ZERO LAYER UI

MBRDI DESIGN

CONTENTS

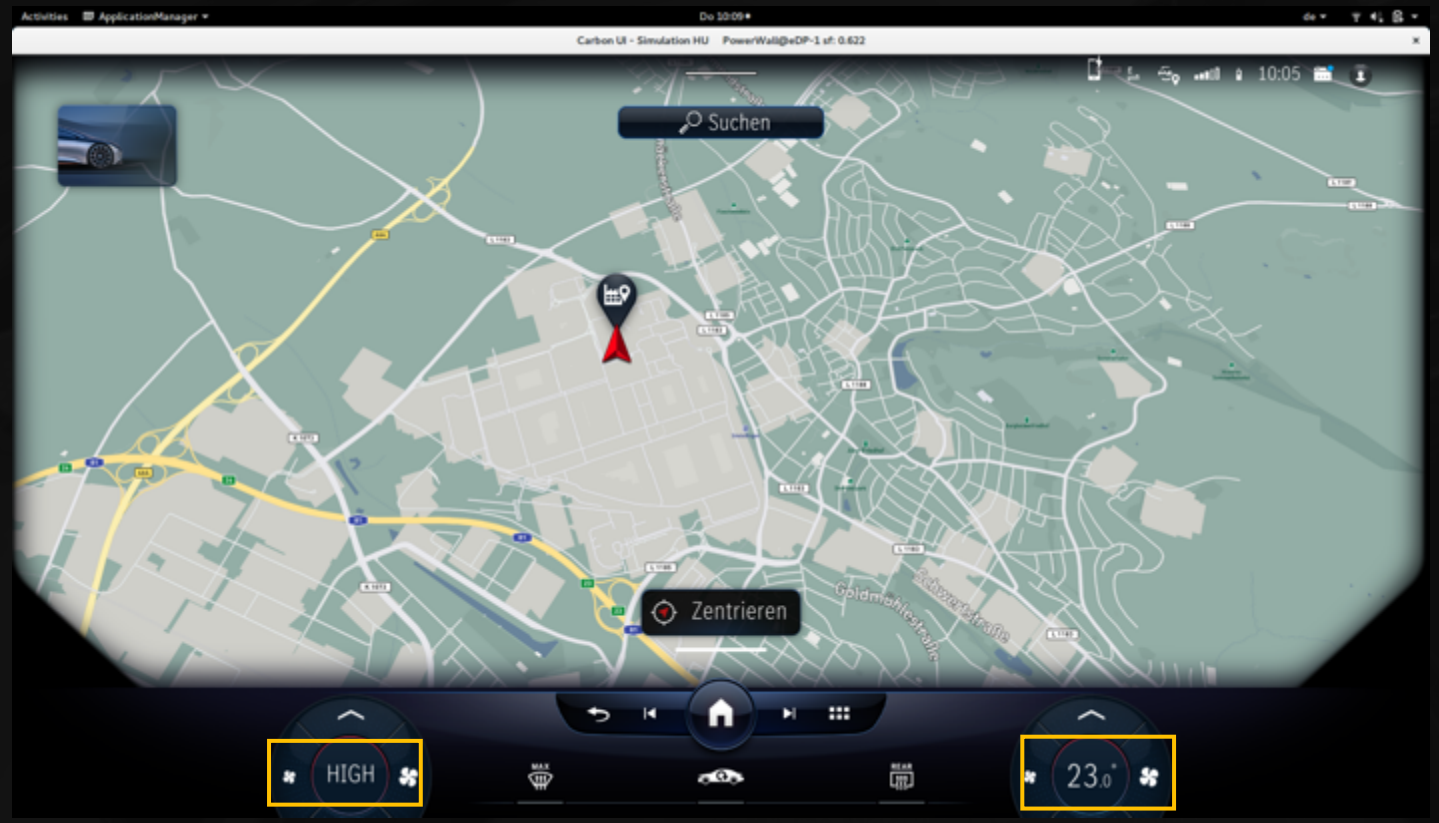
ZERO LAYER UX REVIEW

ZERO LAYER

Confusion and Increased **learnability** for the user.

- Same text space for temperature and fan speed properties.

