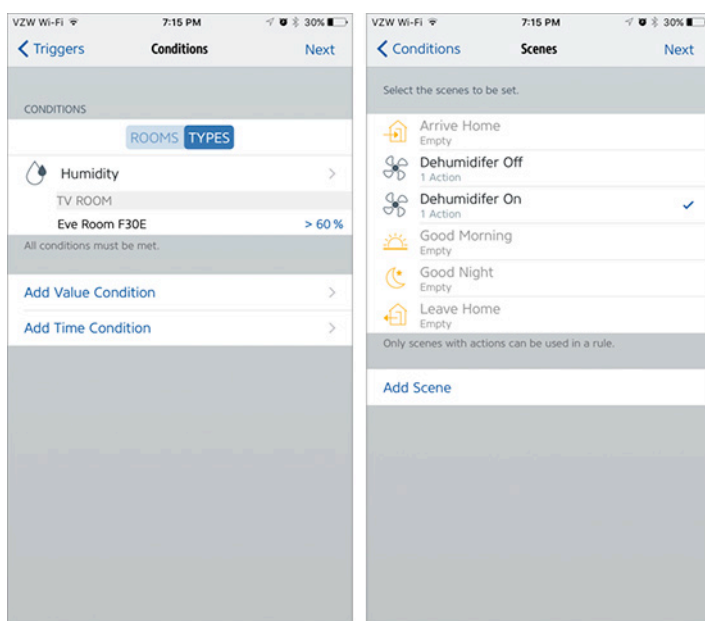
Here's where things can get a little confusing, especially for non-programmers. As the app explains, every rule needs at least one trigger and a Scene that it triggers. You can (and probably should) also add conditions that modify the trigger. If this sounds like gibberish, I'll offer an example that should clear things up:

- After tapping Add Rule and moving past the instruction screen, you get to the Trigger screen.
- Choose either a Value Trigger or a Location Trigger. Since I want to control my dehumidifier based on the value of the humidity in the room, I chose Value Trigger.
- In the Value Trigger screen, you need to pick a triggering Accessory, either by room or type. Remember, the Eve Room appears as three Accessories, so I chose Humidity.
- At the Humidity screen, I flipped the Eve Room switch on and selected Specific. For the condition, you choose a humidity level and whether it triggers when greater than, less than, or equal to the value.



- Next comes the Triggers screen. Your trigger shows up near the top, under Triggers. You can tap the arrow on the right to see and edit the trigger, but I tapped Next to move on to the Conditions page. Although it was set previously, you can edit the humidity percentage here.
- Tap Next to move on to the Scenes page, where you choose the Scene you want to activate when the Trigger occurs. Finish up by naming the rule.

What if you want multiple conditions? Eve allows that. Tap any condition and you can add another Value or Time condition, which can be useful, as I'll explain shortly.



To view your rules, go to the Scenes tab and then the Rules sub-tab. Tap one to see its details.

When you do so, you may be a little perplexed. For instance, in the "Humidity Below 50 Percent" rule, I have the trigger as Humidity, the condition as Humidity less than 50 percent, and the Scene set to Dehumidifier Off. In plain English, these settings trigger the rule whenever the humidity changes, and if the Eve Room detects that the humidity is less than 50 percent, they turn off the dehumidifier.

Here's a HomeKit oddity: even though you cannot set up these rules in Apple's Home app, you can view them under the Automation tab, and even enable and disable them from there. You can even adjust the activated Scenes and Accessories, but only some of the other settings. That's because Home is reading in that HomeKit data, but can't interact with all of it. In essence, Apple's Home app doesn't support everything Apple's own HomeKit framework can do.

Figuring Out Your Rules — Creating rules in the Eve app isn't that hard, but more difficult is figuring out which rules to make. As I've noted several times throughout this series, the tricky part of home automation is thinking everything through to create automations that make sense for you.

My first thought was to set up a rule that turns the dehumidifier on at 60 percent humidity and off again when it drops to 50 percent. But that rule turned out to be a harsh mistress. If the dehumidifier kicked on while we were watching TV, I couldn't shut it off! Well, I could, briefly, but it would kick back on as soon as the humidity changed again.

