

Department of Computer Applications

NEWSLETTER

TECHNICAL NEWS

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You Can Talk To MIT's Mind-Reading Headset Without Ever Opening Your Mouth

MIT has created a special headset that allows you to communicate with a computer system by simply thinking what you want to say to it, kind of like being able to issue a command to Amazon's Alexa or Apple's Siri telepathically.

It's called [AlterEgo](#) and it's a wearable device that attaches to your jaw and face (don't worry, it's totally non-invasive and doesn't break the skin, although the prototype looks a little goofy) where electrodes pick up neuromuscular signals triggered when you say words in your head. These signals aren't detectable when you look at someone who is verbalizing internally.

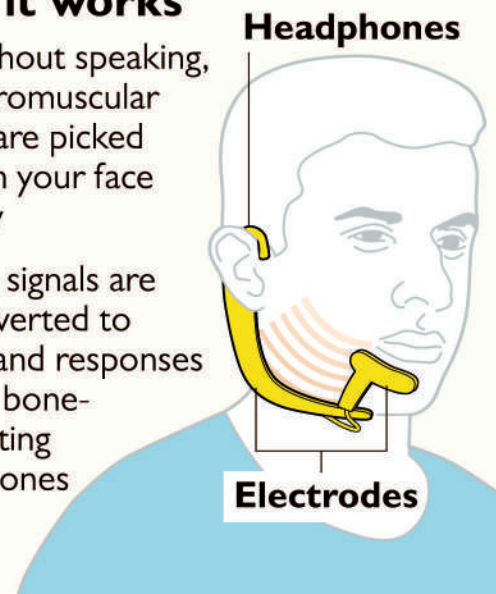
The researchers tested the prototype device in involving 10 participants and found that it transcribed internal vocalizations with 92 percent accuracy on average.

In addition to being able to understand what a user wants to communicate without vocalizing, the device can also "talk back" to the user via bone conduction that doesn't obstruct the ear canal like regular earbuds. This makes it possible to interact with a computer system, digital assistant or some kind of artificial intelligence without having to compromise the user's current environment by fiddling with a smartphone, speaking aloud or obstructing hearing.

How it works

1 Without speaking, neuromuscular signals are picked up from your face and jaw

2 The signals are converted to words and responses sent to bone-conducting headphones



NEWSLETTER

Google Android Q Beta 2 launched with focus on privacy and optimisation for foldable phones

Google recently introduced Android Q beta software for users. The early version of Android's next iteration is said to bring a slew of new features and improvements. Ahead of the I/O developer conference, Google has launched Android Q Beta 2 update.

The latest [Android Q beta update](#) focuses on privacy, improved interface, and optimisation for next-generation foldable phones. The latest update is available for all Pixel devices including Pixel 2, Pixel 3 and [Pixel 3XL](#). To download and install the Android Q beta, interested Google Pixel users can enroll on the official Android Beta page.

After signing up check for the updates by visiting Settings > System > Advanced > System updates.

Privacy:-

Android Q brings a new Privacy section in the settings application. The section acts as single dashboard for monitoring all the permissions apps have on your device. Under the hood, Google is making it difficult for apps to access users' private content.

“With Scoped Storage, apps can use their private sandbox without permission, but they need new permissions to access shared collections for photos, videos and audio. Apps using files in shared collections -- for example, photo and video galleries and pickers, media browsing, and document storage -- may behave differently under Scoped Storage,” wrote Google in a blog post.

Android Q also gives greater control to users on location data accessed by application. Similar to iOS, Android Q now gives users the option to give location data only when using a particular application.

Interface:-

Google has added support for bubbles which it describes as a new way for users to multitask and re-engage with applications. Bubbles essentially are like Messenger's chat heads that appear on top of all applications.

[Android Q](#) will also bring an “undo” feature for apps mistakenly removed from home screen. It's quite similar to Gmail's “undo” button as it appears for some seconds to allow you to revert the move.

Foldable phones

The latest Android Q Beta 2 update also allows developers to build and optimise software for [foldable phones](#). Google's OS-level support for foldable phones will encourage more developers and OEMs to join the new form factor. Google's last year's Android Pie update pushed notch displays in similar fashion. For now, developers can run emulators for foldable screens.



