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Level 6 – 27th March 2025

Researchers find way to target sound to individuals

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https://breakingnewsenglish.com/2503/250327-audio-enclaves.html

Contents

Please try Levels 4 and 5 (they are easier).

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THE ARTICLE

The way in which we listen to music and hear sounds has changed over the centuries. Today, we have state-of-the-art, noise-cancelling ear buds that provide the highest quality aural experience. In the near future, we will be able to listen to music in public without headphones. New technology is being tested that can aim beams of sound at individuals, without people next to them hearing. This means we could be having private conversations in public without others listening in. A team of researchers at Penn State University in the USA developed an innovation called "audio enclaves". The ultrasound waves used for these enclaves cannot be heard en route to the recipient. In addition, the waves can be bent to get around obstacles.

The researchers spoke to the website "The Conversation" about their work. Lead researcher Jiaxin Zhong said: "We essentially created a virtual headset. Someone within an audible enclave can hear something meant only for them, enabling sound and quiet zones." He elaborated on the potential uses of the technology. Museums could provide headphone-free audio guides to visitors. Passengers in a car could listen to music without distracting the driver. Those requiring confidentiality could set up enclaves to ensure their conversations are not overheard. Individuals could also receive personalized ads as they walk through a shopping mall. In addition, audio enclaves could be set up to eliminate noise pollution in busy workplaces.

Sources: https://**theconversation.com**/researchers-created-sound-that-can-bend-itself-through-space-reaching-only-your-ear-in-a-crowd-252266
https://**futurism.com**/sound-audible-enclaves
https://www.**musicradar.com**/music-tech/gear-gadgets/rip-headphones-new-tech-can-now-beam-music-into-your-ears-without-the-need-for-any-hardware

WARM-UPS

1. AUDIO: Students walk around the class and talk to other students about audio. Change partners often and share your findings.

2. CHAT: In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

music / sounds / state-of-the-art / ear buds / the near future / conversations / waves website / quiet zones / technology / museums / personalized ads / noise / pollution

Have a chat about the topics you liked. Change topics and partners frequently.

3. NOISE: Students A **strongly** believe noise is no problem; Students B **strongly** believe the opposite. Change partners again and talk about your conversations.

4. MUSIC: What do you think of these ways of listening to music? What is the experience like? Complete this table with your partner(s). Change partners often and share what you wrote.

	What I Think	**The Experience**
On a smartphone with ear buds		
On a smartphone (no ear buds)		
Vinyl record		
YouTube		
Live concert		
A video on TV		

5. LISTEN: Spend one minute writing down all of the different words you associate with the word "listen". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

6. SOUNDS: Rank these with your partner. Put the best sounds at the top. Change partners often and share your rankings.

- Falling rain
- Trains
- Birdsong
- Phones ringing

- Alarm clocks
- A baby's laughter
- A cat meowing
- An amusement arcade

VOCABULARY MATCHING

Paragraph 1

1.	state-of-the-art	a.	A line of light or energy.
2.	aural	b.	A person who gets something.
3.	beam	c.	Very modern and using the newest technology.
4.	innovation	d.	About hearing or sound.
5.	enclave	e.	A new idea or way of doing something.
6.	recipient	f.	A small area inside a bigger area that is different from the rest.
7.	obstacles	g.	Things that make it hard to do something.

Paragraph 2

8.	audible	h.	Keeping something secret.
9.	elaborated	i.	Able to be heard.
10.	potential	j.	Making it hard to focus.
11.	distracting	k.	Heard something without trying to.
12.	confidentiality	l.	Explained with more details.
13.	overheard	m.	To remove or get rid of something.
14.	eliminate	n.	The ability to do something in the future.