As an aside, there's some debate about what a healthy humidity level is in a home. The U.S. Environmental Protection Agency [recommends 30 to 50 percent](#), but many experts recommend somewhere around 50 percent while keeping the humidity under 70 percent to prevent mold and mildew growth. I have dry sinuses and have to empty the dehumidifier bucket enough already, so I set it to 50 to 60 percent.

So I had to rethink my approach. I ended up with two rules: one that turns the dehumidifier off when the relative humidity drops under 50 percent and another that turns the humidifier on when humidity rises over 60 percent, but only when it's before 6 PM. That way, it doesn't kick on during our prime viewing TV hours.

To ensure that the dehumidifier runs after we're done watching TV, I also set up a rule to turn the dehumidifier on at 3 AM, regardless of humidity. No one will be watching TV then.

Setting up a timed rule in the Eve app is a little odd — you do that in Scenes > Timers. I prefer creating timed

Automations in the Home app, as I described in "[A Prairie HomeKit Companion: Automating Your Home](#)" (10 February 2017).

These rules could probably use a bit more tweaking, but that's something I plan to iron out over time as we become more familiar with this new house. There may also be much better ways to do this. For instance, I could throw an [Eve Motion](#) motion detector into the mix to keep the dehumidifier off if someone's in the room. But that's a project for another time.

In any case, don't be afraid to experiment! Fine-tuning automations is part of the fun, and Rome wasn't built in a day. Just don't create more than you and your housemates can manage.

Automating Your Home with Eve Room and Eve Energy — Thanks to the Eve Room and Eve Energy, our TV room stays within 50 to 60 percent humidity, which prevents mold and mildew growth, and the dehumidifier doesn't drown out the TV during our prime viewing hours. If the dehumidifier does start up outside our prime viewing time, it's easy enough to shut off from my iPhone without getting off the couch.

Using the Eve app, you too can combine the Eve Room and a smart outlet like Eve Energy in all sorts of ways. You could use them to control a fan, a space heater, or an air purifier to improve your living environment and potentially save money too. 🍷

by Adam C. Engst

Apple Focusing on Autonomous Driving Systems

This was unexpected. In an interview on Bloomberg Technology (start watching at 7:55 for the full discussion) that touched on Apple's never-before-discussed car plans, [Apple CEO Tim Cook said](#):

"There is a major disruption looming there, not only for self-driving cars, but also the electrification piece. If you've driven an electric car, it's a marvelous experience. And it's a marvelous experience not having to stop at the gas station. Plus you have ride-sharing on top of this. So you have three vectors of change happening generally in the same time frame.

"We're focusing on autonomous systems. Clearly, one purpose of autonomous systems is self-driving cars. There are others. We see it as the mother of all AI projects... We're not really saying from a product point of view what we will do. But we are being straightforward that it's a core technology that we view as very important."

It's unlike Apple to be so forthcoming about future directions.

Apple's Road So Far — Apple initially planned to build its own car, starting in 2014. To that end, the company hired more than 1000 engineers to work on Project Titan, as it was codenamed.

By 2016, however, Project Titan was rumored to be flailing, and [Apple brought in Bob Mansfield](#) to head the team. Previously, Mansfield had served as Senior Vice President of Mac Hardware Engineering, retired briefly, and then returned as Senior Vice President of Technologies for 9 months before leaving to "work on special projects under CEO Tim Cook."

Mansfield reportedly [cut hundreds of engineers](#) from Project Titan and refocused Apple's efforts from building its own car to building an autonomous driving system. In April 2017, [Apple received a permit](#) from the California

Department of Motor Vehicles to test three self-driving SUVs.

Even assuming that Apple was working on self-driving car technologies before Project Titan formed in 2014, it still likely lags behind Google's [Waymo](#), which launched in 2009, has started an [early rider program for self-driving cars in Phoenix](#), and is [partnering with ride-hailing service Lyft](#).

