

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ДЕРЖАВНИЙ УНІВЕРСИТЕТ ТЕЛЕКОМУНІКАЦІЙ**

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**ЗБІРНИК ТЕКСТІВ З ЧИТАННЯ
З ДИСЦИПЛІНИ «ІНОЗЕМНА МОВА (ЗА ФАХОВИМ
СПРЯМУВАННЯМ)»**

**Навчальний посібник
для студентів технічних ВНЗ
(робочий варіант)**

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Навчальний посібник призначено для розвитку навичок читання, перекладу, анотування, реферування аутентичних текстів технічного спрямування англійською мовою в галузі телекомунікацій та інформатизації, комп'ютерної інженерії та космічних систем, а також формування теоретичних знань і практичних вмінь для здійснення мовленнєвої комунікації в професійній сфері.

ПЕРЕДМОВА

Навчальний посібник являє собою збірник автентичних текстів технічного спрямування англійською мовою в галузі телекомунікацій та інформатизації, комп'ютерної інженерії та космічних систем. Використані в збірнику тексти - це автентичний мовний матеріал англомовних засобів масової інформації в сфері сучасних телекомунікаційних та інформаційних систем. Тематика текстів пов'язана з сучасними досягненнями, проривними технологіями та перспективними напрямками досліджень та розробок в галузі телекомунікацій та інформатизації, комп'ютерної інженерії та космічних систем. Завдяки цьому студенти, аспіранти, НПП та просто читачі мають змогу не тільки отримати теоретичні знання, практичні вміння та навички з читання автентичних англомовних текстів технічного спрямування, а і дізнатися про досягнення, напрямки перспективних досліджень та розробки провідних світових фірм в цих галузях.

Посібник призначений для студентів, аспірантів, здобувачів, науково-педагогічних працівників відповідного профілю, а також просто зацікавлених в розвитку теоретичних знань, практичних вмінь та навичок з читання англомовних автентичних текстів технічного спрямування.

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Text 1

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Technology

[<https://en.wikipedia.org/wiki/Technology>]

Technology is the collection of tools, including machinery, modifications, arrangements and procedures used by humans. Engineering is the discipline that seeks to study and design new technologies. 1_____E_____. The term can either be applied generally or to specific areas: examples include construction technology, medical technology and information technology.

The human species' use of technology began with the conversion of natural resources into simple tools. 2_____. Recent technological developments, including the printing press, the telephone, and the Internet, have lessened physical barriers to communication and allowed humans to interact freely on a global scale. 3_____.

Technology has affected society and its surroundings in a number of ways. 4_____. Many technological processes produce unwanted by-products, known as pollution, and deplete natural resources, to the detriment of Earth's environment. Various implementations of technology influence the values of a society and new technology often raises new ethical questions. 5_____.

Philosophical debates have arisen over the present and future use of technology in society, with disagreements over whether technology improves the human condition or worsens it. Neo-Luddism, anarcho-primitivism, and similar movements criticise the pervasiveness of technology in the modern world, opining that it harms the environment and alienates people; proponents of ideologies such as transhumanism and techno-progressivism view continued technological progress as beneficial to society and the human condition. 6_____.

A	Examples include the rise of the notion of efficiency in terms of human productivity, a term originally applied only to machines, and the challenge of traditional norms
B	However, not all technology has been used for peaceful purposes; the development of weapons of ever-increasing destructive power has progressed throughout history, from clubs to nuclear weapons
C	The term "technology" rose to prominence in the 20th century in connection with the Second Industrial Revolution
D	Indeed, until recently, it was believed that the development of technology was restricted only to human beings, but recent scientific studies indicate that other primates and certain dolphin communities have developed simple tools and learned to pass their knowledge to other generations
E	Technologies significantly affect human as well as other animal species' ability to control and adapt to their natural environments
F	The prehistoric discovery of how to control fire increased the available sources of food and the invention of the wheel helped humans in travelling in and controlling their environment
G	In many societies, technology has helped develop more advanced economies (including today's global economy) and has allowed the rise of a leisure class

Text 2

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Google Hopes to Take the Web Directly to Billions Lacking Access

[http://www.nytimes.com/2015/01/22/business/google-hopes-to-take-the-web-directly-to-billions-lacking-access.html?ref=business&_r=0]

Google has never shied from novelty or spending big to find ways to connect more people to the Internet. Over the last two years, its ideas have included fleets of little satellites, solar-powered drones that would fly around the world and balloons that float high into the stratosphere, beaming the Internet to those below.

1 D. The company, also known as SpaceX, could give Google a way to put its devices into outer space.

With that growing collection of devices in the sky, Google believes it can spread the Internet to underserved areas around the world. The investments also reflect a bit of enlightened self-interest, since the more people who are connected directly to Google, the more ads it can show them. 2_____.

“Anything they provide, if it’s going through their own pipe, they have more control over the experience and more potential for revenue,” said J. P. Gownder, an analyst at Forrester Research. 3_____.

Google’s interest in satellites is anything but original. Last week, the Virgin Group and Qualcomm, a maker of communications semiconductors, announced they had invested in OneWeb, a network of Internet connectivity satellites, while Planet Labs, a maker of shoebox-size satellites that offer Earth imagery, announced Tuesday that it had received \$95 million in financing.

Last year, Facebook bought a British drone maker and hired a bevy of top aerospace scientists, with the goal of deploying high-altitude, unmanned planes to deliver Internet service to parts of the world that have little connectivity now. 4_____.

These companies have different technologies and different ideas for making money, but the bind among them is a common assumption that there is no economic way to physically wire the world’s underserved consumers. 5_____.

There is another benefit for Google: The company is always looking for ways to get around Internet service providers. As Google executives have shown with new offerings, from insurance shopping to the growing Google Fiber broadband service, if there is one thing they believe, it is that their company’s interests are best served by going directly to the consumer.

This idea of sky-high Internet connections seems to be a fixture of technology booms. 6_____. One, called Sky Station, was a sort of stratospheric blimp that would hover over areas that needed broadband Internet service. It was not successful,

mostly because there was not much demand for the high-speed access it could provide, said Martine Rothblatt, inventor of the satellite service SiriusXM who was a Sky Station partner and is now chief executive of United Therapeutics, a biotechnology company.