ZERO LAYER

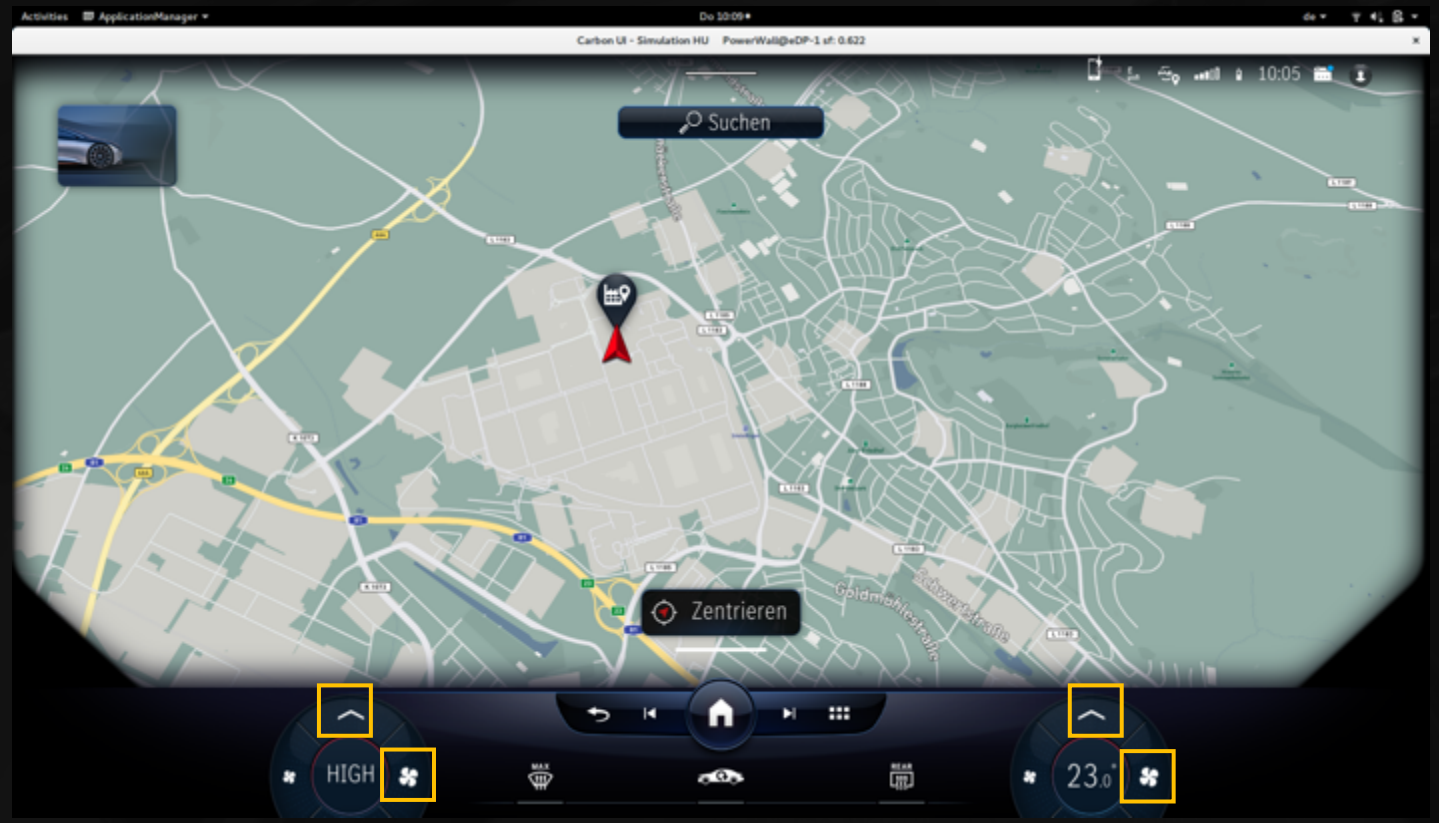


Confusion for the user and non conformance to the existing mental model.

- The temperature / fan speed control are confusing and try to mimic physical knob behaviour.
- Small and big icons together are used to depict min- max range in knobs.
- The control do not conform to any existing mental model.