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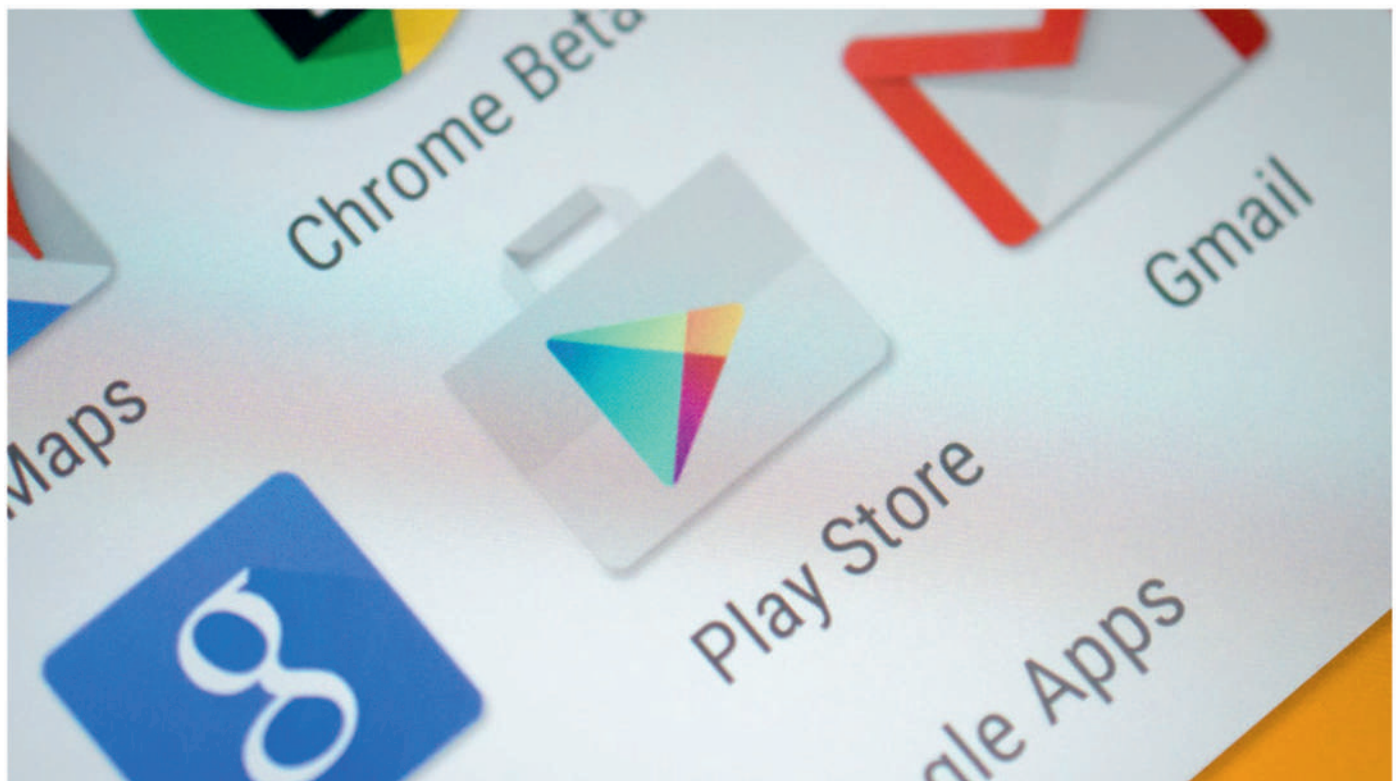
Google notes that the overall health of the Android ecosystem has improved. With the use of AI-enabled Google Play Protect, the service is able to scan over 50 billion apps daily.

Google has released its annual Android Security and Privacy report for 2018 outlining the overall health and risks its popular and most widely ecosystem faced in the year.

The report observed that there had been an overall increase in potentially harmful application (PHA) downloads. The percentage of PHAs downloaded from the official Google Play Store increased from 0.02 % in 2017 to 0.04 % in 2018.

However, if the numbers for click fraud are removed from these stats, then the PHAs have actually declined by 31 % year-over-year, Engadget reports.

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NEWSLETTER

Google AI Ethics Council is falling apart after a week

In less than a week, the council is already falling apart, a development that may jeopardise Google's chance of winning more military cloud-computing contracts.

Google recently appointed an external ethics council to deal with tricky issues in artificial intelligence. The group is meant to help the company appease critics while still pursuing lucrative cloud computing deals.

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On Saturday, Alessandro Acquisti, a behavioural economist and privacy researcher, said he won't be serving on the council. "While I'm devoted to research grappling with key ethical issues of fairness, rights and inclusion in AI, I don't believe this is the right forum for me to engage in this important work," Acquisti said on Twitter. He didn't respond to a request for comment.

On Monday, a group of employees started a petition asking the company to remove another member: Kay Coles James, president of a conservative think tank who has fought against equal-rights laws for gay and transgender people. More than 500 staff signed the petition anonymously by late Monday morning local time.

Employee activism on equal pay for women, sexual harassment, AI ethics and doing business in China has roiled Google over the past year. The protests have been effective. The company pulled out of a deal with the U.S. military to build object recognition technology for drones, prompting criticism from politicians including U.S. President Donald Trump. Google changed its policies after thousands of workers walked off their jobs to protest how the company deals with sexual harassment complaints.