A	That means those consumers are more likely to stick with Google services like search, Gmail or YouTube rather than going somewhere else
B	So the only way to do it is with satellites and other wireless technologies
C	There is nothing new about connecting to the Internet via satellite
D	Building on that, Google and the mutual fund giant Fidelity announced a \$1 billion investment on Tuesday into Space Exploration Technologies, a growing private rocket company that is still trying to prove itself on the world stage
E	In the mid-1990s, there were similar efforts
F	It is also experimenting with satellites and lasers to deliver Internet services
G	And that is how Google makes its money

Text 3

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

The HoloLens: A Vision of the PC's Future

[<http://www.nytimes.com/2015/01/22/technology/personaltech/the-microsoft-hololens-a-sensational-vision-of-the-pcs-future.html?ref=business>]

IT'S generally wise to take demonstrations of new technologies with a grain of salt. That was especially true for the Microsoft HoloLens — the hologram-projecting glasses that the tech giant unveiled on Wednesday — which a small number of reporters were allowed to use for a few minutes.

1 B. The company was cagey about how well the system worked in more spontaneous environments. Recording devices were barred. The hardware shown to the media was only a prototype, a two-piece unit that included a heavy battery attachment and a cord that tethered the machine to a computer.

All those caveats aside, the HoloLens is wondrous. It blew me away. 2 _____.

The HoloLens isn't a gimmick. Microsoft has clearly put a great deal of engineering work into this project. When you put on the device, which looks a lot like ski goggles, you see three-dimensional digital controls — like buttons, lines and pictures — as well as the sheep from the video game Minecraft superimposed on the world around you.

The holograms did not have very high resolution, and sometimes they were a little dull. 3 _____.

In one demo, a Minecraft scene was displayed over a real living room. A Microsoft minder asked me to select a virtual hammer (a tool in the game) and start smashing the coffee table in the room. 4 _____. I did so and was stunned by what happened: Before my eyes, the real coffee table splintered into digital debris, and then it was no longer there. HoloLens had perfectly erased the coffee table from the environment.

More important than the device's performance, though, is its apparent utility. 5 _____. Microsoft has spent a lot of time thinking about why people would use holograms.

In addition to Minecraft, the company showed three other useful situations. One was a call on Skype, Microsoft's video calling service. Using the service, I called an electrician, who showed me how to install an electric light switch. I could see the electrician superimposed in my field of view as I worked on the switch; he saw what I saw because of the camera on my HoloLens, and he could draw diagrams in my view that helped guide me along.

HoloLens will inevitably draw comparisons with Google Glass, the much mocked computerized spectacles that Google has been peddling over the last couple of years. There are certainly similarities: Both devices mix digital images and daily life, and both make you look silly when you wear them.

But using HoloLens is a significantly different experience from using Glass. 6____. Glass is meant to be more like a replacement for your phone — a way to get a quick dose of information at a glance — while the HoloLens seems more like a substitute for the personal computer.

In other words, it's meant to be useful.

A	She wanted me, in other words, to use a digital object to interact with a real one
B	Microsoft's demonstrations were highly scripted and completely controlled
C	And it suggests that interacting with holograms could become an important part of how we use machines in the future
D	Whereas Google's system mostly keeps the digital images out of your field of vision and is thus more suited to be used in public, the HoloLens immerses you more deeply in a digital environment
E	Yet they were crisp enough to instantly create the illusion of reality — which was far more than I was expecting
F	In another scenario, one that Microsoft developed in conjunction with the NASA Jet Propulsion Laboratory, I walked in a Martian landscape that had been captured by a rover on the planet
G	The promise of virtual reality is held up often in tech circles these days, but the practical uses have always seemed limited

Text 4

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

At Windows 10 Event, Microsoft Introduces HoloLens 3-D Headset

[<http://www.nytimes.com/2015/01/22/technology/microsoft-to-give-away-windows-10-in-move-to-woo-software-developers.html?ref=business>]

Microsoft wants back in the game, and it is using a little science fiction to get there. The company has seemed adrift in recent years. But on Wednesday, it unveiled an unexpected new headset that allows interaction with holographic images, enabling people to play video games, build 3-D models and hold immersive videoconferences with colleagues. 1__A__. Whether Microsoft can outmaneuver those companies, like Facebook and Google, is far from guaranteed. Still, the HoloLens could help renew some of the luster Microsoft has lost in the last decade, when it reacted late to critical new technology trends like mobile devices, cloud computing and Internet search.

Satya Nadella, Microsoft's chief executive, went even farther, saying that the new technology heralded a big shift in the industry. "Our industry's progress is punctuated by moments of category creation," he said. "Windows and holographic computing is one such moment."

The device was introduced here on Microsoft's campus, at an event billed as a showcase for a seemingly more mundane product, Windows, the venerable operating system that runs about 1.5 billion personal computers. 2__.

Certainly, though, HoloLens was the most eye-catching new product. 3___. "They're not just focused on retaining, but developing new opportunities," she said.

Microsoft is not the first company to create a 3-D headset, though. 4__.

Those companies have emphasized virtual reality, in which a person's field of vision is enveloped by 3-D imagery, cutting off their vision of the real world. 5___. The NASA Jet Propulsion Laboratory said it would use the headsets this year to view panoramic imagery of Mars shot by the Curiosity rover and to conduct experiments on the red planet.

The headset can also display what is called augmented reality, inserting virtual 3-D objects into the real world around people wearing the device. 6___. In October, Google invested \$542 million in another company, Magic Leap, working on its own augmented reality technology.

James L. McQuivey, an analyst at Forrester Research, a technology research firm, predicted that the headset could have a profound impact on how people interact with technology.

“If successful,” he said, “HoloLens will ultimately expand the way people interact with machines just as the mouse-based interface did in the 1990s, and touch interfaces did after the introduction of the iPhone in 2007.”

A	With the device, HoloLens, Microsoft is entering an increasingly crowded area, with giant competitors, in the world of virtual and augmented reality
B	Some of Microsoft’s HoloLens demonstrations showed virtual-reality-like applications, too
C	Its lenses are see-through so that users can continue to view the physical environment around them
D	Carolina Milanesi, an analyst at Kantar Worldpanel ComTech, a technology research firm, said the headset suggested that Microsoft wanted to help create new markets, rather than just protect old ones
E	Microsoft said the headset would be available around the same time that Windows 10 is released, which is expected to be this year
F	A menagerie of other devices that run on Windows 10 were also shown, as a way to illustrate the software’s flexibility
G	Facebook last year acquired one of the best known makers of virtual reality headsets, Oculus VR, for \$2 billion, and Samsung and Sony are both working on their own headsets

Text 5

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Technology Has Made Life Different, but Not Necessarily More Stressful

[<http://www.nytimes.com/2015/01/16/upshot/technology-has-made-life-different-but-not-necessarily-more-stressful.html?rref=technology/personaltech&module=Ribbon&version=origin®ion=Header&action=click&contentCollection=Personal%20Tech&pgtype=article&abt=0002&abg=0>]

Among New Year's resolutions shared on Twitter, unplugging digitally came right after losing weight and quitting smoking. People are flocking to digital detoxes, screen-free bedrooms and apps that nudge you off your phone. It is all in response to the notion that digital technology — like round-the-clock email and friends' envy-inducing Instagram photos — is stressing us out and making us unhealthy. But a new study by researchers at Pew Research Center and Rutgers University found the opposite: Frequent Internet and social media users do not have higher stress levels than those who use technology less often. 1_C__.

