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Design Opportunity 3 of 8

Personalising 'live' travel information



***ncat**
national
centre for
accessible
transport





Design Opportunity 3 of 8

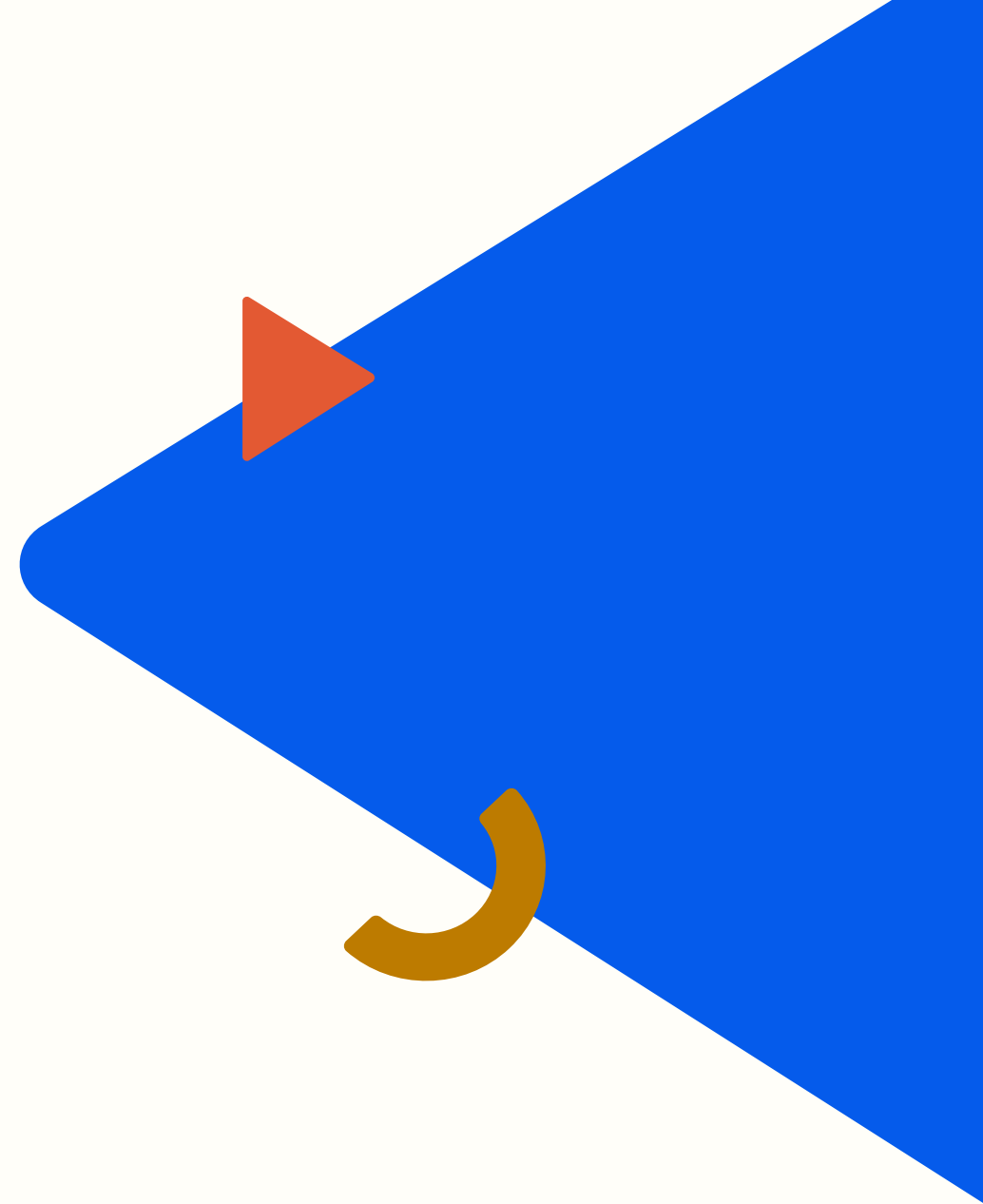
Personalising ‘live’ travel information

This is one of eight design opportunities developed from ncat’s extensive research with disabled passengers across the UK.