At the same time, conservative politicians have said the company's algorithms and content moderators unfairly discriminate against them in search results and YouTube, though there is no proof for these claims. Appointing Coles James, who is the president of influential right-wing think tank the Heritage Foundation, could be seen to conservatives as a sign that Google is hearing their concerns.

Some AI experts and activists have also called on Google to remove from the board Dyan Gibbens, the CEO of Trumbull Unmanned, a drone technology company. Gibbens and her co-founders at Trumbull previously worked on US military drones. Using AI for military uses is a major point of contention for some Google employees.



NEWSLETTER

50,000+data science, AI Jobs vacant due to shortage of talent: Report

The market has twice the number of jobs as jobseekers, indicating an urgent need for professionals to upskill, said the study by online and hybrid education company Great Learning. More than 50,000 jobs in data science and machine learning are lying vacant due to shortage of qualified talent, says an industry report. Such is the situation that the market has twice the number of jobs as jobseekers, indicating an urgent need for professionals to upskill, said the study by online and hybrid education company Great Learning, shared exclusively with ET.

“India lacks massively when it comes to talent in data science, machine learning and artificial intelligence,” Hari Krishnan Nair, co-founder of Great Learning, said. “With more and more jobs increasingly becoming data-driven, the need of the hour is for professionals to upskill themselves to stay relevant.” The primary reason for the demand supply gap, according to Nair, is that the kind of projects companies are implementing require a higher order of data skills that do not exist. “What people learn in colleges is not in sync with what is being used in industry,” he said. “Most of these individuals passed out a while back. Now a lot of things are getting automated; newer opportunities are coming up. That is where there is a dearth of talent.”

Banking and financial services is the biggest market for analytics and data science professionals with 44% of all jobs created in this domain in 2017, said the report created in partnership with Analytics Vidhya, an online community for analytics knowledge. E-commerce is another significant market for analytics professionals given the wide use of recommendation engines across e-commerce websites. Around 12% of all jobs were created in the e-commerce industry in 2017.

Skills in cloud, big data analytics, machine learning and AI are going to be critical for data science professionals to land the available jobs, said the study that covered 28,000 people in 3,000 organisations across the country. 50,000+ data science, AI Jobs vacant due to shortage of talent: Report While the highest number of job searches are observed in SQL programming language, Python is the fastest-growing due to the greater support of machine learning libraries, the Great Learning report said. However, jobs in SAS have declined recently, it said.

Data scientist, data analyst, data architect, data statistician, ML (machine learning) engineer, ML specialist, technical architect and data engineer are some of the most popular roles available, it said.



NEWSLETTER

IoT and blockchain convergence: WISEKey launches digital identity offering

WISEKey International Holding has launched SensorsID, a digital identity offering which aims to protect device identities and their data.

Analyst firm Gartner has estimated that by 2020, more than 20 billion devices will be connected. Each device will need security with it – many of them sensors using secure IoT chips. By 2022, it is predicted, one trillion networked sensors will be embedded in the world – each one requiring strong digital identity, authentication and data protection.

SensorsID as a result aims to 'combine dual-factor authentication capabilities with an innovative blockchain platform to protect device identities and their data transactions', in the words of the company. "The SensorsID blockchain is constantly growing as new identity blocks and data transactions are added to it to ensure authenticity and traceability," the company added. "The system is totally decentralised and can be operated at national or local levels using a distributed identity ledger run by trusted parties spread across the **blockchain** ecosystem."

The company added that, combined with an application microcontroller in the IoT edge device, the security available in the new solution is at a 'premium' level – even going as far as saying it could have blocked both the Meltdown and Spectre attacks.

"The data is stored deep down within the protected memory of the chips, which are designed with unique capabilities not to allow other software to run on them and are equipped with various hardware sensors and protection mechanisms making them resistant to hardware attacks," said the company.

In another example of blockchain and IoT converging – albeit at a consumer level – Singapore-based startup Omniaz [announced last month](#) it had partnered with Wine Connection to launch a 'smart bottle' experience called DRNK. DRNK, which stands for 'drink, rewards, network, knowledge' is being developed alongside providers such as NXP Semiconductors, NEM, Smartrac and ProximaX.



NEWSLETTER

Scientists develop AI system to help recognise, assess violinist's gestures

Scientists have developed a novel artificial Intelligence system that provides real-time accurate information about a violinist's movements when playing the instrument. Gestures are extremely important, in part because they are directly related to the sound and the expressiveness of the musicians, said researchers from Pompeu Fabra University.

Technology already exists that can capture the movement and is capable of detecting gestural details very precisely.

In a study published in the journal *Frontiers in Psychology*, the researchers applied AI to the automatic classification of violin bow gestures according to the performer's movement. "We recorded movement and audio data corresponding to seven representative bow techniques performed by a professional violinist," researchers said in a statement.