“The fear of missing out and jealousy of high-living friends with better vacations and happier kids than everybody else turned out to be not true,” said Lee Rainie, director of Internet, science and technology research at Pew and an author of the study. 2____. Then why do we keep hearing that technology is harmful? 3____. Telephones, watches and televisions were similarly believed to interrupt people's lives and pressure them to be more productive. In some ways they did, but the benefits offset the stressors. 4____.

“It's yet another example of how we overestimate the effect these technologies are having in our lives,” said Keith Hampton, a sociologist at Rutgers and an author of the study. Researchers are in the early stages of determining the effects of technology use on our brains. Some say it can increase anxiety and impatience and decrease the ability to focus, learn and remember. 5____. Most likely it does both, depending on how people use it.

The Pew and Rutgers researchers measured stress levels in a representative group of people by using a standard stress scale that ranks people's responses to questions about their lives. 6____. They controlled for demographic factors like marital and education status.

They found no effect on stress levels among technology users over all. And women who frequently use Twitter, email and photo-sharing apps scored 21 percent lower on the stress scale than those who did not.

A	Fear of technology is nothing new
B	Then they measured their frequency of digital technology use
C	And for women, using certain digital tools decreases stress
D	Others warn that technology is no substitute for human interaction in stressful situations.
E	Others have found that it increases trust, social support and close relationships
F	The exception was when Facebook users saw news of close friends going through stressful events like unemployment or illness
G	New technology is making our lives different, but not necessarily more stressful than they would have been otherwise

Text 6

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Google and Fidelity Put \$1 Billion Into SpaceX

[<http://www.nytimes.com/2015/01/21/technology/google-makes-1-billion-investment-in-spacex.html?ref=technology>]

Google likes its ambitions sky high. This time, it has gone a little further. The Internet giant, along with Fidelity, has invested \$1 billion in Space Exploration Technologies (SpaceX), the private rocketry company founded by Elon Musk. The move could help Google achieve its aim of bringing satellite Internet to remote corners of the world while giving SpaceX more money for its founder to pursue dreams of going to Mars.

1__**G**__. Last year, Google bought Skybox Imaging, a maker of small, high-resolution imaging satellites, for about \$500 million. Google already offers satellite imagery in its Google Earth product, but must purchase these images from multiple sources, often receiving what company executives have said is uneven image quality.

Google may also be interested in developing satellites with other kinds of sensors, like infrared detectors that show the health of crops, or lasers that can pierce forest canopies to show underlying terrain.

Google's founders Larry Page and Sergey Brin are both personally interested in space exploration. Early in the company's history it offered employee lectures on building so-called space elevators that could theoretically launch objects off Earth more cheaply than rockets could.

More practically, the company has been trying to transform the Internet connectivity business with high-altitude balloons that people can use to get online from remote locations. 2___. Google is in competition with Facebook, which is also interested in advanced means of connectivity and which last year purchased a drone company whose products are potentially capable of carrying Internet devices. Google and Fidelity will collectively own 10 percent of SpaceX because of the investment, SpaceX said in statement.

"Space-based applications like imaging satellites can help people more easily access important information, so we're excited to support SpaceX's growth as it develops new launch technologies," Don Harrison, Google's vice president for corporate development, said in a statement. Mr. Harrison will join the board of SpaceX.

With this investment, Google is hopping on a crowded bandwagon. Last week, Virgin Group, along with Qualcomm, a maker of communications semiconductors,

announced they had invested in a constellation of 648 Internet connectivity satellites. Also on Tuesday, Planet Labs, a maker of shoebox-size satellites that offer Earth imagery, announced it had received \$95 million in financing.

SpaceX grew out of Mr. Musk’s desire to land plants — the green, photosynthesizing type of plants — on the surface of Mars. As Mr. Musk tells the story, he started looking for feasible rockets, but found the pickings to be too risky or too expensive, so decided to start his own rocket company.

It almost went out of business. The first three launches of SpaceX’s small Falcon 1 rocket from Kwajalein Atoll, a small island in the middle of the Pacific Ocean, failed. 3_____.

Today, SpaceX is sort of the Southwest Airlines of rocket launchers — reliable and cheap. 4_____.

It also has contracts to launch commercial satellites. Recently, the company has come close to innovative breakthroughs, almost landing the first stage of a Falcon 9 rocket on a floating platform in the Atlantic Ocean. 5_____.

But it is not clear how SpaceX could obtain the financial resources to fulfill Mr. Musk’s more ambitious pronouncement, which is that the company would take people to Mars in a decade.

The company could raise a large pot of capital through an I.P.O. — that is, if shareholders would countenance such an extraordinarily expensive venture with uncertain payoffs far off in the future. Mr. Musk has said SpaceX would remain privately held for now.

6_____.

The Google investment appears to be a different approach: to bring in an influx of dollars without Mr. Musk yielding ironclad control.

A	So far, NASA represents the biggest slice of the company’s business. SpaceX has a \$1.6 billion contract for space station cargo and last year won a \$2.6 billion contract to fly astronauts to the station beginning in 2017
B	That same transmission technology could conceivably be put on satellites as well
C	The company is also planning the inaugural launch of its much bigger Falcon Heavy rocket this year, two years behind the original schedule
D	And even with its successes, the company has not launched as many rockets as quickly as it promised
E	But after a successful launch in September 2008, the company was able to continue development of the larger Falcon 9 rocket, part of a contract from NASA to develop the capability for taking cargo to the International Space Station
F	Then they measured their frequency of digital technology use
G	In addition to a payoff on its investment, Google may be seeking to put itself into orbit

Text 7

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Microsoft Previews Windows 10, Unveils New Internet Browser

[<http://www.bloomberg.com/news/2015-01-21/microsoft-s-nadella-previews-windows-10-unveils-new-web-browser.html>]

Microsoft Corp. (MSFT), seeking to use the next version of its Windows software to win back consumers and keep business customers happy, gave a detailed look at the new operating system and took the wraps off a revamped Web browser.

At an event Wednesday to preview Windows 10, the new iteration of its flagship personal-computer software, Microsoft showed the browser that will succeed Internet Explorer, code-named Project Spartan. 1 E.