Lyft competitor Uber has also put significant effort into the field, providing [self-driving rides in Pittsburgh](#) and [acquiring the self-driving startup Otto](#). That acquisition led to a lawsuit with Waymo since Otto co-founder Anthony Levandowski had also helped found Google's car team. [Uber has now fired Levandowski](#), but the lawsuit continues.

(My favorite source of self-driving car information is Brad Templeton, who created the Usenet newsgroup rec.humor.funny, founded ClariNet — the first business based on the Internet — and served as Chairman of the Electronic Frontier Foundation.)

Reading the Tea Leaves — Why did Tim Cook choose to reveal Apple's direction now, and what does it mean for us as Apple users? I found Cook's revelation both fascinating and confusing.

As a company, Apple is all about putting products in the hands of people, which makes Cook's statement that Apple is focusing on autonomous systems surprising. In the few situations where Apple has embedded its products in other companies' products — CarPlay, most notably — it hasn't been a big win. You don't see car companies advertising CarPlay as a major selling point, and in our testing, it didn't work all that well anyway (see "[CarPlay Offers Limited, Glitchy iPhone/Auto Integration](#)," 18 January 2016). It's hard to imagine Apple being happy selling autonomous driving technology to the likes of BMW or Ford.

Perhaps the autonomous systems technology is just a step on the road to Apple's own car. Although Apple has the money to buy nearly any carmaker it might want, that would be a huge shift for the company and would likely create massive culture clashes within the combined firm. Plus, such an acquisition would put Apple into a business about which it knows nothing.

It seems more likely that Apple would use some of its overseas cash to invest in one of the smaller carmakers like Nissan or Hyundai, with an eye toward creating an Apple-branded car that would leverage the car company's

expertise in making an automobile but give Apple some level of industrial design and internal systems control.

Such a collaboration could even happen with market darling Tesla, whose stock price has recently skyrocketed, putting the company in fourth place worldwide by market cap, behind Toyota, Daimler AG, and Volkswagen AG, but [ahead of BMW, GM, and Ford](#). That's despite the fact that Tesla lost \$800 million in 2016 on revenues of \$7 billion, delivering just 76,000 cars. In comparison, GM sold 10 million cars for revenues of \$164.4 billion and profits of \$9.4 billion. Stock prices are all about future potential, of course, but still...

My best guess as to why Cook felt that now was the time to reveal Apple's general direction is that he wants the world to be aware of Apple's larger ambitions. It's purely about perception, perhaps along with ensuring that Apple gets mentioned alongside the likes of Waymo and Uber. Consider it a modern-day version of the old computer industry technique of using early announcements to generate FUD: fear, uncertainty, and doubt.

All that said, it's hard to imagine Apple releasing any significant car-related products in the near future. And that's fine. The automotive field is moving quickly in some ways, but it will take decades to shift how the world interacts with cars. As Cook said, electrification is the future — we own an all-electric Nissan Leaf, and it's far more fun to drive than any gas-burning car we've ever owned. It's also far more economical and environmentally friendly because we power it from our own solar panels.

Brad Templeton makes the point that advances in self-driving cars may eventually render personal car ownership a thing of the past. Why spend tens of thousands of dollars on a car that sits idle 90 percent of the time when you'll be able to use an iPhone app to summon a robotaxi to take you wherever you want to go? That would cause a precipitous drop in sales of cars to individuals and might spell the end of many carmakers. It would also, of course, eliminate the cost of human drivers from the equation at Uber and Lyft, which is why both companies are so interested in the technology.

So perhaps Apple is moving slowly on purpose, because Cook's three vectors of change may combine to alter the face of the entire automotive industry before Apple could recoup a massive investment in building its own electric self-driving car. But, emotionally, I still want an Apple Car, and even though Apple would never give me a long-term review unit, it would at least be a business expense. 🍷



ARKit: Augmented Reality for More Than Gaming

Apple has a lot of kits. Not model airplanes, but software frameworks with which developers can create apps more easily. You've heard of HomeKit, which developers use to create home automation apps, and we've previously mentioned ResearchKit, which helps programmers write medical research apps. But those two are just the tip of the iceberg — Apple has ClockKit, CloudKit, GameplayKit, MapKit, PhotoKit, and ReplayKit, to name just a few, and the company announces more at every WWDC.