BEFORE READING / LISTENING

1. TRUE / FALSE: Read the headline. Guess if a-h below are true (T) or false (F).

1.   The article says we have art-of-the-state ear buds today.   **T / F**
2.   We could soon be able to listen to music in public without headphones. **T / F**
3.   Beamed sound waves will only be heard by the intended listener.   **T / F**
4.   The new technology can bend sound waves around obstacles.   **T / F**
5.   The new technology will create "noisy zones".   **T / F**
6.   Visitors to museums could listen to audio guides without headphones.   **T / F**
7.   The technology is intended to stop drivers from distracting passengers. **T / F**
8.   The new technology could end noise pollution in the workplace.   **T / F**

2. SYNONYM MATCH: (The words in **bold** are from the news article.)

1.	**state-of-the-art**	a.	receiver
2.	**aim**	b.	simulated
3.	**innovation**	c.	customized
4.	**recipient**	d.	barriers
5.	**obstacles**	e.	point
6.	**virtual**	f.	putting off
7.	**elaborated**	g.	get rid of
8.	**distracting**	h.	cutting edge
9.	**personalized**	i.	expanded on
10.	**eliminate**	j.	breakthrough

3. PHRASE MATCH: (Sometimes more than one choice is possible.)

1.	changed over	a.	get around obstacles
2.	state-of-the-art, noise-	b.	at individuals
3.	aim beams of sound	c.	through a shopping mall
4.	ultrasound	d.	the driver
5.	the waves can be bent to	e.	waves
6.	He elaborated on the potential	f.	cancelling ear buds
7.	listen to music without distracting	g.	overheard
8.	ensure their conversations are not	h.	in busy workplaces
9.	receive personalized ads as we walk	i.	the centuries
10.	eliminate noise pollution	j.	uses of the technology

GAP FILL

The way in which we listen to music and hear sounds has changed over the (1) _____. Today, we have state-of-the-art, noise-cancelling ear buds that provide the highest quality (2) _____ experience. In the (3) _____ future, we will be able to listen to music in public without headphones. New technology is being tested that can aim (4) _____ of sound at individuals, without people next to them hearing. This means we could be having private conversations in public without others (5) _____ in. A team of researchers at Penn State University in the USA developed an (6) _____ called "audio enclaves". The ultrasound waves used for these enclaves cannot be heard en (7) _____ to the recipient. In addition, the waves can be bent to get around (8) _____.

near

listening

route

centuries

obstacles

aural

beams

innovation

The researchers spoke to the website "The Conversation" about their work. Lead researcher Jiaxin Zhong said: "We (9) _____ created a virtual headset. Someone within an (10) _____ enclave can hear something meant only for them, enabling sound and quiet zones." He (11) _____ on the potential uses of the technology. Museums could provide headphone-free audio (12) _____ to visitors. Passengers in a car could listen to music without (13) _____ the driver. Those requiring (14) _____ could set up enclaves to ensure their conversations are not overheard. Individuals could also receive (15) _____ ads as they walk through a shopping mall. In addition, audio enclaves could be set up to (16) _____ noise pollution in busy workplaces.

distracting

essentially

elaborated

eliminate

confidentiality

guides

audible

personalized

LISTENING – Guess the answers. Listen to check.

1) The way in which we listen to music and hear sounds has changed _____
   a. under the centuries
   b. over the centuries
   c. other the centuries
   d. udder the centuries

2) noise-cancelling ear buds that provide the highest
   a. quality aerial experience
   b. quality aurora experience
   c. quality aural experience
   d. quality oral experience

3) New technology is being tested that can aim beams of _____
   a. sound at individuals
   b. sound that individuals
   c. sound at individual
   d. sound at individualize

4) we could be having private conversations in public without _____
   a. others listen in in
   b. other listening in
   c. others listening out
   d. others listening in

5) In addition, the waves can be bent to _____
   a. get around obstacles
   b. get about obstacles
   c. gets around obstacles
   d. get roundly obstacles

6) Someone within an audible enclave can hear something meant _____
   a. once for them
   b. only of them
   c. only from them
   d. only for them

7) He elaborated on _____
   a. the potential useless
   b. the potential uses
   c. the potential use is
   d. the potential you says

8) Passengers in a car could listen to music without _____
   a. dissecting the driver
   b. distraction the driver
   c. distracting the driver
   d. disgusting the driver

9) set up enclaves to ensure their conversations _____
   a. are not overheat
   b. are not overheard
   c. are not over herd
   d. are not overheated

10) In addition, audio enclaves could be set up to _____
   a. eliminate noisy pollution
   b. eliminate nosy pollution
   c. eliminate noise pollution
   d. delineate noisy pollution

LISTENING – Listen and fill in the gaps

The way in which we listen to music and hear sounds has changed (1) _____. Today, we have state-of-the-art, noise-cancelling ear buds that provide the highest (2) _____ . In the near future, we will be able to listen to music in public without headphones. New technology is being tested that can aim (3) _____ at individuals, without people next to them hearing. This means we could be having private conversations in public without (4) _____. A team of researchers at Penn State University in the USA (5) _____ called "audio enclaves". The ultrasound waves used for these enclaves cannot be heard en route to the recipient. In addition, the waves can be (6) _____ around obstacles.