False affordance and non conformance to heuristic “*Match between system and real world*”.

ZERO LAYER

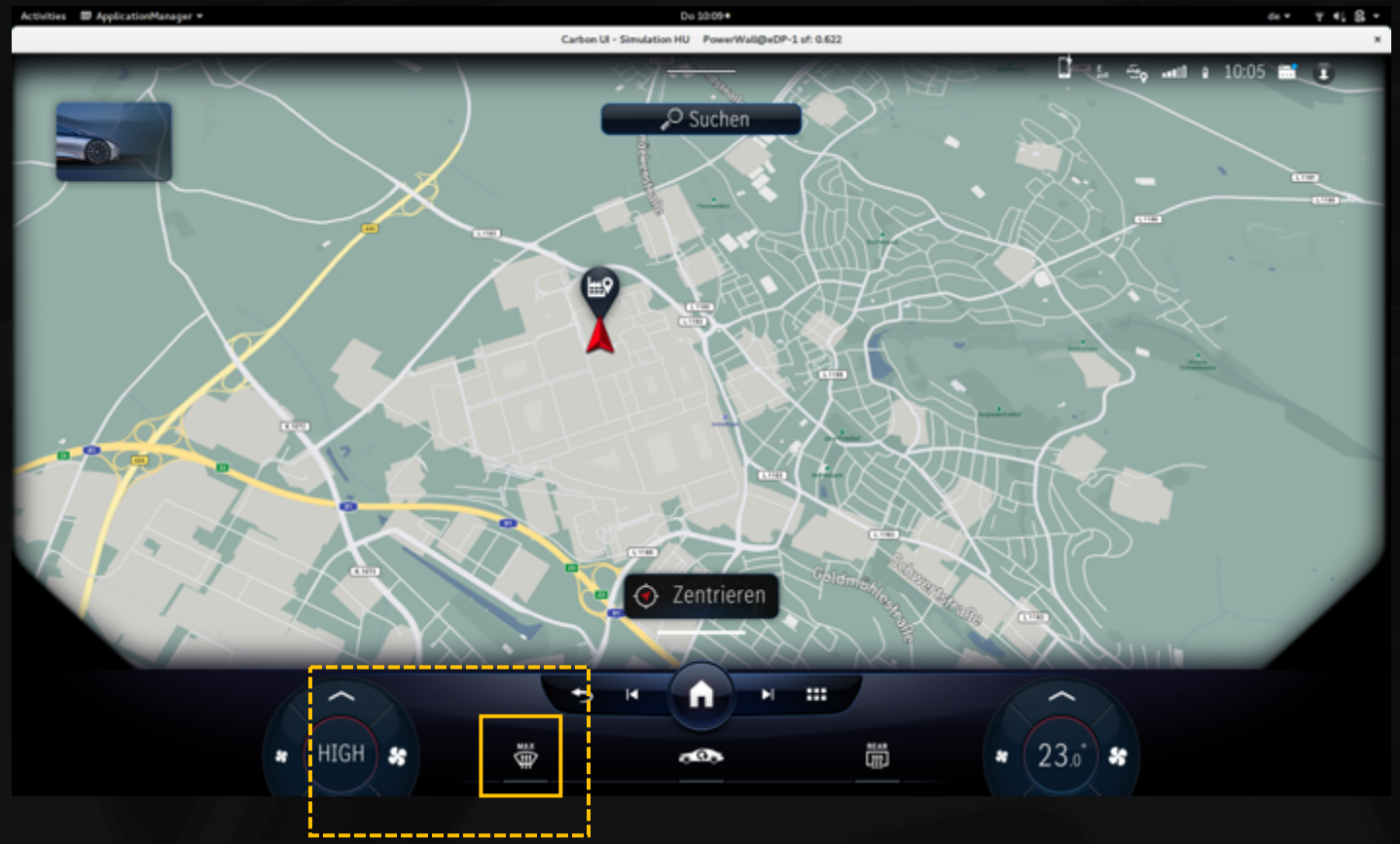


Increased learnability for the user.

- For fan speed adjustment different size icons are used however for temperature control arrows are used.
- Two variant interactions for same functionality.