Chief Executive Officer Satya Nadella, who took the helm almost a year ago, is trying to resuscitate Windows even as mobile computing continues to surge, PC demand sputters, and Microsoft focuses on versions of its Office applications for rival software platforms. He's also tasked with overhauling the product little more than two years after the last update -- Windows 8 -- failed to jump-start consumer demand while alienating corporate customers.

Microsoft also announced Windows Holographic, and a headset with glasses called HoloLens that will enable users to see holograms while tracking a user's voice, motion and surroundings. 2 _____. The company also showed HoloStudio, software tools for creating holograms, 3-D printing them and sharing them.

The new browser showed today lets users annotate websites using a stylus and touch or mouse and keyboard, and then send and share comments through e-mail and social media. The company also announced a new device called the Surface Hub, an 84-inch touch-screen computer designed for workplace collaboration that will run Windows 10.

The software maker said it will give free upgrades to Windows 10 to customers with Windows 8.1, Windows 7 and Windows Phone 8.1 for the first year 10 is on sale. 3 _____. "One can reasonably think of Windows as one of the largest Internet services on the planet," Myerson said. "The question 'What version are you running?' will cease to make sense."

The new version of Word for Windows 10 has a review tab to look through changes from other people and aid collaboration. The recent document list can roam from device to device. There's also a new Outlook app that mimics Apple Inc.'s iOS in letting users swipe left to delete or right to flag an e-mail message.

4 _____. Microsoft will also add support for storing music files in its OneDrive storage system, allowing access to music from all devices.

Microsoft also demonstrated an Xbox app for Windows and mobile devices running the software. The company will allow users to stream games from the Xbox One console to Windows PCs and other devices in the home. Xbox Chief Phil Spencer demonstrated how he joined a game as a second player from his PC.

“We want to move from people needing Windows to people choosing Windows to people loving Windows,” Nadella said today.

The Windows team has had to course-correct several times in the past decade. Windows 7 was a bid to recover after the debacle of Windows Vista, which was released more than two years late in 2007 and didn’t work well with popular apps and accessories. Windows 8 itself was a significant revamp -- Microsoft called it “a reimagining of Windows”-- designed to arrest sliding market share, which had dropped to about a fifth of all computing devices sold to consumers.

Windows 10 is a shift from the confusing Windows 8 design, which offered a new touch-screen interface alongside the traditional Windows style. 5____. Instead, it scared off corporate customers, many of which are still on Windows 7, which was released in 2009.

Today’s event wasn’t the first look at Windows 10 - the company gave a preview of corporate features in September.6____.

The biggest challenge for Windows in recent years has been the declining importance of the PC. At the same time, Microsoft has failed to succeed in phones and tablets -- Windows was installed on 11 percent of all devices shipped in 2014, according to a Sanford C. Bernstein & Co. analysis. That’s because PCs accounted for only about 10 percent of computing devices last year.

A	Microsoft will start distributing Windows software as a service, keeping customers’ versions up to date and supported, Executive Vice President Terry Myerson said at the event in Redmond, Washington
B	A new photo app aggregates a user’s entire photo collection from various devices and eliminates duplicates
C	That same transmission technology could conceivably be put on satellites as well
D	The glasses will be available “in the Windows 10 timeframe,” said Alex Kipman, a technical fellow in Microsoft’s operating system group
E	The update to Windows, coming later this year, will also bring Cortana, the voice-activated digital assistant, to PC desktops, and will have touch-enabled Office applications such as Word and Excel built-in for smartphones and tablets
F	That demonstration showed an attempt to meld some of the design elements of Windows 8 with the older, start-menu-driven approach that business users favor
G	Many users didn’t have touch machines, and corporate customers preferred to use a mouse and keyboard -- so Windows 8 didn’t gain much share on tablets or win back consumers

Text 8

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

This device thinks it can be the last smartphone you will ever need

[<http://www.washingtonpost.com/blogs/innovations/wp/2015/01/23/this-device-thinks-it-can-be-the-last-smartphone-you-will-ever-need/>]

By now, upgrading a smartphone has gotten fairly routine, so much so that it seems like consumers often do so simply out of habit. It's a costly one, however, with consumers coughing up over \$11 billion each year for a new shiny gadget. 1 D. The PuzzlePhone, developed by Finnish startup Circular Devices, is among a handful of bold concepts seeking to become a legitimate alternative to this viciously wasteful cycle. Similar to Google's widely-publicized Project Ara, it's designed to allow for certain parts to be interchangeable. 2 _____. But perhaps the biggest draw is that the phone, to some degree, would be future-proof.

"A smartphone with modular parts make a lot sense now that we've gotten to the point where a lot of the core functions have more or less stabilized," says Circular Devices co-founder Alejandro Santacreu. "Screens are good enough and the same applies to megapixel cameras, so improvements will typical be progressive bumps to things like the processor speed and memory."

On paper, the device is much simpler than the highly-customizable version Google has in the works. 3 _____. While this limits the degree in which users are able to fiddle with their devices, the approach sidesteps the intricate challenge of uncoupling all the various functions — something that the Google team has been ironing out.

"What makes what they're (Google) doing very complicated is that they're cutting into pieces a system where 80 percent of the functionality is inside a single chip," Santacreu explains. "Sure, geeks and developers who test things on different devices would love it, but it's not compatible with what your everyday consumer actually cares about." "I mean who wakes up in the morning and says 'I need a faster Bluetooth,'" he adds.

In some ways, it's a bit surprising that established handset companies have shown little interest in testing out modular designs. 4 _____. One example Santacreu cites is the cumbersome custom integration of firmware for each new Android model, a process developers refer to as "recompiling." Whereas easily installable operating systems such as Windows are easily installable and transferable on PCs, he estimates that custom-implementing Android can take up to two months. A modular system where the configuration of components are more or less standardized would eliminate much of the hassle, he says.

But for big players such as Samsung and Apple, any potential savings that come from introducing such a platform would be canceled out by the possibility of a far greater cost.⁵ Apple, in recent years, has taken steps to discourage consumers from altering its products beyond the point of sale. Processors and even onboard RAM memory for MacBooks are soldered in a manner that prevents users from making their own modifications. Batteries, while replaceable, are serviced at certified repair centers and Apple Stores.

Santacreu is a bit of a radical in declaring that he'd be more than happy if third-party manufacturers ended up putting out a wide range of replacement options, ultimately crowding him out of that category. "Some people don't need more power, but maybe they need a bigger screen. It's up to them to invest not \$600, but maybe just \$150 into a new LCD, or \$50 into a battery and use it until the next year without worries," he says. "The overarching goal is giving people these kind of choices."