We seldom mention these frameworks because they're usually of interest only to developers. But Apple's upcoming ARKit is going to be a big deal for everyone once apps that incorporate it start appearing in iOS 11 (see "[iOS 11 Gets Smarter in Small Ways](#)," 5 June 2017). And I'm willing to bet that we see a flood of them on day one.

The AR in ARKit stands for Augmented Reality. In contrast to virtual reality, which aims to encase you in a virtual world, augmented reality blends the real and virtual worlds by overlaying digitally generated images on live video. The most famous example of AR is the smash-hit Pokémon Go app, which I wrote about a year ago in "[What the Heck Is Pokémon Go?](#)" (17 July 2016).

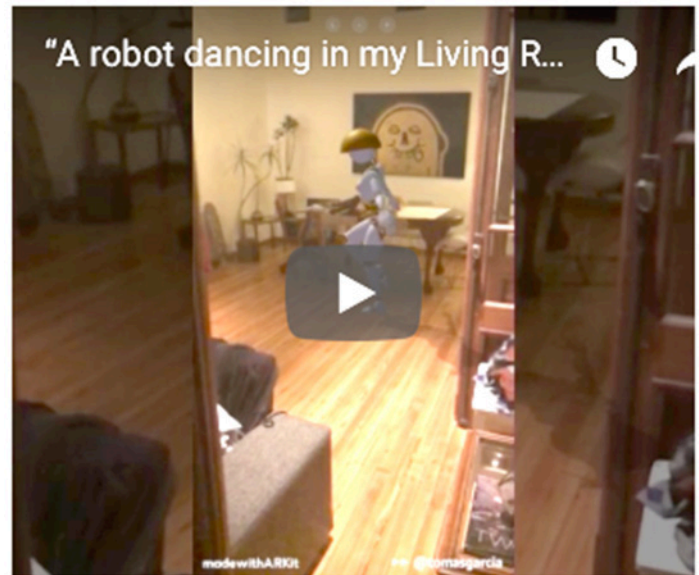
How ARKit Works — Augmented reality isn't new, and it wasn't new when Pokémon Go hit the scene. Examples of AR have been around since the dawn of smartphones, but it has long been a relatively crude technology. For instance, the [Amazon](#) app can show you what a TV will look like on your living room wall, but you have to tape a dollar bill to the wall so the app knows where to position the TV. The [InkHunter](#) app can give you a preview of how a tattoo will appear on your arm, but it needs you to draw a smiley face where you want it to go.

Those apps need the dollar bill and the smiley face as placeholders because they can't recognize the three-dimensional objects in your photos. That's what Apple hopes ARKit can fix.

ARKit analyzes camera and motion data to recognize surfaces and construct planes with which digital objects can interact. Additionally, ARKit can leverage all that data to apply the correct lighting to digital objects.

In short, ARKit makes it so digital objects can interact with real-world surfaces and their appearance will vary based on changing lighting conditions so they blend in as naturally as possible. Let's look at some examples.

In this [video](#), a robot dances around a living room, landing perfectly on the floor with each step. Note how the reflection from the lamp light follows the robot around.



Is your mind blown yet? Hold on, there's more. A developer used ARKit to create a portal between virtual and real worlds. In the [video](#), the developer walks through the virtual door, around a virtual world, and looks back out at the real world.



One last example. Check out this [video](#). It's just two guys playing basketball, right? Look closer. The players have been inserted into the scene digitally.