Non conformance to heuristic “*Consistency and Standards*”.

ZERO LAYER

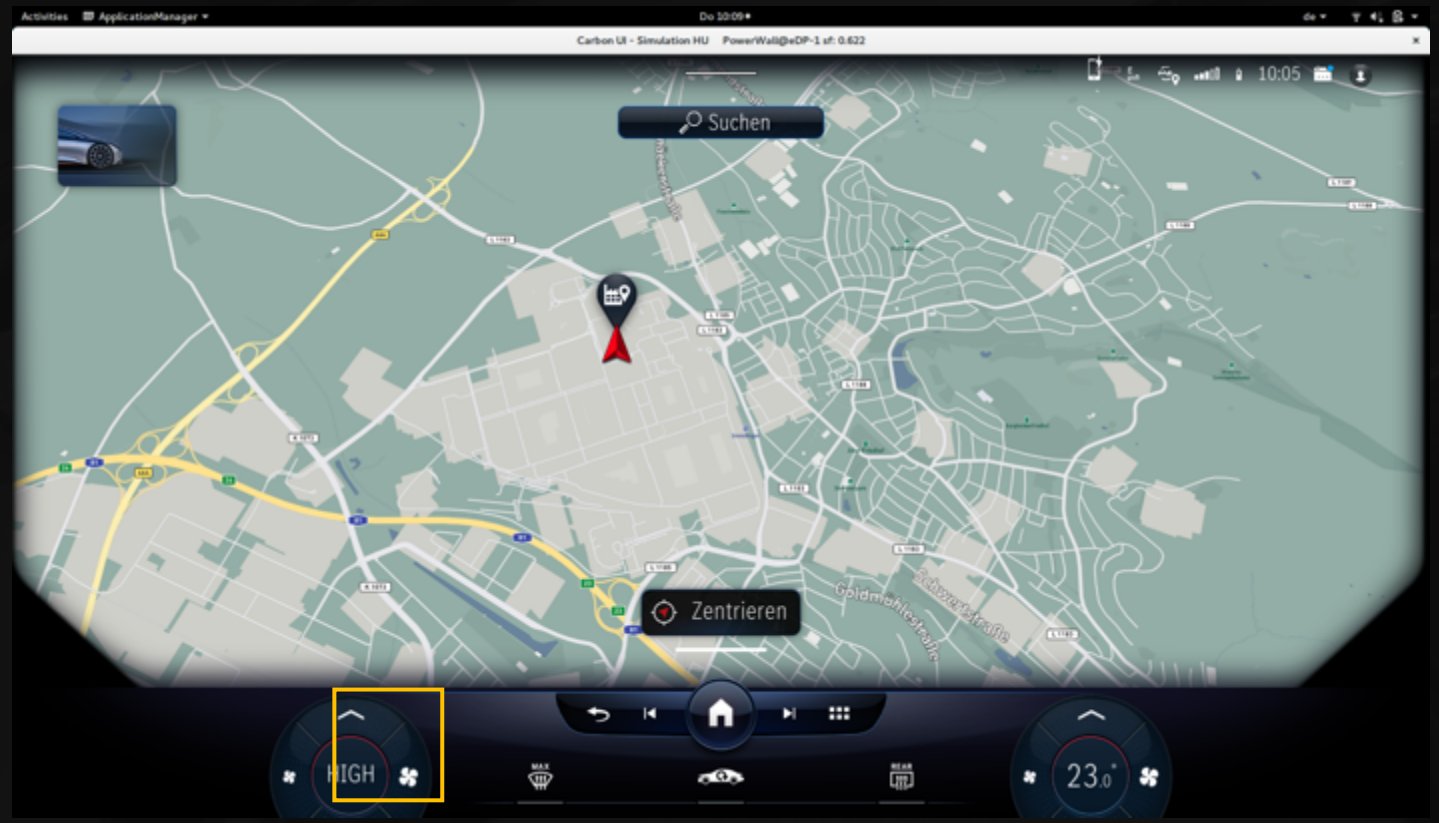


Non conformance to *Gestalt principle of proximity.*

Bad affordance.

- "Max" is in the proximity of left seat controls without any visual segregation, however it’s a common setting.
- New users might associate it only with left controls.

