



Giving More People a Voice

Whispp has developed AI voice technology and calling apps that convert an individual's whisper or impaired speech into a clear, natural voice, in real-time.

Summary

Whereas artificial intelligence is now widely used to convert speech into text, the technology can also be employed to make speech louder and clearer to help people with voice disabilities to communicate. By building its own custom data sets, Whispp, a six-year-old start-up, has developed a solution that can amplify and clarify speech in real-time.

Netherlands-based Whispp believes the technology could be a game changer for people with stutters and people with voice impairments that make it hard for them to communicate effectively in both their personal and professional lives. Available through a mobile phone and soon also a desktop app, the Whispp AI can be used to make both voice messages and phone calls louder and clearer. The Dutch government has agreed to reimburse people who purchase Whispp to help them be productive at work.

Whispp is also aiming to license its technology to telcos, video conferencing platforms and smartphone makers,

which would then embed it in their propositions. Other potential distributions channels include large employers, speech therapists and public healthcare initiatives.

As well as helping people with voice disorders, Whispp believes its technology could be valuable in other contexts. For example, if you want to have a private phone call in a public place, you could use the app to amplify your whispers for the other participant on the call. In a professional context, Whispp's technology could be used by the military to help them communicate in situations where they need to keep their voices down or by tour guides showing people around an art gallery or a museum.

Looking forward, a key priority for Whispp is to reduce the size of its AI model so that it can run locally on a handset or laptop, rather than in the cloud. Having the AI model (or at least part of it) on the device could also make the service even more responsive, while lowering costs for Whispp and end-users.



Globally, approximately 300 million people suffer from some kind of voice disability or speech disorder. By hindering their ability to communicate, these disabilities can harm individuals' job prospects and reduce productivity. They can also lead to depression.

People with voice disabilities try to adapt. One way to reduce stuttering, for example, is to whisper. Whispering (so not using the vocal cords) can reduce stuttering by up to 85%, but whispers can be hard for other people to hear and can lack expression.

To overcome these challenges, Whispp, a Netherlands-based start-up, is using artificial intelligence (AI) to convert an individual's whisper or impaired speech into a clear, natural voice in real-time. The Whispp app, which can be used to make voice calls or record voice messages, can be set to amplify and clarify your own voice or to speak your words using one of several pre-set voices.

Whereas AI is typically used to convert speech to text or vice versa, Whispp has built its own proprietary data sets to train its AI system to enable audio-to-audio conversions in real-time. As the AI recognises phonemes, rather than specific words, it is designed to be language-independent, so could be employed around the world. Whispp has also tuned it to filter voice audio from background noise, as well as interpreting speech that has been affected by an impairment.

"It is unique in being real time," says Joris Castermans, founder of Whispp. "Its language-independence makes it highly scalable. And it works for a clean whisper, but it also works for a more rough voice. And it's inherently noise robust."

With this technology, Whispp hopes to enable millions of people with voice disabilities and severe stutters to express themselves in their daily lives and work. Joris Castermans has a personal insight into the challenges they face today. "The idea started with me having a mild stutter, particularly when I was a young child and in high school" he explains.

People also whisper or speak quietly for other reasons. Another condition, called spasmodic dysphonia, causes the muscles that generate a person's voice to go into spasms. People with this disorder also steer their voice towards whispering to relax the vocal cords, according to Joris Castermans. Furthermore, elderly people often suffer from a disorder called presbyphonia, which results in a weak voice. In an ageing population, the number of people with such conditions will be growing.

Could be a life changing technology

"The impact of losing your voice is so big," notes Joris Castermans. "People just don't make phone calls, they just don't do it anymore. For the elderly, being in contact with your grandchildren and stuff like that is much more difficult. They just don't go to parties and to restaurants with their partner or friends. Situations where you are getting social contacts, there are crowds, there's a lot of noise, so they really struggle. Research shows it leads to social isolation and depression."

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Joris Castermans - founder of Whispp

In a professional context, people with naturally weak or croaky voices can be embarrassed, as it may sound to colleagues like they are ill or they have had a big night out. By amplifying and clarifying their voices, Whispp can help these people avoid inadvertently giving the wrong impression about their lifestyles.

In some cases, effective voice assistive technology could be life changing (see graphic). For the first time, people with severe stutters, for example, could conduct professional voice and video conferences with work contacts and hold enjoyable video calls with relatives. Recognising the socio-economic benefits, the Dutch government has agreed to reimburse people with disabilities in the Netherlands who subscribe to the Whispp app for work purposes.

While there are many digital tools that are designed to help people with disabilities or impairments, Whispp is targeting a neglected area. It positions its system as assistive voice technology for people who whisper or have soft and affected voices, but have some articulation (see graphic). Whereas other companies, including some of the big tech platforms, offer automatic speech recognition and augmentative alternative communication tools for people who have no voice or very poor articulation, Whispp claims to have developed the first AI technology and calling app that can ensure natural real-time conversation for people who have lost their voice or who stutter severely.

For a natural free flowing conversation, it is critical to avoid any delays or buffering. Whereas a combination of speech-to-text and text-to-speech tools take 2-3 seconds to make the conversion, Whispp is focused on ensuring its audio-to-audio conversion takes less than 50 milliseconds – fast enough so that there is no noticeable delay between the person moving their lips and the related audio. “What makes us so unique is that really, really low latency,” says Joris Castermans.

