

digitimes



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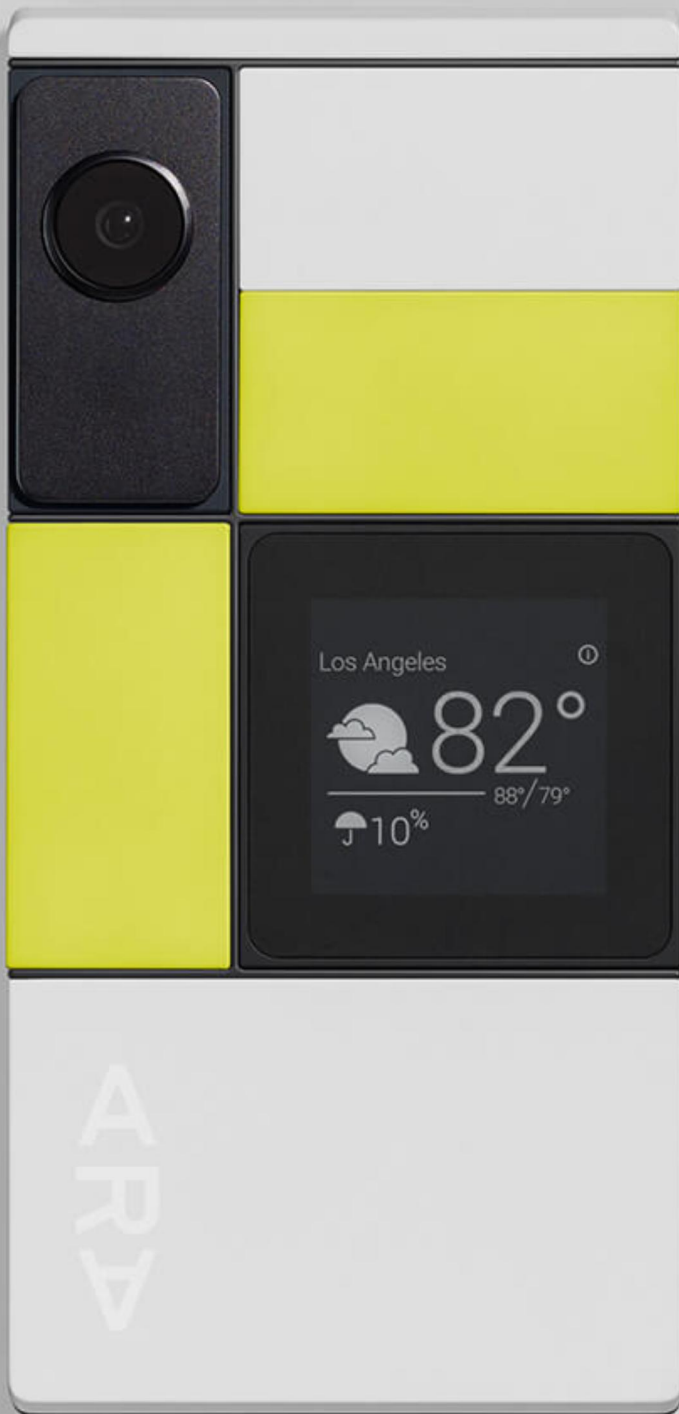


meet ara.

"Project Ara is Google's attempt to stop us all buying a new iPhone every six months. The modular phone will allow users to slot in and out different parts of the device (such as cameras and speakers), meaning when phone technology improves you can simply swap in a new module rather than buy a whole new phone. The Ara phone has been delayed before, but Google hope it will be on the market in 2017."

Project Ara was a modular smartphone project under development by Google. The project was originally headed by the Advanced Technology and Projects team within Motorola Mobility while it was a Google subsidiary. Google retained the ATAP group when selling Motorola to Lenovo, and it was placed under the stewardship of the Android development staff; Ara was later split off as an independent operation.

Under its original design, Project Ara was intended to consist of hardware modules providing common smartphone components, such as processors, displays, batteries, and cameras, as well as modules providing more specialized components, and "frames" that these modules were to be attached to. This design would allow a device to be upgraded over time with new capabilities and upgraded specifications without requiring the purchase of an entire new device, providing a longer lifecycle for the device and potentially reducing electronic waste.



However, by 2016, the concept had been revised, resulting in a base phone with non-upgradable core components, and modules providing supplemental features.

Google planned to launch a new developer version of Ara in the fourth quarter of 2016, with a target bill of materials cost of \$50 for a basic phone, leading into a planned consumer launch in 2017. However, on September 2, 2016, Reuters reported that two non-disclosed sources leaked that the Alphabet's manufacture of frames had been cancelled, and may be licensed to third parties; and that a spokesman declined to comment on the rumours.