The researchers spoke to the website "The Conversation" about their work. Lead researcher Jiaxin Zhong said: "We essentially (7) _____ headset. Someone within an audible enclave can hear something meant only for them, enabling (8) _____ zones." He elaborated on the (9) _____ the technology. Museums could provide headphone-free audio guides to visitors. Passengers in a car could listen to music without (10) _____. Those requiring confidentiality could set up enclaves to ensure their conversations are not overheard. Individuals could also (11) _____ as they walk through a shopping mall. In addition, audio enclaves could be set (12) _____ noise pollution in busy workplaces.

COMPREHENSION QUESTIONS

1. What state-of-the-art things do we use today?

2. When will we be able to listen to music without headphones?

3. At what institution do the researchers work?

4. What is the headphone-less innovation called?

5. What can the sound waves be bent to get around?

6. Who did the researchers talk to?

7. Where could people listen to headphone-free audio guides?

8. Who might receive fewer distractions because of this technology?

9. What could we receive as they walk through shopping malls?

10. Where might the technology be set up to eliminate noise pollution?

MULTIPLE CHOICE - QUIZ

1) What state-of-the-art things do we use today?
a) cotton buds
b) ear buds
c) paint
d) computer graphics

2) When will we be able to listen to music without headphones?
a) immediately
b) in the far future
c) in the distant future
d) in the near future

3) At what institution do the researchers work?
a) Penn State University
b) The Audio Lab
c) The Department of Sound
d) Ear Buds Inc.

4) What is the headphone-less innovation called?
a) edible enclaves
b) audible enclaves
c) audio enclaves
d) adorable enclaves

5) What can the sound waves be bent to get around?
a) ears
b) obstacles
c) noise
d) walls

6) Who did the researchers talk to?
a) the "Audio Now" magazine
b) a CEO
c) The Conversation website
d) themselves

7) Where could people listen to headphone-free audio guides?
a) under the sea
b) in airplanes
c) in jungles and deserts
d) in museums

8) Who might receive fewer distractions because of this technology?
a) car drivers
b) teachers
c) children
d) soldiers

9) What could we receive as we walk through shopping malls?
a) personalized ads
b) notifications
c) directions
d) stress-reducing music

10) Where might the technology be set up to eliminate noise pollution?
a) train stations
b) busy workplaces
c) sports stadia
d) cities

ROLE PLAY

Role A – Falling Rain

You think falling rain is the best sound. Tell the others three reasons why. Tell them what is wrong with their sounds. Also, tell the others which is the least appealing of these (and why): a baby's laughter, a cat meowing or an amusement arcade.

Role B – A Baby's Laughter

You think a baby's laughter is the best sound. Tell the others three reasons why. Tell them what is wrong with their sounds. Also, tell the others which is the least appealing of these (and why): falling rain, a cat meowing or an amusement arcade.

Role C – A Cat Meowing

You think a cat meowing is the best sound. Tell the others three reasons why. Tell them what is wrong with their sounds. Also, tell the others which is the least appealing of these (and why): a baby's laughter, falling rain or an amusement arcade.

Role D – An Amusement Arcade

You think an amusement arcade is the best sound. Tell the others three reasons why. Tell them what is wrong with their sounds. Also, tell the others which is the least appealing of these (and why): a baby's laughter, a cat meowing or falling rain.