For those who wish to explore the full evidence base, detailed findings can be found in the accompanying research report.

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Barriers

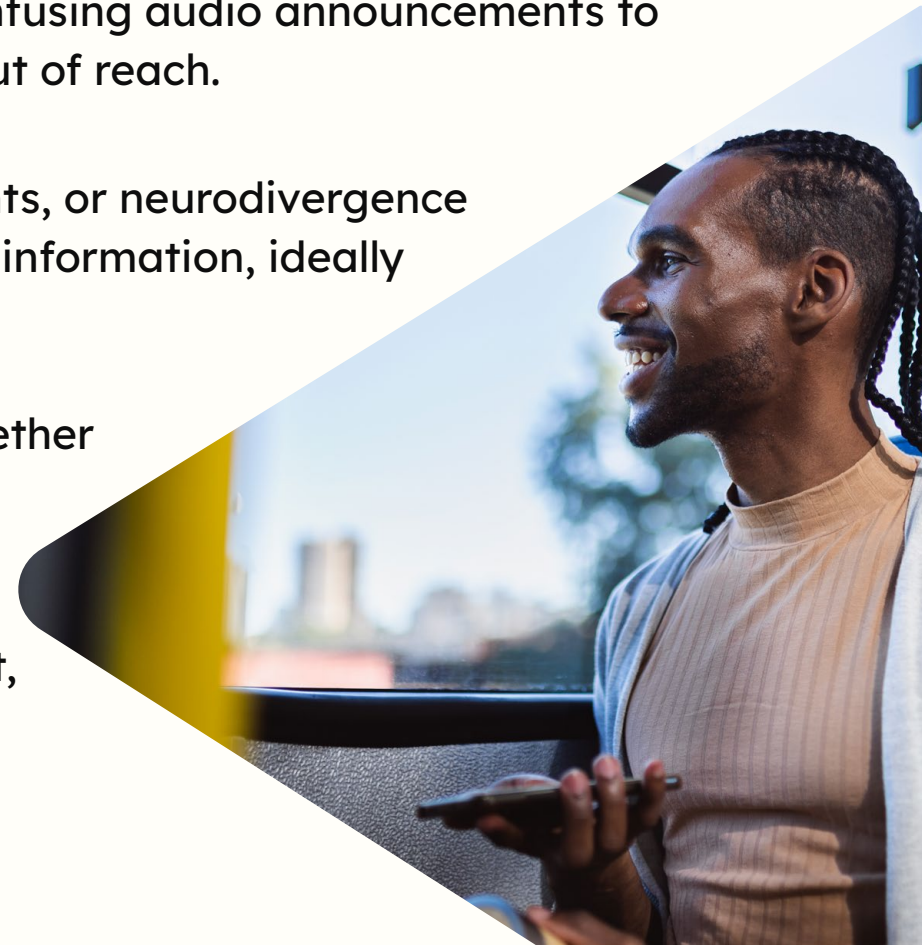
Access to live, accurate, and usable travel information is essential for making public transport reliable and inclusive, but for many disabled passengers current systems are inconsistent, unclear, or completely inaccessible.

Our engagement with disabled passengers through interviews, focus groups, and survey responses highlighted issues ranging from: missing or confusing audio announcements to screen text that is unreadable, unrepeatable, or placed out of reach.

Many users with vision impairments, cognitive impairments, or neurodivergence described needing simpler, multi-modal formats of travel information, ideally tailored to their preferences or abilities.

Others stressed that knowing what to expect, such as whether a wheelchair space is available or a stop is out of service, significantly impacts their decision to travel at all.

Despite the growing use of digital technology in transport, most live travel information remains standardised for non-disabled users, failing to account for the need for clarity, repetition, adjustability, and trust in the moment.