The Project Ara concept consisted of modules inserted into metal endoskeletal frames known as "endos". The frame would be the only component manufactured by Google. The frame was the switch to the on-device network linking all the modules together. Google planned two sizes of frames on launch; a "mini" frame about the size of a Nokia 3310 and a "medium" frame about the size of a Nexus 5. Google also planned a "large", phablet frame about the size of a Samsung Galaxy Note 3 to be released in the future. Frames have slots on the front for the display and other modules. On the back are additional slots for modules.

amazon echo



The Amazon Echo Dot is essentially all the bits of an Amazon Echo that make it interesting, but without the speaker beneath it – and so it costs just one-third of the price.

The Dot is one of three Alexa-enabled products from Amazon that puts the company's voice assistant front and centre. Only two, the Echo Dot and the Echo are available in the UK: the third, the portable Bluetooth speaker called Amazon Tap, is only available in the US.

"Alexa" is Amazon's cloud-connected, voice-activated virtual assistant. She's Siri in a speaker. You wake her up by saying her name, or by saying one of your two other wake word options, "Amazon" or "Echo." The array of microphones inside of the Echo Dot is always listening, and when they hear the wake word, they'll record whatever you say next and send it off through the cloud to Amazon's servers. Those servers will figure out what you're asking for, then tell Alexa how to respond. All of this happens in about a second.

You can ask Alexa to do all sorts of things. For starters, she can stream music from Amazon Prime Music, Pandora, or Spotify. She can play podcasts from iHeartRadio or TuneIn. She can set kitchen timers. She can look up facts. She can wake you up in the morning. She can tell your kids painfully bad jokes. She can read off the day's headlines from whatever news sources you like (including, ahem, CNET). All you have to do is ask.

On top of that, Alexa keeps getting smarter thanks to an increasingly robust market of third-party voice apps called "skills." There are over 3,000 of them at this point, and each one teaches Alexa a new trick. The Uber and Lyft skills let you tell Alexa to call you a ride. The Capital One skill lets you tell Alexa to make a credit card payment. The Domino's skill lets you tell Alexa to order a pizza. A skill called The Wayne Investigation lets you talk your way through an interactive mystery set in Gotham City. You can browse through them all in the Alexa app, then pick which ones you want to enable. You can also just ask Alexa to turn one on by saying something like, "Alexa, enable the Jeopardy skill." And, as of now, none of them cost anything.



Alexa can control a growing list of smart home gadgets, too, including connected lighting setups, smart thermostats, and popular smart home platforms. Ask her to turn the kitchen lights off or raise the temperature a few degrees, and she'll happily comply. Here are some of the most popular options:

- [Philips Hue connected LEDs](#)
- [LIFX connected LEDs](#)
- [Ledvance Lightify connected LEDs](#)
- [Lutron connected lighting setups](#)
- [Haiku smart lights and ceiling fans](#)
- [Belkin WeMo Switches](#)
- [August Smart Lock](#)
- [Scout Home Security system](#)
- [Ecobee3 Smart Thermostat](#)
- [Nest Learning Thermostat](#)
- [SmartThings connected home platform](#)
- [Wink connected home platform](#)
- [Insteon connected home platform](#)
- [GE smart appliances](#)
- [Garageio garage door opener](#)
- [Logitech Harmony Hub entertainment controller](#)
- [Control4 smart home setups](#)
- [Nexia smart home setups](#)
- [Crestron smart home setups](#)



drive.ai

More than ever, car makers and transportation are finding ways to incorporate automated driving into their product offerings. Tech companies like Google, Uber, Lyft as well as car companies like Tesla, Toyota and Hyundai can all clearly see what lies on the road ahead. Now one more company enters the fray: Drive.ai.

Drive.ai, launched, doesn't make a car. Instead, it will sell a driverless car kit that will allow drivers to retrofit their existing vehicle with the gear needed for it to pilot itself. An in-car system will provide the brain of the driverless car, while a roof-mounted display will let drivers communicate.

"We're testing the ability to show emoji-based signals on top of the car to communicate with other drivers."

Drive.ai has siphoned talent from other car companies to perfect their self-driving car secret sauce. Talent, for example, like Steve Girsky of General Motors--itself a player in the autonomous vehicle field alongside its partner Lyft--counts himself as a member on the board of directors for Drive.ai.

There's no word on when drivers can expect Drive.ai's self-driving kit to become available, nor how it will ensure legal compliance with the rules of the road. And with no shortage of competition--especially from Uber, who's automated, ride-hailing efforts hit the road this summer--Drive.ai will have to move fast.