He asserts that his prime directive is to cut back on waste and the inefficiency. The role he sees his company playing is to provide a standardized ecosystem, which is necessary to spur widespread adoption. Participating vendors would have the option of either paying a fee to be officially certified or should a part be reconfigured to the point where extensive recompiling of Android is needed, they can provide such a service. "We're not gunning to be the next Apple or Samsung so I wouldn't mind at all if independent companies started selling parts for the PuzzlePhone and didn't bother to talk to us," he says. "Where we fit in is we're here to provide support."

Since an injection of seed funding in September, the company has been busy assembling a prototype and hopes to release as commercial model by the end of the year. No suggested retail price has been set, but Santacreu says it wouldn't be a stretch for the products to eventually reach a price point that's competitive with other smartphones on the market, should the idea catch on. ⁶

"We understand our designs probably won't endure forever, but we would be happy to provide something that can be of use for 5 to 10 years," Santacreu says. "Everyone deserves a better lifespan from their devices than what they're currently getting today."

A	Besides serving as an attractive selling point for those tired of spending on upgrades, the approach can also eliminate costly inefficiencies
B	And even if the device retails for more out-of-pocket than a subsidized smartphone with comparable specs, users should expect to save money over the long term, he says
C	There are basically three parts: the brain (computing components), the heart (battery) and spine (display), which comes with dedicated compartments for both
D	Much of these expenses are often hidden in carrier contracts
E	For instance, fresh batteries can easily be swapped in and should the screen break, you can avoid costly repairs by simply buying a new one
F	That same transmission technology could conceivably be put on satellites as well
G	Modularity, in essence, would open up proprietary technologies to more competition from outside firms known as original equipment manufacturers (OEMs)

Text 9

Read the article and choose the best sentence (A-G) to fit each of the gaps.

There is one extra sentence.

Virtual reality isn't just for video games

[<http://www.latimes.com/business/la-fi-virtual-reality-20150109-story.html?track=lat-pick>]

When people think of virtual reality, they think games. Put on a helmet where VR systems are being demonstrated, and chances are you'll be immersed in a video game. Here you are in a spaceship cockpit. Now you're driving a race car. Oh, look, you're dodging bullets, "Matrix"-style, in a shooter game. Watch out behind you!

Sounds like fun, but virtual reality, despite all the hype, is not yet ready for prime time, for video games or anything else. 1 A. The immersive experience in a fast-action environment still makes too many people sick in their stomachs.

While they work to iron out those problems, VR makers like Oculus — a Southern California start-up acquired by Facebook last year for \$2 billion — are exploring additional market opportunities to increase their chances of success.

At the consumer electronics show CES in Las Vegas this week, those who donned the Oculus Rift ski goggle-like headset were transported to a video and audio alternative reality, a museum where a lively T-Rex awaited with menace. Lean in, and you could almost feel its breath on you.

In the same demo, people were virtually lifted to the top of a skyscraper; if they walked to the edge and leaned over, they could see bustling traffic hundreds of feet below. 2 _____.

In another vignette, a Pixar-like fight scene between two robots played out in 360-degree video, inviting users to look left, right and behind them to follow the action. The presentation was designed as a "tasting plate" of the possibilities for VR.

"We've said from the beginning we're big gamers, and we started Oculus to deliver consumer VR and revolutionize games," said Nate Mitchell, Oculus' vice president for product. "But it may well end up being that VR is more about film than games." He's not sure that's the case, "but it's possible. We don't know what the killer app is."

Maybe it's movies? Maybe video games? Maybe military simulation training? 3 _____.

Hollywood studios are deeply involved in exploring the possibilities of virtual reality entertainment, "pretty much all of them," Mitchell said. The Sundance Film Festival, to be held in Utah this month, said it has selected at least 13 short VR movies for presentation.

Jaunt VR, a Palo Alto company, has developed a prototype 3-D camera that records in 360 degrees so users can make their own virtual reality films. 4____. They can watch it without a VR headset by using their phone's screen as a window to the concert. For a more immersive experience, they can also use it with the Oculus gear or Google's low-cost Cardboard VR headgear.

Outside of film, Redwood City, Calif.-based AltspaceVR is building software for meetings and conferences in virtual reality. In the AltspaceVR app, users appear as a Wall-E-like avatar. The app uses the head tracking capabilities of virtual reality headsets to determine where a person is looking and how his or her head is moving, and translates that into the avatar's movements. 5____. Getting really close to someone's avatar lets users whisper.

"We think VR has this opportunity to be a new communications medium," said AltspaceVR Chief Executive Eric Romo. "There's a lot of things you can do with nonverbal communication inside virtual reality that are not really possible on other platforms."

On the phone, users can't tell whether the person on the other end of the line is paying attention. In group conference calls, people tend to accidentally talk over one another. 6____.

"In VR, I can have that information; I can see it," Romo said. "So we can communicate in this more natural way than we could on chat or telephone. Obviously, there's stuff that video brings to the table that VR can't do in the short term, but there's a lot more VR can offer there." It will be awhile before companies hold staff meetings via virtual reality avatars — if ever. Other workplace uses for VR are more immediate. Dan Ward, co-founder of mobile app development company Detroit Labs, believes the coming year will see various industries use VR for training — think combat simulation for the military; natural disaster drills for police, firefighters and paramedics; auto repair education; and so on. "In the past, we've spent billions of dollars re-creating situations for people to train in," Ward said. "But these VR head units are able to trick the mind really well, and we all know that a lot of training is mental, so there's a massive opportunity here."

A	The hardware remains big and clunky
B	It also simulates being in an actual physical space with other people by allowing users to hear someone better if that person's avatar is closer.
C	The company has already released two videos of concerts on Google Play that give users a 360-degree view of the concert stage
D	It triggered the fear of heights in more than one show attendee
E	Although hopes are building among companies and potential customers for affordable VR, there aren't yet any high-definition consumer headsets on the market
F	The company is working with outside developers on content for all three
G	AltspaceVR tries to communicate nonverbal cues

Text 10

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

New hardware and software aim to make TV and Internet work together

[<http://www.latimes.com/business/la-fi-tv-internet-crossover-20150108-story.html>]

Nobody knows what "television" means anymore. Videos, from homemade snippets to full-length TV shows and movies, dominate traffic over the Internet, beamed to smartphones, tablets, phablets, laptops, desktops and soon on tiny screens worn around the wrist. Oh, on regular TV sets too. 1 F__.

It's a bit of a mess. And as the Internet and TV converge, there's a flood of hardware and software being pumped out that doesn't always work together, as each manufacturer and software makers fights to make its approach the dominant one.

So while trade shows like this week's Consumer Electronics Show in Las Vegas are loaded with cool stuff, it's unclear how it's all going to come together.