Personalising 'live' travel information

How might we personalise and improve access to live travel information so that disabled passengers can travel with greater confidence, clarity, and control over their journeys?



Objectives: Accessible information points

“

I find it helpful when the bus stops have electronic live information and when it is accurate. But trying to look for it on a phone when both of my hands are busy with crutches is difficult.

”

“

There is no live info board at my local bus stop unless you upload an app, but the info there is not precise.

”

“

Could they put live information screens instead of advertising?

”



Objectives: Accessible information points

What if every station, stop, or vehicle had a reliable and inclusive access point for real-time information and support?

- How might help points or information boards be made**
 - ▶ **more consistently placed, easier to identify, and usable by all passengers?**
- ▶ **Could these points provide both audio and visual support for those who need it, even without relying on smartphone use?**
- What role could tactile features (like raised symbols or Braille)**
 - ▶ **or proximity-based cues (e.g. audio triggered by location or touch) play in helping people find and use this information?**



Objectives: Audio travel for passengers with vision loss

“ I rely on audio announcements because I can't see any screens. ”

“ Disorientation, can't know when it's your stop if no audio. ”



Objectives: Audio travel for passengers with vision loss

“

If the bus was just 10–20 metres away and there would be an audio announcement on the bus stop, for instance, ‘73 approaching’, that would change everything.

”



Objectives: Audio travel for passengers with vision loss

What if passengers with vision impairments always had access to clear, consistent, and usable travel updates, exactly when they need them?

- ▶ **How might announcements be improved in quality, clarity, and timing, whether AI-generated, pre-recorded, or location-triggered?**
- ▶ **Could buttons, haptic signals, or app-based tools allow users to get information on demand, like “Where am I now?” or “Is this my stop?”**
- ▶ **How can we ensure that important changes like broken lifts, stop closures, or detours are communicated early and reliably to passengers who can’t rely on visual cues?**



Objectives: Accessible live info screens

“

The live travel screens at London Victoria break your neck – you have to look up so high!

”

“

Black-and-orange dotted text displays are hard to read because the text is too small and dotted.

”



Objectives: Accessible live info screens

“

“I’d like the screens lower, and the info not to change so fast, or have touch screens to build a route and find specific info.

”

“

Companies should consider signage from a standing and seated position.

”



Objectives: Accessible live info screens

What if live departure boards and service updates were designed from the start with accessibility in mind?

- ▶ **How might we replace or upgrade older display systems with formats that are clearer, larger, and easier to read for everyone?**
- ▶ **Could screen content be customisable, allowing users to slow it down, zoom in, replay information, or filter what they see?**
- ▶ **How can information displays be positioned at varied sight heights so they're clearly visible and readable for wheelchair users and people of shorter stature?**



Objectives: Personalised travel information

“

I use the TrainLine app for live information, but I try not to update it because the next version might not be accessible.

”

“

CityMapper is the best thing, shows step-free routes, price and live travel disruptions.”

”



Objectives: Personalised travel information

“

Information scrolls too fast on station displays. I set my phone to black-and-white colours to make it easier to read.

”

“

I have short-term memory problems and often use multiple screenshots/photos to record travel information so that I can refer to this on their journey.”

”



Objectives: Personalised travel information

“

The apps are too visual. I can't use picture-based formats because I'm blind.

”



Objectives: **Personalised travel information**

What if each passenger could access only the travel information they needed, in the format and level of detail they prefer?

- ▶ **How might we design apps, screens, and announcements to accommodate different access needs, for example, by offering options like plain language, haptic feedback, or tactile cues?**
- ▶ **Could systems allow for individual preferences (e.g. large fonts, audio pace, filtered content, language) to be saved and reused?**
- ▶ **How might passengers choose the live travel information announcements they access, for the services they are using and not all announcements?**
- ▶ **What does it look like to support passengers with cognitive impairments or sensory sensitivities through personalisation?**



Objectives: Knowing what's ahead

“ Trainline didn't say lifts were broken, so I couldn't go home and had to book a hotel. ”

“ I need to know in advance if seats are available, I'm not very good with standing. ”

“ Bus information is sometimes showing things that don't exist. They don't say if buses are delayed or out of order. ”



Objectives: **Knowing what's ahead**

What if passengers knew in advance what to expect, not just delays, but also things like crowding, step-free access, or service changes, so they could plan or adjust their journey with confidence?