AFTER READING / LISTENING

1. WORD SEARCH: Look online / in your dictionary to find collocates, information on, synonyms for… the words 'noise' and 'headphones'.

noise	headphones

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

2. ARTICLE QUESTIONS: Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

3. GAP FILL: In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning…?

4. VOCABULARY: Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

5. TEST EACH OTHER: Look at the words below. With your partner, try to recall how they were used in the text:

• way	• virtual
• state	• quiet
• tested	• guides
• next	• ensure
• route	• ads
• bent	• busy

AUDIO SURVEY

From   https://breakingnewsenglish.com/2503/250327-audio-enclaves.html

Write five GOOD questions about audio in the table. Do this in pairs. Each student must write the questions on his / her own paper.
When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

AUDIO DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

1. What did you think when you read the headline?

2. What images are in your mind when you hear the word 'noise'?

3. How do you usually listen to music?

4. What are the differences between headphones and ear buds?

5. How important is sound quality when you listen to music?

6. What do you think of the idea of 'audio enclaves'?

7. How good is the audio equipment you use?

8. How much does hearing other people's music bother you?

9. How important is having a conversation without being overheard?

10. How much does noise pollution bother you?

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AUDIO DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

11. Did you like reading this article? Why/not?

12. What do you think of when you hear the word 'sound'?

13. What do you think about what you read?

14. Which do you think are better, headphones or ear buds?

15. Is it better to listen to music without headphones?

16. What do you think of the idea of 'quiet zones'?

17. Do you ever use audio guides in museums or sites?

18. What do you think of the idea of receiving personalized ads in malls?

19. To what degree are you bothered by noise in public places?

20. What questions would you like to ask the researchers?

DISCUSSION (Write your own questions)

<u>STUDENT A's QUESTIONS (Do not show these to student B)</u>

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

DISCUSSION (Write your own questions)

<u>STUDENT B's QUESTIONS (Do not show these to student A)</u>

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

LANGUAGE - CLOZE

From https://breakingnewsenglish.com/2503/250327-audio-enclaves.html

The way in which we listen to music and hear sounds has changed (1) _____ the centuries. Today, we have state-of-the-(2) _____, noise-cancelling ear buds that provide the highest quality aural experience. In the (3) _____ future, we will be able to listen to music in public without headphones. New technology is being tested that can aim (4) _____ of sound at individuals, without people next to them hearing. This means we could be having private conversations (5) _____ public without others listening in. A team of researchers at Penn State University in the USA developed an innovation called "audio enclaves". The ultrasound waves used for these enclaves cannot be heard en (6) _____ to the recipient. In addition, the waves can be bent to get around obstacles.

The researchers spoke to the website "The Conversation" about their work. Lead researcher Jiaxin Zhong said: "We (7) _____ created a virtual headset. Someone within an audible enclave can hear something meant only for them, enabling sound and quiet zones." He elaborated (8) _____ the potential uses of the technology. Museums could provide headphone-free audio guides to visitors. Passengers in a car could listen to music without (9) _____ the driver. Those requiring confidentiality could set up enclaves to ensure their conversations are not (10) _____. Individuals could also receive personalized ads (11) _____ they walk through a shopping mall. In addition, audio enclaves could be set (12) _____ to eliminate noise pollution in busy workplaces.

Put the correct words from the table below in the above article.

1.	(a)	under	(b)	around	(c)	about	(d) over
2.	(a)	arts	(b)	arty	(c)	artist	(d) art
3.	(a)	nears	(b)	near	(c)	neared	(d) nearly
4.	(a)	beamer	(b)	beam	(c)	beams	(d) beamers
5.	(a)	at	(b)	on	(c)	in	(d) by
6.	(a)	route	(b)	way	(c)	diversion	(d) path
7.	(a)	essence	(b)	essentially	(c)	essential	(d) essentials
8.	(a)	on	(b)	in	(c)	of	(d) by
9.	(a)	disgusting	(b)	distracting	(c)	digesting	(d) dystopia
10.	(a)	hears	(b)	hearing	(c)	overheard	(d) hearsay
11.	(a)	is	(b)	has	(c)	as	(d) was
12.	(a)	over	(b)	under	(c)	down	(d) up