"There's so many screens now and people want to view their content in a short, fast way on these screens," said TV personality Nick Cannon, the convention's entertainment industry ambassador. "Two fast-moving industries — tech and entertainment — have got to continue talking the same language." 2 ____.

As TV networks continue to debate how to price and distribute their content online, several start-ups whose apps are designed to simplify the process of organizing media files or finding streaming content used CES to introduce updates that make even more content accessible. 3 __.

PlayOn, which records online videos for later viewing while stripping ads, unveiled a revamped computer app for those cutting the cord on cable TV. The updated interface gives users a neatly designed command center to build a library of TV programming without a traditional cable or satellite subscription. 4 __.

ChannelMaster's Videos posted to the Web by Bloomberg and AnimalPlanet appeared on the same channel guide as the networks' traditional cable channels. traditional set-top DVR box will soon bring in online channels as well..

Tablo, a service for recording over-the-air channels, released its first set-top box with a built-in antenna. It's plug-in-and-play for \$250, saving the time of setting up an antenna. The company also announced plans to release apps for the Roku and Amazon Fire TV consoles as well as Android TV-equipped devices.

NBC Universal's offered a sample of what's to come as more of the industry gets its hands on Web-connected home appliances. When using the Syfy app while the

show is on TV, the upcoming series "12 Monkeys" illuminates Philips Hue smart light bulbs in a home to match the emotion and lighting of scenes in the show.

NBCUniversal also showcased its recently released fitness app called Radius. Essentially a \$9.99-a-month Netflix for workout videos, Radius is a big leap forward in terms of personalizing fitness programming previously relegated to expensive, static DVDs, said Nick Lehman, president of digital at NBC Universal.

5__. It will also soon be available on Comcast set-top boxes.

"We give them a taste on television and hope they subscribe to the service to get the full meal," Lehman said.

6__. Early on, they realized they had to be integrated in as many devices and mediums as they could from inside a reality TV show to tying it up to wearables.

"You got to get the basic pillars out there from the beginning because consumers are going to want to use everything," Lehman said. "There's not many platforms you can neglect at this point."

A	It remains to be seen whether their efforts will clarify or further confuse the issue
B	Everything comes from content that networks have made available on different corners of the Web such as Hulu or CBS.com
C	The latest near-market 3-D technology is focusing on eliminating the need to wear special glasses or use special DVD players to watch 3-D content
D	Content from the app is being promoted on a morning TV show on NBC Sports Network and across the rest of the broadcast family
E	He said the company is treating Radius like a start-up, using it as a test case for building new businesses within NBC
F	Meantime, cable companies try to keep customers from defecting while they come to terms with new technology, and broadcast TV struggles to remain relevant
G	Even if they talk the same language, it doesn't mean that consumers will understand

Text 11

Read the article and choose the best sentence (A-G) to fit each of the gaps.

There is one extra sentence.

Ford Opens Lab in Silicon Valley

[<http://bits.blogs.nytimes.com/2015/01/22/ford-opens-lab-in-silicon-valley/?ref=technology>]

In the latest sign that the distinctions between the auto and tech industries are becoming more blurry, Ford on Thursday celebrated the opening of a new research center in Palo Alto, Calif., in the heart of Silicon Valley.

The company said the new center would help advance new car technologies like built-in Internet connections and eventually self-driving vehicles. 1__A__.

Mark Fields, who became Ford's chief executive last July, said the new center was meant to make a statement. "We want to be viewed as part of the ecosystem of Silicon Valley," he said.

Ford, which has had an office in Silicon Valley since 2012, said it hoped the 25,000-square-foot Silicon Valley lab would include up to 125 people — researchers, scientists and engineers — by the end of the year. 2___. Given the pace of car development and manufacturing, any innovations from the development center are likely to take years before showing up in vehicles.

Several automakers have opened research and development facilities in Silicon Valley in recent years, including Honda, which has a research laboratory there and in 2014 introduced a developer studio to encourage developers to write apps that can work in cars.

Mercedes-Benz, which established its original research facility in Silicon Valley in 1995, opened a large research and development center in Sunnyvale in 2013. BMW, General Motors and Nissan-Renault also have research labs in the area.

Under Mr. Fields, Ford has moved aggressively to establish itself as a technological innovator, with a large presence at the 2015 International CES, the giant technology industry event. There, Ford announced what it called a "smart mobility" plan that would tackle problems like global gridlock and even explore so-called flexible ownership models, in which people might share a single car or borrow from a pool of cars instead of owning their own individually.

Eventually, Mr. Fields said, Ford could possibly sell cars as a service instead of as individual purchases. 3_____.

“It’s important for us to have a point of view on what we see as trends, and to make choices today that will bear fruit five or 10 years out,” he said. “And we have to see if there’s a business model there.”

The company also announced Thursday that it would give an autonomous car to researchers at Stanford. 4__. Stanford researchers also work with Google, Audi and others on automotive tech development. 5_____.

At the research center, Ford showed a remote control golf cart from the Georgia Tech campus in Atlanta; virtual reality driving environments that test self-driving car tech; improvements in speech recognition; and devices that attach to bicycles to help the company figure out how bikes interact with cars on the road. 6_____.

“I don’t think it’s a matter of rivalry. I think it’s a matter of partnership,” said Raj Nair, Ford’s global product development chief. However, in response to a question about the list of companies with which Ford was teaming up for its new research center, Mr. Nair said, “Google’s not on the page.”

A	It will be led by Dragos Maciuca, a former senior engineer at Apple who has also led research and development at Lockheed Martin
B	The researchers will help test the computer programs used by self-driving cars to make independent decisions on the road
C	The company, he said, should have a plan for surviving when hugely populated cities make car ownership unworkable or even illegal
D	Ford said it did not intend to compete with Silicon Valley — Google, for example, has most famously been developing self-driving cars along with in-car technology like Android Autos, and Apple last year released CarPlay
E	Company executives could not point to any specific projects that would come out of the center, but Mr. Fields said that the lab would assist with many technologies
F	He said the company is treating Radius like a start-up, using it as a test case for building new businesses within NBC
G	The Silicon Valley arm of Carnegie Mellon University will help test speech recognition, as Ford experiments with how people can safely interact with the car while driving, using their voices and even physical gestures

Text 12

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Silicon Valley's innovation agenda looks for a new champion after Obama

[<http://www.washingtonpost.com/blogs/innovations/wp/2015/01/22/silicon-valleys-innovation-agenda-looks-for-a-new-champion-after-obama/>]

President Obama's State of the Union address Tuesday may not have been as heavy on innovation as his previous State of the Unions, but it still provided an impressive list of innovation themes for the year ahead. In addition to mentions of tech darlings such as eBay, Google and Tesla, Obama catalogued all the cool new ideas starting to bubble up in the tech sector – 3D printers, new antibiotics, personalized medicine, revolutionary new prosthetics, advances in solar and wind power. 1 **F**.”