The appeal for self-driving cars is obvious to some: the visually-impaired and elderly can suddenly partake in efficient transport.

And, presumably, with every car communicating with each other accidents would go way down. Drive.ai wants to improve communication not just between cars but between pedestrians and others around the car as well.

A screen sits above the car--similar to the signs above city cabs--depicting if it's safe to cross or saying "thank you" to a driver behind you. "We're testing the ability to show emoji-based signals on top of the car to communicate with other drivers," Drive.ai co-founder and president Carol Reiley tells us.

Better communication using the top of cars is Drive.ai's vision

Along with smiley faces and hand gestures, Drive.ai will use deep learning the software commanding the car. "Our founding team has been working on deep learning's applications to self-driving vehicles since its early stages," says Drive.ai's other co-founder Sameep Tandon. "This is truly the enabling technology for the future of autonomous transportation, and we're leveraging it for navigation and interaction both inside and outside vehicles."

Other companies like Uber and Google are also using deep learning artificial intelligence to solve the problem of autopilot in everyday cars.



Google Home

Google Home is a smart speaker developed by Google. It was announced in May 2016 and released in the United States in November 2016, with a release in the United Kingdom in April 2017.

Google Home enables users to speak voice commands to interact with services through the Home's intelligent personal assistant called Google Assistant. A large number of services, both in-house and third-party, are integrated, allowing users to listen to music, look at videos or photos, or receive news updates entirely by voice. Google Home also has integrated support for home automation features, letting users speak commands to the device to control smart home appliances. Multiple Google Home devices can be placed in different rooms in a home for synchronized playback of music. The product itself has a cylindrical shape with 4 LEDs on the top for visual representation of its status, and the cover over the base is modular, with different color options offered through Google Store intended for the device to blend into the environment.



Google Home

Various forms of both in-house and third-party services are integrated into Google Home, allowing users to use voice commands to control interaction with them. Examples of supported services include Google Play Music, Spotify and iHeartRadio for audio, Netflix, YouTube and Google Photos for videos and photos, Google Calender and Google Keep for tasks, and CNN, CNBC and The Wall Street Journal for news updates. New services are integrated on an ongoing basis.

Google Assistant, an intelligent personal assistant, is included as the main and only assistant in Google Home. Unlike its cousin, Google Now, Assistant is able to engage in two-way conversations with users. The Wall Street Journal reported in October 2016 that Google hired writers from Pixar movies and The Onion satirical newspaper to develop a personality for the Assistant, with a long-term goal being to invoke a sense of emotional rapport in users.

Users can connect and group together multiple Home speakers for synchronized playback of music in every room. A notable feature omission, multiple accounts, was criticized by JR Raphael of Computerworld in November 2016, but reports in April 2017 suggested the feature was on the way.

Google Home includes home automation features, enabling owners to use it as a central hub to control smart devices. Examples of supported devices include the Chromecast digital media player, and products from Nest, SmartThings, Philips Hue, and Logitech Harmony.

Google Home



Design

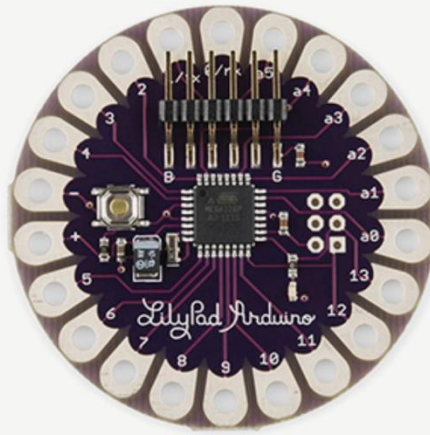
Google Home is 5.62 inches (143 millimetres) high, and 3.79 inches (96 millimetres) in diameter. It weighs 16.8 ounces (480 grams). The design represents a modular cylindrical shape, and has 4 LEDs on the top that indicate that it is working. The top surface is a capacitive touch panel, which can be used to stop or start music, and adjust the volume.

Hardware

In May 2016, The Information reported that Google Home has the same ARM processor and Wi-Fi chip as the Chromecast, describing it as "Home will essentially be a microphone, speaker, plastic top with LED lights and a fabric or metal bottom - wrapped around a Chromecast." A product teardown by iFixit in November 2016 further confirmed the information on same processor chips as the second-generation Chromecast, and also found two microphones along with a "standby" button to silence all communications for added privacy. A mute button was also confirmed by several media publications.