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SPELLING

Paragraph 1

1. changed over the <u>utireescn</u>

2. the highest quality <u>ulraa</u> experience

3. aim beams of sound at <u>dilivsaidnu</u>

4. developed an <u>vtnaniooin</u>

5. audio <u>secvneal</u>

6. bent to get around <u>stblecaos</u>

Paragraph 2

7. We essentially created a <u>utvarli</u> headset

8. He <u>dloaeebtra</u> on the potential uses

9. listen to music without <u>tstdrcngaii</u> the driver

10. Those requiring <u>clfnioiettandiy</u>

11. receive <u>apelseroznid</u> ads

12. set up to <u>mnliiaete</u> noise pollution

PUT THE TEXT BACK TOGETHER

From   https://breakingnewsenglish.com/2503/250327-audio-enclaves.html

Number these lines in the correct order.

(   )   beams of sound at individuals, without people next to them hearing. This means we could be

(   )   could be set up to eliminate noise pollution in busy workplaces.

(   )   essentially created a virtual headset. Someone within an audible enclave can hear something meant only for

(   )   future, we will be able to listen to music in public without headphones. New technology is being tested that can aim

(   )   having private conversations in public without others listening in. A team of researchers at Penn State University

(   )   heard en route to the recipient. In addition, the waves can be bent to get around obstacles.

(   )   in the USA developed an innovation called "audio enclaves". The ultrasound waves used for these enclaves cannot be

(   )   overheard. Individuals could also receive personalized ads as they walk through a shopping mall. In addition, audio enclaves

(   )   provide headphone-free audio guides to visitors. Passengers in a car could listen to music without distracting

(   )   the art, noise-cancelling ear buds that provide the highest quality aural experience. In the near

(   )   the driver. Those requiring confidentiality could set up enclaves to ensure their conversations are not

(   )   The researchers spoke to the website "The Conversation" about their work. Lead researcher Jiaxin Zhong said: "We

(*1*)   The way in which we listen to music and hear sounds has changed over the centuries. Today, we have state-of-

(   )   them, enabling sound and quiet zones." He elaborated on the potential uses of the technology. Museums could

PUT THE WORDS IN THE RIGHT ORDER

1. The   in   which   way   we   music   to   listen.

2. Buds   provide   that   highest   aural   the   experience   quality.

3. Listen   in   music   public   headphones   without   to.

4. Private   in   public   conversations   listening   without   others   in.

5. Waves   be   can   bent   around   to   obstacles   get.

6. Someone   within   enclave   an   audible   something   hear   can.

7. Elaborated   the   on   potential   uses   of   technology   the.

8. Listen   music   to   distracting   without   driver   the.

9. Those   confidentiality   requiring   could   enclaves   set   up.

10. Enclaves   set   be   could   eliminate   up   noise   to.

CIRCLE THE CORRECT WORD (20 PAIRS)

From   https://breakingnewsenglish.com/2503/250327-audio-enclaves.html

The way *in / on* which we listen to music and hear sounds has changed over the centuries. Today, we have state-of-the *art / arts*, noise-cancelling ear buds that provide the highest quality *oral / aural* experience. In the near future, we will be able to listen to music *on / in* public without headphones. New technology is *being / been* tested that can aim *beam / beams* of sound at individuals, without people next to them hearing. This means we could be having private conversations in public without others listening *up / in*. A team of researchers at Penn State University in the USA developed an *innovative / innovation* called "audio enclaves". The ultrasound *waves / tides* used for these enclaves cannot be heard en route to the *recipient / incipient*. In addition, the waves can be bent to get around obstacles.

The researchers spoke to the website "The Conversation" about their work. *Lead / Steel* researcher Jiaxin Zhong said: "We *essential / essentially* created a virtual headset. Someone within an *edible / audible* enclave can hear something *meant / meaning* only for them, enabling sound and quiet zones." He elaborated on the *potent / potential* uses of the technology. Museums could provide headphone-free audio guides to visitors. Passengers in a car could listen to music without *distraction / distracting* the driver. Those requiring confidentiality could set up enclaves to *ensure / insure* their conversations are not overheard. Individuals could also receive personalized *ads / aids* as they walk through a shopping mall. In addition, audio enclaves could be set *up / down* to eliminate noise pollution in *busily / busy* workplaces.

Talk about the connection between each pair of words in italics, and why the correct word is correct. Look up the definition of new words.