Over the past six years, Whispp has developed its technology by building a very large proprietary data

set for training the AI and refining the necessary algorithms. “We struggled for about three years,” recalls Joris Castermans. “We just didn’t know if it would be possible. We were struggling in the mud and keeping the faith and saying we should go for it. We have a wonderful team with a lot of perseverance and I think were we not so motivated and committed to the purpose, we would have stopped.”


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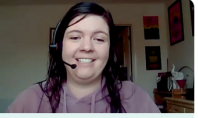
Joris Castermans - founder of Whispp

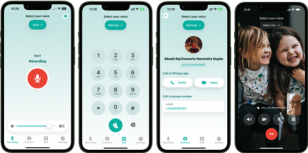
Whispp put a lot of effort into gathering a large and unique data set. “It’s a lot of trying and experimenting,” notes Joris Castermans. “And we’ve had a lot of routes and pathways and architectures. If we would have written a patent four years ago, then it would be kind of worthless because the system is very different today.”

Exploring multiple routes to market


Today, Whispp makes a mobile app (soon to be followed by a desktop app) available to consumers via a so-called freemium model. They can use some of the capabilities, such as voice messages, and test the calling experience for free, but they need to pay if they want to use the technology for regular phone calls. It is more economical if both parties on a call are using the Whispp app. In the UK, for example, Whispp charges £20 a month or £200 a year for a subscription, which covers the user for 360 minutes of calls to the Whispp app per month and 60 minutes of calls to phone numbers.



Voice messages	Phone calls	Video calls	Live conversations	Video conferencing
				
<i>Susan (49) Vocal cord polyps</i>	<i>Tom (27) Stuttering</i>	<i>Catharina (55) Vocal cord paralysis</i>	<i>Meta (69) Throat cancer</i>	<i>Anna (28) Spasmodic Dysphonia</i>
“Quick voice messages to my son are so easy now.”	“I don’t avoid phone calls at the office anymore.”	“I can speak to my grandchildren like in the past.”	“I enjoy going to restaurants with my husband again.”	“More efficient and costing me less energy. Each day.”



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Whispp is also aiming to license its technology to other organisations who would then embed it in their propositions. For example, the start-up is in discussions with leading telcos about whether they can provide the technology to their customers as part of their standard offering, thereby helping people with disabilities to make greater use of connectivity. Although telcos will incur some costs to provide the Whispp functionality to customers, Joris Castermans believes the functionality will add to their brand value.

Whispp is also talking to the major tech players about whether its technology could be delivered as a plug-in for the leading video calling platforms, such as Microsoft Teams, Zoom and Google Meet. At the same time, it is exploring whether smartphone manufacturers could integrate the Whispp service into their handsets so that it is available out of the box for people who need it.

Other potential distribution channels include large employers, speech therapists and public healthcare initiatives. Given the economic implications of an ageing workforce, Joris Castermans believes that some governments, such as those in the UK and the US, may establish reimbursement programmes to encourage people with voice problems, such as those caused by throat cancer, to keep working. The Whispp app has secured the necessary regulatory approvals in the US and Europe to be classified as a medical device.

Demand could be large and diverse

Whispp believes its technology could be applied to a wide range of scenarios by all kinds of users. For example, if someone wants to have a private phone call in a public place, they could whisper, but use

the app to clarify and amplify their voice for the other participant on the call. Similarly, people playing online games could use the technology to avoid disturbing people around them while they communicate with their fellow gamers.

In a professional context, Whispp's technology could be used by the military to help them communicate in situations where they need to keep their voices down or by tour guides showing people around an art gallery or a museum.

Joris Castermans believes Whispp's technology could also be deployed in hearing aids to help people distinguish voices from background noise. As it is trained to recognise phonemes, Whispp's AI can single out voices from other noises. That could be particularly valuable for people who have to make phone calls from noisy environments, such as a factory floor.

Having raised seed funding in December 2023, Whispp plans to raise Series A funding in 2025. As well as developing its distribution channels, Whispp will continue to invest in improving the robustness of its AI and the speech quality, as well as making the service more personalised and able to handle accents.

Another key priority is to reduce the size of the AI model so that it can run locally on a handset or laptop, rather than in the cloud. As well as making the service even more responsive, running the model locally would reduce Whispp's cloud-related costs and boost its margins. Having the AI model (or at least part of it) on the device could also make Whispp the service easier to use (and more affordable) in developing countries, where the cloud infrastructure is relatively limited and expensive.

About the GSMA

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry, and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

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The GSMA Foundry is the go-to place for cross-industry collaboration and making positive change happen, supported by leading technology organisations and companies. By bringing together members and key industry players, engaging, and unifying the end-to-end connectivity ecosystem, the GSMA is solving real-world industry challenges.

Our vision is to unlock the full power of connectivity so that people, industry, and society thrive. This enables the mobile industry's mission: to connect everyone and everything to a better future.

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About Whispp



Powered by AI, Whispp's speech technology empowers millions of people who suffer from a voice disability or stutter severely with the ability to speak in their own natural voice, intended intonation, and emotion in real time. Whispp also enables phone and video calls with more privacy for those without voice disorders, so conversations are kept private without disturbing others.

Founded in 2018, Whispp is a privately held company based in Leiden, The Netherlands.

Follow Whispp on LinkedIn or learn more at <https://whispp.com>.

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