- ▶ **How might apps, screens, onboard displays or announcements provide information like; step-free exits, planned disruptions, or crowded carriages?**
- ▶ **Could passengers check real-time availability of things like wheelchair spaces or quiet zones, before the vehicle arrives?**
- ▶ **What tools would help someone decide to board, wait, or reroute before they are stuck or overwhelmed?**



Target users

This opportunity primarily focuses on the needs of:

- ▶ **Blind and visually impaired passengers** who rely on timely, high-quality audio information and non-visual cues to navigate journeys safely and independently.
- ▶ **Passengers with cognitive impairments**, who benefit from simplified, consistent, and repeatable travel information to support decision-making and reduce anxiety.
- ▶ **Neurodivergent individuals**, for whom inconsistent, overwhelming, or ambiguous formats can increase stress, especially in crowded or unfamiliar environments.

It also aims to consider the needs of:

- ▶ **Wheelchair users and people with limited mobility** who need advance notice of lift availability, step-free routes, or onboard space, and who may struggle to view live information displays from a seated position if they are positioned too high.
- ▶ **Deaf or hard-of-hearing passengers**, who require visual formats for travel updates and may miss or misinterpret audio-only announcements.
- ▶ **Older passengers and those less confident with digital technology**, who may find small text, fast-scrolling screens, or complex apps difficult to use, and benefit from slower, clearer, and more intuitive formats.

Design scope and constraints

In scope:

This opportunity focuses on improving the accessibility, clarity, and personalisation of live travel information across digital and physical formats.

In-scope proposals should:

- ▶ Address a wide range of access needs, including visual, auditory, cognitive, and neurodivergent
- ▶ Improve how live travel updates are delivered via screens, announcements, apps, or help points
- ▶ Include customisable or preference-based features (for example, audio speed, text size, visual clarity)
- ▶ Consider both digital and non-digital formats to avoid excluding non-smartphone users
- ▶ Work across various transport settings (for example, trains, buses, stations, interchanges)
- ▶ Be realistic in implementing within existing or upgradeable infrastructure.

Design scope and constraints

Out of scope:

This opportunity does not cover:

- ▶ Redesigns of vehicle interiors or major station infrastructure
- ▶ National-level changes to transport policy or operator networks
- ▶ Ticketing systems or fare reform
- ▶ Smartphone-only solutions without physical or multi-sensory alternatives
- ▶ Assistive tech that requires high user training or assumes digital literacy.

Stakeholders

- ▶ **Transport operators (rail, bus, tram, ferry)**
- ▶ **Local and national transport authorities**
- ▶ **Digital platform providers and app developers**
- ▶ **Passenger information system designers**
- ▶ **Accessibility and User Experience specialists**
- ▶ **Disabled passengers and advocacy organisations to seating and shared spaces**
- ▶ **Station and vehicle staff (involved in announcements, signage, or passenger support)**
- ▶ **Technology providers (for example, real-time data feeds, accessible hardware).**

Next Steps

Visit the [Translating research into design opportunities project page](#) to find links to the full report, along with a shorter ‘highlights’ version that is also translated into easy-read and BSL.

The main project page also has direct links to the 8 individual design opportunities as below:

- 1 Bus stop accessibility**
- 2 Bus interior flexibility and accessibility**
- 3 Personalising ‘live’ travel information**
- 4 Train station accessibility**
- 5 Awareness of diverse travel needs**
- 6 Clarifying operator-passenger commitments**
- 7 Improving existing assistance services**
- 8 Identifying and sharing inclusive transport practices (vehicle, infrastructure, service, etc.)**

Contact Us



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