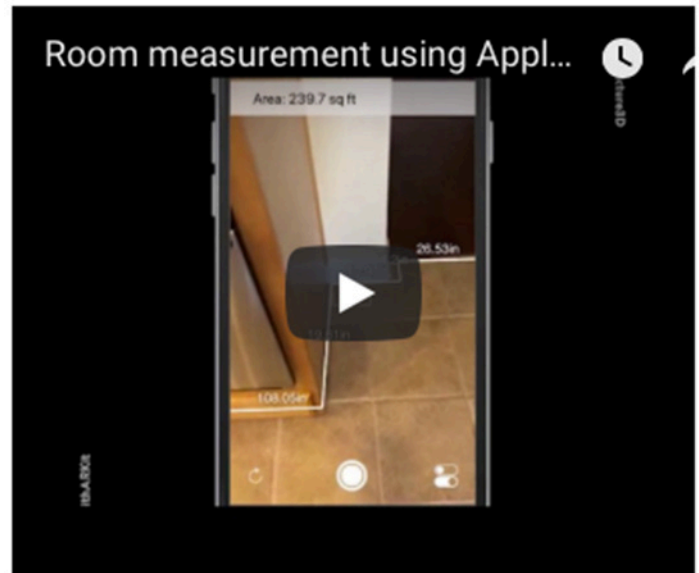
Remember that we're in the earliest stages of ARKit testing and development. Developers are just getting started.

Maybe you're impressed, but you may also be thinking, "That's neat, but what use is it?" While many of the initial applications will be for gaming, I anticipate that we'll see plenty of useful applications.

ARKit in the Real World — After Apple releases iOS 11, tape measure apps will be the new flashlight apps — expect a bunch of them. There are already several working concepts, but this [video](#) shows the most impressive I've seen yet.



But the concept of using AR to measure the real world can be taken further. Here's a [video](#) of an app that can measure the square footage of an entire room.

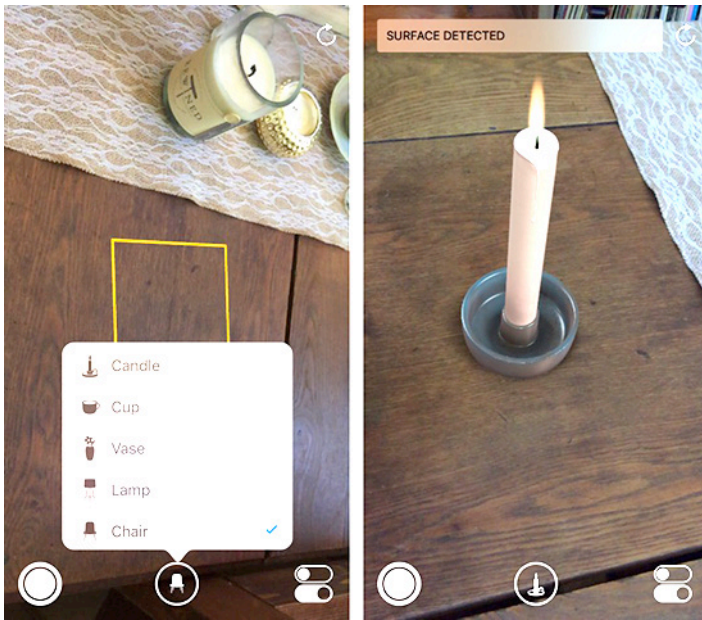


Speaking of rooms, as someone who has spent all summer moving furniture around, I'm excited by this [video](#) of a concept app by developer Asher Volmer, which lets you use AR to place furniture in a room.