That's just further proof of how technological innovation has become an important part of the national political debate. 2__. Instead, it's going to be fought over the bigger ideas of how candidates think America should grow — not just maintain — its innovation potential.

That means that any presidential candidate that successfully woos Silicon Valley must clearly articulate what part of society should be considered the biggest driver of national innovation. 3__.“Middle class economics for the 21st century” became the buzzword of the night, with a focus on how to create new innovation opportunities for working families – whether it's Americans retooling via free community college classes or military veterans taking advantage of government retraining opportunities in areas such as cybersecurity.

However, talk to any member of the Silicon Valley elite, and you'd get a completely different view of America's innovation potential. 4__. Formal education in the way of universities or community college is not necessarily required — it could just as easily come from coding boot camps, MOOCs or hackathons. 5__. What Silicon Valley wants is maximum freedom to empower risk-takers and entrepreneurs to launch more businesses.

Senator Rand Paul (R-KY) has emerged as a Silicon Valley favorite with his promises for a hands-off approach to innovation.

Another big idea that must be addressed by any aspiring candidate is how much involvement the government should have in regulating the way society deals with complex technological issues. Washington is already getting involved in so many important issues — including net neutrality, NSA spying and cybersecurity — that

influence the future of Silicon Valley. Should government be hands-on or hands-off? 6___. While nobody expects a 2016 presidential candidate to have a firm grasp of the intricacies of every issue (and let's face it, issues such as net neutrality are hard), what's needed is a framework for approaching these complex issues that Silicon Valley trusts.

A	According to them, it's the hard-charging entrepreneur and small business owner who are leading America's innovation charge, not the middle class
B	In fact, investor and entrepreneur Peter Thiel says that higher education may not be needed at all
C	However, the battle to be anointed Silicon Valley's presidential candidate for 2016 is not going to be fought over specific technologies
D	Silicon Valley's preferred approach is for government just to leave the tech sector alone, and let the market take over when it comes to finding a solution
E	For example, according to Obama in his State of the Union address, it is the middle class and Middle America
F	There was even a shout-out for Instagram when Obama mentioned the nation's "re-energized space program"
G	The extreme view, supported by Sen. Rand Paul (R-Ky.), is that any government involvement means that you're not for innovation

Text 13

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

How should licensing work for commercial drone operators? A look at Britain's solution.

[<http://www.washingtonpost.com/blogs/innovations/wp/2015/01/21/how-should-licensing-work-for-commercial-drone-operators-a-look-at-britains-solution/>]

Right now flying commercial drones in the United States is illegal, except for a handful of individuals who have received Federal Aviation Administration exemptions to shoot everything from movies to real estate videos.

But the lucky few with permission to fly commercial drones in U.S. skies have had to jump a serious hurdle, obtaining a pilot's license. 1_G_. A square peg is getting jammed in a round hole.

The usefulness of the training is restricted, given the limited overlap in skill sets needed to safely operate a drone and a manned aircraft. But even those most frustrated with the FAA's slow approach to integrating drones into the national airspace agree that for safety's sake some certification process is needed. 2___.

The question is what does that license look like, and who should issue the licenses? An interesting example is Britain, where its Civil Aviation Authority — an equivalent to the FAA — has approved three companies to provide training on unmanned aerial vehicles (UAVs) that weigh less than 45 pounds.

Once a pilot has completed the training, he or she must provide the Civil Aviation Authority with a manual explaining how the drone will be used.3___. Then the operators can receive actual permission, with a few stipulations. Generally they must fly in the line of sight and not within 50 meters of people or buildings, according to a CAA spokesman. 4___. Those under 15 pounds can operate freely in airspace that isn't congested, such as near airports.

“My whole mission has been to bring the best lessons from manned aviation and put them into the unmanned space,” said Nick Rogers, the director of training at Sky-Futures, one of the companies approved to offer drone instruction. Sky-Futures initially developed the training to prepare its pilots for its work in the oil and natural gas industries. 5___. It's currently in discussions with a British utility company to train some of its employees.

First Sky-Futures sends trainees a ground school manual to gain an understanding of how airspace operates and how to read an air map. Newbies are given a month

at home with the manual, but experienced manned aircraft pilots are required to spend far less time with it.

Sky-Futures then puts trainees through two days of ground school and three weeks of actual flight training in Spain. Aside from much of the summer, the British group heads to Spain for the drier conditions and clear skies. Lessons take place at an approved test site. Students learn everything from how to navigate around objects to how to operate a camera on a drone safely.

All of these tasks are directly relevant to the work drone operators do in the field. 6____. The other companies Britain’s CAA has approved to offer UAV training — ResourceGroup and EuroUSC — take similar approaches.

ResourceGroup starts trainees with an online learning program. Then students spend two days in a classroom. One day is spent outside learning how to set up a flying site and actually fly. Prospective pilots then take a one-day exam to prove their skills.

A	Pilots also must show that they have liability insurance
B	Not just anyone should be flying a drone
C	The training is now becoming an additional revenue stream
D	Rogers and other Sky-Futures representatives visited Washington, D.C., on Tuesday, and met with FAA officials. They’re aiming to expand operations to the United States this year
E	Drones over 15 pounds must get clearance from air traffic control
F	The training costs about \$12,000. Rogers, a former Boeing 747 pilot for British Airways, calls it a “gold-plated standard
G	These drone pilots have spent thousands of dollars as they receive the type of training one needs to fly a Cessna

Text 14

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

Why the world's most intelligent people shouldn't be so afraid of artificial intelligence

[<http://www.washingtonpost.com/blogs/innovations/wp/2015/01/20/why-the-worlds-most-intelligent-people-shouldnt-be-so-afraid-of-artificial-intelligence/>]

Stephen Hawking, Elon Musk and a number of other tech luminaries from MIT, IBM and Harvard recently signed off on an open letter from the nonprofit Future of Life Institute warning about the perils of artificial intelligence. 1_C__.

Of course, it's easy to understand why AI has been giving rise to dystopian fears about the future from the world's most intelligent people. That's because the problem at the heart of AI is something that the supporters of the Future of Life letter refer to as "existential risk" — the risk that very bad things can happen in the near future to wipe out the human race as a result of technology gone bad.

2___. In last year's dystopian thriller "Transcendence," for example, Johnny Depp morphs into a super-brain with the ability to wipe the human race off the planet. At about the same time the movie hit cinemas, Hawking bluntly warned about the risks of super-intelligence: "I think the development of full artificial intelligence could spell the end of the human race."