INSERT THE VOWELS (a, e, i, o, u)

Th_ w_y _n wh_ch w_ l_st_n t_ m_s_c _nd h__r s__nds h_s ch_ng_d _v_r th_ c_nt_r__s. T_d_y, w_ h_v_ st_t_-_f-th_ _rt, n__s_-c_nc_ll_ng __r b_ds th_t pr_v_d_ th_ h_gh_st q__l_ty __r_l _xp_r__nc_. _n th_ n__r f_t_r_, w_ w_ll b_ _bl_ t_ l_st_n t_ m_s_c _n p_bl_c w_th__t h__dph_n_s. N_w t_chn_l_gy _s b__ng t_st_d th_t c_n __m b__ms _f s__nd _t _nd_v_d__ls, w_th__t p__pl_ n_xt t_ th_m h__r_ng. Th_s m__ns w_ c__ld b_ h_v_ng pr_v_t_ c_nv_rs_t__ns _n p_bl_c w_th__t _th_rs l_st_n_ng _n. _ t__m _f r_s__rch_rs _t P_nn St_t_ _n_v_rs_ty _n th_ _S_ d_v_l_p_d _n _nn_v_t__n c_ll_d "__d__ _ncl_v_s". Th_ _ltr_s__nd w_v_s _s_d f_r th_s_ _ncl_v_s c_nn_t b_ h__rd _n r__t_ t_ th_ r_c_p__nt. _n _dd_t__n, th_ w_v_s c_n b_ b_nt t_ g_t _r__nd _bst_cl_s.

Th_ r_s__rch_rs sp_k_ t_ th_ w_bs_t_ "Th_ C_nv_rs_t__n" _b__t th__r w_rk. L__d r_s__rch_r J__x_n Zh_ng s__d: "W_ _ss_nt__lly cr__t_d _ v_rt__l h__ds_t. S_m__n_ w_th_n _n __d_bl_ _ncl_v_ c_n h__r s_m_th_ng m__nt _nly f_r th_m, _n_bl_ng s__nd _nd q___t z_n_s." H_ _l_b_r_t_d _n th_ p_t_nt__l _s_s _f th_ t_chn_l_gy. M_s__ms c__ld pr_v_d_ h__dph_n_-fr__ __d__ g__d_s t_ v_s_t_rs. P_ss_ng_rs _n _ c_r c__ld l_st_n t_ m_s_c w_th__t d_str_ct_ng th_ dr_v_r. Th_s_ r_q__r_ng c_nf_d_nt__l_ty c__ld s_t _p _ncl_v_s t_ _ns_r_ th__r c_nv_rs_t__ns _r_ n_t _v_rh__rd. _nd_v_d__ls c__ld _ls_ r_c__v_ p_rs_n_l_z_d _ds _s th_y w_lk thr__gh _ sh_pp_ng m_ll. _n _dd_t__n, __d__ _ncl_v_s c__ld b_ s_t _p t_ _l_m_n_t_ n__s_ p_ll_t__n _n b_sy w_rkpl_c_s.

PUNCTUATE THE TEXT AND ADD CAPITALS

the way in which we listen to music and hear sounds has changed over the centuries today we have stateofthe art noisecancelling ear buds that provide the highest quality aural experience in the near future we will be able to listen to music in public without headphones new technology is being tested that can aim beams of sound at individuals without people next to them hearing this means we could be having private conversations in public without others listening in a team of researchers at penn state university in the usa developed an innovation called audio enclaves the ultrasound waves used for these enclaves cannot be heard en route to the recipient in addition the waves can be bent to get around obstacles

the researchers spoke to the website the conversation about their work lead researcher jiaxin zhong said we essentially created a virtual headset someone within an audible enclave can hear something meant only for them enabling sound and quiet zones he elaborated on the potential uses of the technology museums could provide headphonefree audio guides to visitors passengers in a car could listen to music without distracting the driver those requiring confidentiality could set up enclaves to ensure their conversations are not overheard individuals could also receive personalized ads as they walk through a shopping mall in addition audio enclaves could be set up to eliminate noise pollution in busy workplaces