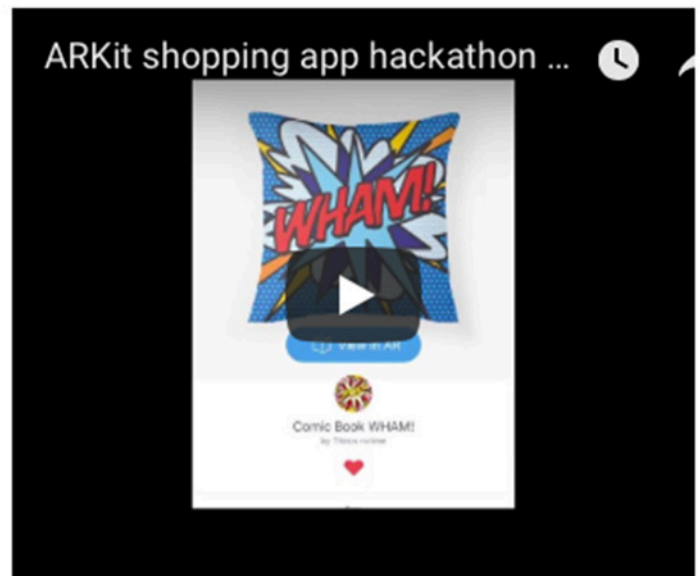
Playing with ARKit — If you're an Apple developer, you can experiment with [Apple's ARKit demo app](#), which lets you place a few simple objects in AR. You'll have to use Xcode to compile the project and install the app, but it's not too onerous if you know what you're doing. I'm no programmer, and I was able to get it working.

If you don't want to fuss with the ARKit demo app, I'll give you a taste. It works a lot like the Camera app. The app scans for surfaces onto which it can place objects, and when it recognizes one, it puts a yellow square on it. The center button lets you choose an object to place: a candle, cup, vase, lamp, or chair. Once you've positioned an object like the candle in the screenshot below, it looks and acts like a 3D object in real space.

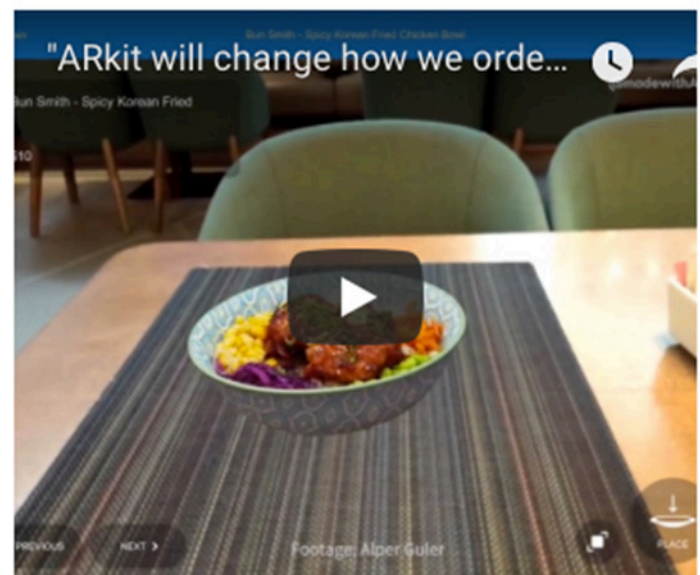


ARKit apps have many potential uses around the house. Instead of moving all your furniture around to figure out where it fits best, you could use ARKit to place objects around the room, saving yourself a lot of work and back pain. Or, an ARKit app might help you visualize what paint colors or carpeting will look like in your house as the lighting changes throughout the day.

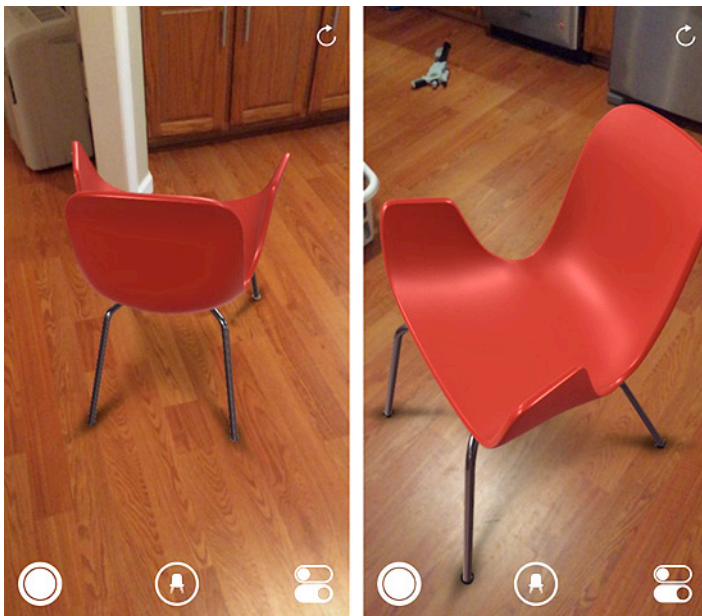
Likewise, ARKit will appear in all sorts of shopping apps. Imagine being able to use AR to place a sofa in your living room before ordering it. One app [shows](#) what this could be like, using a pillow as an example.