Modular base

The cover over the base is modular, and is available in various colors with the purpose of blending it around home decor. As of November 2016, there are six different color options offered through the Google Store, including three made of plastic: mango, marine, and violet, and three made of metal: carbon, copper, and snow.



LilyPad Arduino

Main Board

The LilyPad Arduino is designed for e-textiles and wearables projects. It can be sewn to fabric and similarly mounted power supplies, sensors and actuators with conductive thread.

Power

The LilyPad Arduino can be powered via the USB connection or with an external power supply.

If an external power supply is used, it should provide between 2.7 and 5.5 volts. This can come either from an AC-to-DC adapter (wall-wart) or battery. Again, don't power the LilyPad Arduino with more than 5.5 volts, or plug the power in backwards: you'll kill it.

Programming

The LilyPad Arduino can be programmed with the Arduino Arduino Software (IDE). Select "LilyPad Arduino" from the Tools > Board menu (according to the microcontroller on your board). For details, see the reference and tutorials.

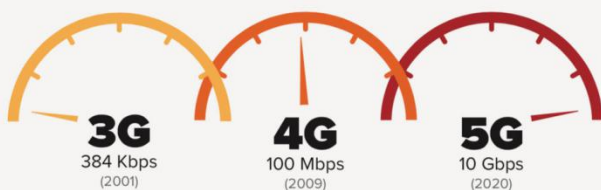
The ATmega168V or ATmega328V on the LilyPad Arduino comes preburned with bootloader that allows you to upload new code to it without the use of an external hardware programmer.

You can also bypass the bootloader and program the microcontroller through the ICSP (In-Circuit Serial Programming) header. While the holes are too small to insert pins into, you can insert male header pins into the ISP connector on your programmer and press them against the ICSP header on the board (from above). See these instructions for more information.



London will be ready to host the fifth generation of mobile telecoms technology by 2020, according to Boris Johnson, the capital's mayor. 5G technology promises mobile data speeds that far outstrip the fastest home broadband network currently available in the UK.

With speeds of up to 100 gigabits per second, 5G will be as much as 1,000 times faster than 4G, the latest iteration of mobile data technology. The gains brought about by 4G are already being felt by businesses whose employees are often on the move.



3G does not have the capacity to cope with modern mobile working demands. Workers in urban centres often feel the effects the most, with slow and sometimes non-existent mobile connections common in peak hours. Because 4G networks have higher base speeds, they experience less of this peak-hour strain. There is more than enough capacity to share for core services, such as e-mail and web browsing.

5G will make communications so fast they become almost real-time, putting mobile internet services on a par with office services

On top of this, 4G provides an additional speed boost for increasingly important business services, such as mobile video conferencing and cloud computing. 4G also allows for cost-effective, stable international calls on data calling services, such as Skype, even at peak times.

It will provide greater network stability to ensure that business-critical mobile functions do not go offline and the speed necessary to give employees a fully equipped virtual office almost anywhere. If broadband services do not experience significant uplifts in speed, 5G might even prove to be a cost-effective alternative to fixed-line services in ten years' time.

Mobile data could prove to be the answer for businesses that operate outside the reach of broadband networks or suffer from slow fixed-line service. Because the cost of putting up mobile data masts is far lower than installing fibre optic cables, operators may well decide that 5G is speedy enough to be used to reach rural areas as an alternative to fixed lines.

Potential uses of 5G

To give you a picture of just how fast 5G will be, Huawei estimates that the download time for an eight gigabyte HD movie will be just six seconds, compared with seven minutes over 4G and over an hour with 3G.

Nokia believes 5G will be a system that provides a “scalable and flexible service experience with virtually zero latency” – latency being the time needed for a packet of data to move across a network or series of networks. Combined with the anticipated growth of the internet of things over the next decade, this means a more connected world of instantaneous information is just around the corner - industry experts predict 50 billion devices will be “connected” by 2020.

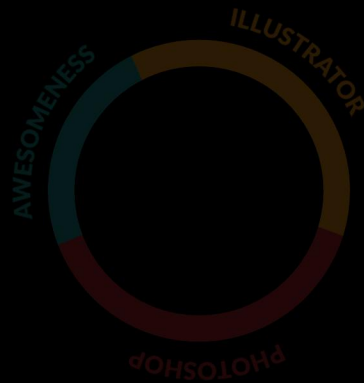
Yes, deployment still seems a long way away and yes, sizeable challenges remain such as infrastructure demands and spectrum capacity. However, with existing mobile technologies likely unable to meet market demands beyond 2020, 5G is inevitable and its impact will unarguably be transformational, for businesses and consumers across the globe.

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