The reason, Hawking told the BBC in an interview, is that, "Once humans develop artificial intelligence, it will take off on its own and redesign itself at an ever-increasing rate. 3___." In short, if computers get too smart, it's game over for humans.

In the Future of Life letter, Musk and Hawking hint at a dystopian future in which humans have lost control of self-driving cars, drones, lethal weapons and the right to privacy.4___. And they would do so not because they are inherently evil, but because they are so inherently rational – humans tend to make a mess of things.

But how likely is it, really, that an AI super-mind could wreak that kind of havoc and decide that humans are expendable?

The flip side of "existential risk" is "existential reward" — the possibility that very good things can happen in the near future as a result of exponential leaps in

technology. For every Stephen Hawking and Elon Musk, there's a Ray Kurzweil or Peter Diamandis. People who focus on "existential reward" claim that AI will bring forth a utopian future, in which the human brain's full potential will be opened up, giving us the ability to discover new cures, new sources of energy, and new solutions to all of humanity's problems. 5___.

If you think about what AI has already accomplished, well, there's a lot more that can be done when super-intelligence is applied to the pressing humanitarian issues of the day. 6___. AI has given us speech recognition, image classification, autonomous vehicles and machine translation. Thinking in terms of "existential reward" is what leads one to think about the future as one of abundance, in which AI helps — not hurts — humanity.

A	Even worse, computers would become smarter than humans and at some point, would decide that humans really aren't so necessary after all
B	The Future of Life letter notes how far, how fast, we've already come.
C	Without the appropriate safety measures built in, they argue, the rapid growth of artificial intelligence could end in disaster for humanity
D	When a technology is so obviously dangerous — like nuclear energy or synthetic biology — humanity has an imperative to consider dystopian predictions of the future.
E	Even the supporters of Future of Life's dystopian AI premise concede that there are a lot of positives out there, including the "eradication of disease and poverty"
F	Humans, who are limited by slow biological evolution, couldn't compete and would be superseded
G	"Existential risk" is precisely what makes Hollywood sci-fi movies so scary

Text 15

Read the article and choose the best sentence (A-G) to fit each of the gaps. There is one extra sentence.

This device charges your phone wirelessly, anywhere in the room

[<http://www.washingtonpost.com/blogs/innovations/wp/2015/01/16/this-device-charges-your-phone-wirelessly-anywhere-in-the-room/>]

The constant need to recharge a dying battery has become one of the most persistent inconveniences of our time. Without a long overdue breakthrough, our relationship with mobile gadgets will continue to involve being repeatedly tethered to wall sockets, essentially immobilized by our mobile devices. There's a certain irony to that.

Recently though, a number of approaches to boost battery life has begun to show some promise. 1 ***B***.

At this year's Consumer Electronics Show, Energous, a publicly-traded start-up based in Silicon Valley, demonstrated first hand one of the more intriguing workable solutions at an apartment suite inside the nearby Hard Rock Hotel & Casino. 2 ____.

In practice, smartphones, tablets or wearable devices can be programmed to recharge automatically the moment someone walks through the door with one and remains constant as the user moves about freely, even while carrying on a phone conversation or running apps.

It's this utter sense of carefree mobility that chief executive Stephen Rizzone says separates their technology from competitors like WiTricity, which uses inductive coupling, a process in which two coil-generated magnetic fields, one from the gadget and the other from a power source, are brought just close enough together to induce a current.

"All the other types of wireless charging involve coupling. Whether it involves putting your device on a recharging pad or only needing it to be loosely coupled, the whole thing is still somewhat stationary because you're not getting the freedom of separation," he says. "What we've developed is meaningful power transmission at a distance in a manner where you can be truly untethered."

The Wattup system, in its most consumer-friendly iteration, is comprised of a wall-mounted power transmitter and a tiny receiver chip fashioned separately as a stand-alone battery case attachment. 3____. Once both parts are synced, an array of antennas inside the transmitter sends out electrical current in the form of radio waves, which bounce around until they reach the receiver. There, it's then collected and converted into direct current.

Rizzone assures me that current is supposedly safe and doesn't penetrate human skin due to the highly reflective frequency. And while the radio waves travel along the same 5.7-5.8 GHz frequency band range as Wi-Fi, they shouldn't interfere with it or any other outside signals. 4____.

"The damage to batteries that comes from constantly recharging when the battery is full pertains to rapid charging and that's not what we're doing here," Rizzone explains. "With wireless charging, continuing to top off is actually optimal, so we're shifting the paradigm."

There are significant trade-offs though. Despite a claimed conversion efficiency rate that can reach 70 percent, the amount of energy available starts to dwindle the further away devices are from the transmission point. 5____. Between 10 to 15 feet, however, that number maxes out at four watts. Add more power hungry devices to the mix and available power can be divvied up to the point where charging rates fall to about a quarter watt each. 6_____.

A	For instance, inside a range of five feet, as much as 16 watts of electricity are available for charging
B	Among them are transparent solar panel cells that can be layered directly onto the display and the implementation of piezoelectric materials, which excel at harvesting ambient energy
C	He also went on to emphasize that this particular method of charging won't damage the phone's battery, even if power levels are being topped off continuously
D	The transmitter also includes a bluetooth-powered module that detects and locates devices within a certain range
E	Another big concern is the potential higher cost of electricity, since much of it can go to waste
F	The fix they've developed is a setup that can supply power wirelessly to as many as a dozen gadgets at any given time, up to 15 feet away
G	Keep on mind, though, that for many smartphones 1 watt translates to a charging rate of about 1 to 2 percent per minute

Key

Text 1 1E, 2F, 3B, 4G, 5A, 6D

Text 2 1D, 2G, 3A, 4F, 5B, 6E

Text 3 1B, 2C, 3E, 4A, 5G, 6D

Text 4 1A, 2F, 3D, 4G, 5B, 6C

Text 5 1C, 2F, 3A, 4G, 5E, 6B

Text 6 1G, 2B, 3E, 4A, 5C, 6D

Text 7 1E, 2D, 3A, 4B, 5G, 6F

Text 8 1D, 2E, 3C, 4A, 5G, 6B

Text 9 1A, 2D, 3F, 4C, 5B, 6G

Text 10 1F, 2G, 3A, 4B, 5D, 6E

Text 11 1A,2E, 3C, 4B, 5G, 6D

Text 12 1F,2C, 3E, 4A, 5B, 6G

Text 13 1G,2B, 3A, 4E, 5C, 6F

Text 14 1C,2G, 3F, 4A, 5E, 6B

Text 15 1B,2F, 3D, 4C, 5A, 6G

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