PUT A SLASH (/) WHERE THE SPACES ARE

Thewayinwhichwelistentomusicandhearsoundshaschangedoverthe centuries.Today,wehavestate-of-the-art,noise-cancellingearbudst hatprovidethehighestqualityauralexperience.Inthenearfuture,wewi llbeabletolistentomusicinpublicwithoutheadphones.Newtechnology isbeingtestedthatcanaimbeamsofsoundatindividuals,withoutpeople nexttothemhearing.Thismeanswecouldbehavingprivateconversatio nsinpublicwithoutotherslisteningin.AteamofresearchersatPennStat eUniversityintheUSAdevelopedaninnovationcalled"audioenclaves". Theultrasoundwavesusedfortheseenclavescannotbeheardenroutet otherecipient.Inaddition,thewavescanbebenttogetaroundobstacles .Theresearchersspoketothewebsite"TheConversation"abouttheirwo rk.LeadresearcherJiaxinZhongsaid:"Weessentiallycreatedavirtualh eadset.Someonewithinanaudibleenclavecanhearsomethingmeanto nlyforthem,enablingsoundandquietzones."Heelaboratedonthepote ntialusesofthetechnology.Museumscouldprovideheadphone-freea udioguidestovisitors.Passengersinacarcouldlistentomusicwithoutdi stractingthedriver.Thoserequiringconfidentialitycouldsetupenclave stoensuretheirconversationsarenotoverheard.Individualscouldalso receivepersonalizedadsastheywalkthroughashoppingmall.Inadditio n,audioenclavescouldbesetuptoeliminatenoisepollutioninbusywork places.

FREE WRITING

Write about **audio** for 10 minutes. Comment on your partner's paper.

ACADEMIC WRITING

We must reduce the amount of noise in the world. Discuss.

HOMEWORK

1. VOCABULARY EXTENSION: Choose several of the words from the text. Use a dictionary or Google's search field (or another search engine) to build up more associations / collocations of each word.

2. INTERNET: Search the Internet and find out more about this news story. Share what you discover with your partner(s) in the next lesson.

3. AUDIO: Make a poster about audio. Show your work to your classmates in the next lesson. Did you all have similar things?

4. NOISE POLLUTION: Write a magazine article about eradicating noise pollution. Include imaginary interviews with people who are for and against this.

Read what you wrote to your classmates in the next lesson. Write down any new words and expressions you hear from your partner(s).

5. WHAT HAPPENED NEXT? Write a newspaper article about the next stage in this news story. Read what you wrote to your classmates in the next lesson. Give each other feedback on your articles.

6. LETTER: Write a letter to an expert on audio. Ask him/her three questions about it. Give him/her three of your ideas on audio enclaves. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

VOCABULARY (p.4)

1.	c	2.	d	3.	a	4.	e	5.	f	6.	b	7.	g
8.	i	9.	l	10.	n	11.	j	12.	h	13.	k	14.	m

TRUE / FALSE (p.5)

1 F   2 T   3 T   4 T   5 F   6 T   7 F   8 T

SYNONYM MATCH (p.5)

1. h	2. e	3. j	4. a	5. d
6. b	7. i	8. f	9. c	10. g

COMPREHENSION QUESTIONS (p.9)

1. Ear buds
2. In the near future
3. Penn State University
4. Audible enclaves
5. Obstacles
6. The Conversation website
7. In museums
8. Car drivers
9. Personalized ads
10. Busy workplaces

WORDS IN THE RIGHT ORDER (p.19)

1. The way in which we listen to music.
2. Buds that provide the highest quality aural experience.
3. Listen to music in public without headphones.
4. Private conversations in public without others listening in.
5. Waves can be bent to get around obstacles.
6. Someone within an audible enclave can hear something.
7. Elaborated on the potential uses of the technology.
8. Listen to music without distracting the driver.
9. Those requiring confidentiality could set up enclaves.
10. Enclaves could be set up to eliminate noise.

MULTIPLE CHOICE - QUIZ (p.10)

1. b   2. d   3. a   4. c   5. b   6. c   7. d   8. a   9. a   10. b

ALL OTHER EXERCISES

Please check for yourself by looking at the Article on page 2.
(It's good for your English ;-)