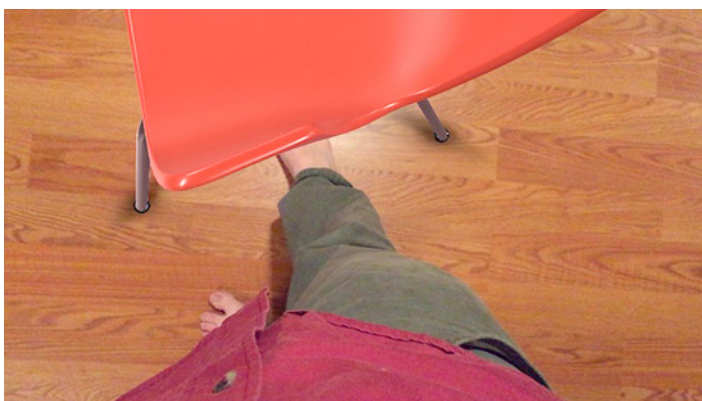
Alper Guler shows how ARKit could assist in helping us decide what to order at a restaurant. Ever glanced over at other diners to see what their dishes looked like before making your choice? What if you could see every item on the menu right in front of you at the table? Here's a [video](#) showing that.



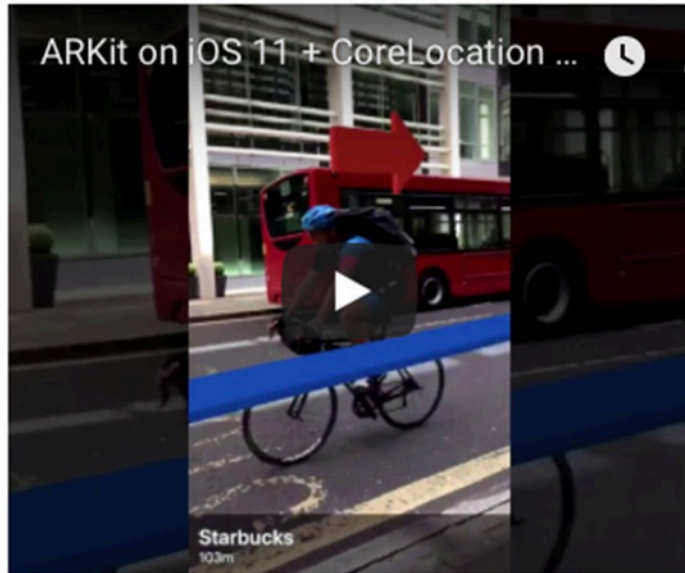
The virtual chair makes for a better demonstration. I can walk around it just as though it were a real chair.



I can even put my foot under it, and it was an odd feeling to see my foot disappearing under something that I knew wasn't really there.



ARKit will also prove useful when traveling in an unfamiliar city. This demo [video](#) shows how an app can pair ARKit with CoreLocation to identify points of interest on a skyline, as well as AR direction lines you can follow as you walk down the street.



The more I use ARKit, the more I believe that Apple has to be thinking about taking it into products that go beyond the iPhone and iPad. Walking down the street holding an iPhone in front of your face to see how your real world has been augmented will be awkward (as we know from Pokémon Go players). It's begging to be integrated into a pair of glasses.

We've had a taste of that, with Google Glass. While the initial technology was promising, it suffered from bugs and somewhat overblown privacy concerns (it's not like people weren't always taking pictures and recording video with their phones). However, Glass's second life in the industrial world (see "[Google Glass Returns... In Factories and Warehouses](#)," 19 July 2017) may indicate that the initial release of Glass simply lacked a killer app. With the kinds of augmentation possible with ARKit backing it up, Apple may be able to create electronic eyewear that would be both functionally compelling and socially acceptable. 🍷

Software Review

Apple Updates

Pages EndNote Plug-in v3.1

Jul 26, 2017 – 202 KB

System Requirements
– macOS 10.12

If you're using Pages 6.2 or later and want to insert citations from EndNote* you will need to install the Pages EndNote Plug-in v3.1.

*EndNote sold separately

Security Update 2017-003 (Yosemite)

Jul 19, 2017 – 431.6 MB

System Requirements
– OS X Yosemite 10.10.5

Security Update 2017-003 is recommended for all users and improves the security of OS X.

watchOS 3.0 -3.2.3 Information

This update includes improvements and bug fixes.

iOS 10.3.3 Information

Jul 19, 2017

System Requirements

- iPhone 5 or newer
- iPad 4th generation or newer
- iPad mini 2 or newer
- iPod touch (6th generation)

Available via OTA and iTunes

iOS 10.3.3 includes bug fixes and improves the security of your iPhone or iPad.

Security Update 2017-003 (El Capitan)

Jul 19, 2017 – 763.9 MB

System Requirements
– OS X El Capitan 10.11.6

Security Update 2017-003 is recommended for all users and improves the security of OS X.

macOS Sierra 10.12.6 Update

Jul 19, 2017 – 1.11 GB

System Requirements
macOS Sierra 10.12.5

The macOS Sierra 10.12.6 update improves the security, stability and compatibility of your Mac, and is recommended for all users.

macOS Sierra 10.12.6 Combo Update

The macOS Sierra 10.12.6 update improves the security, stability and compatibility of your Mac, and is recommended for all users.

iTunes 12.6.2

Jul 19, 2017

System Requirements

- 400MB of available disk space
- iCloud Music Library, iTunes Match, and iTunes Radio availability may vary by country
- iTunes Extras require OS X version 10.10.3 or later

Apple Music requires OS X version 10.9.5 or later

This update includes minor app and performance improvements.

Canon Printer Drivers v3.4 for OS X

Jul 6, 2017 – 287.3 MB

System Requirements

- OS X Lion or later

This update installs the latest software for your Canon printer and scanner.

Brother Printer Drivers 4.1.1 for OS X

Jul 6, 2017 – 261.1 MB

System Requirements

- OS X Mountain Lion 10.8
- OS X Mavericks 10.9

- OS X Yosemite 10.10
- OS X El Capitan 10.11
- macOS Sierra 10.12

This update installs the latest Brother printing or scanner.

Epson Printer Drivers v3.3 for OS X

Jul 6, 2017 – 1.4 GB

System Requirements

- OS X Yosemite 10.10 and later
- OS X Mavericks 10.9 and later
- OS X Mountain Lion 10.8 and later
- OS X Lion 10.7 and later

This update installs the latest software for your EPSON printer or scanner for OS X Yosemite, OS X Mavericks, OS X Mountain Lion, and OS X Lion.

Lexmark Printer Driver 3.2

Jul 6, 2017 – 76.9 MB

System Requirements

- OS X Mavericks
- OS X Mountain Lion
- OS X Lion 10.7 or later

This update installs the latest software for your Lexmark printer or scanner. 🗑️

Share Keystone MacCentral with other MACaholics

Name _____

Address _____

City _____ State ____ Zip _____

Home Phone _____ Day Phone _____

E-mail Address _____

Date _____ Is this ☐ Renewal or ☐ New?

How did you hear about us? _____

Dues for one person are ☐ \$20/yr. Family or Corporate dues are ☐ \$30/yr.

To join Keystone MacCentral, mail this form with your membership dues (payable to Keystone MacCentral) to:

**Keystone MacCentral
Membership Chair
310 Somerset Drive
Shiresmanstown, PA 17011**

Keystone MacCentral meetings are held at 6:30 p.m. on the 3rd Tuesday of the month at Bethany Village Retirement Center, 5225 Wilson Lane, Mechanicsburg, PA 17055