ZERO LAYER

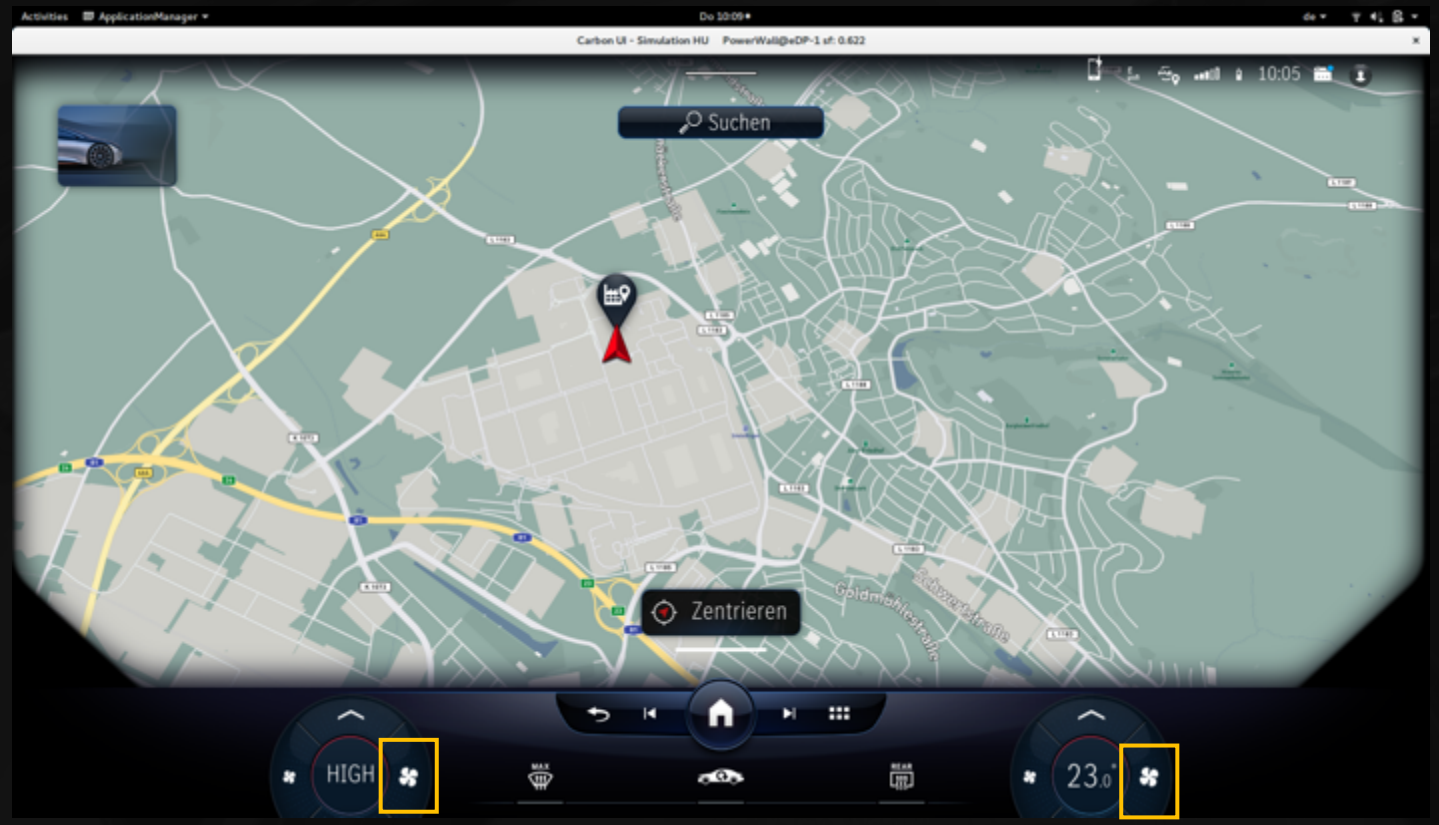


Increased visual load for the user.

- Interwind controls for both functions and a user might accidentally touch fan speed while adjusting the temperature.

Non conformance to heuristic Error Prevention”.

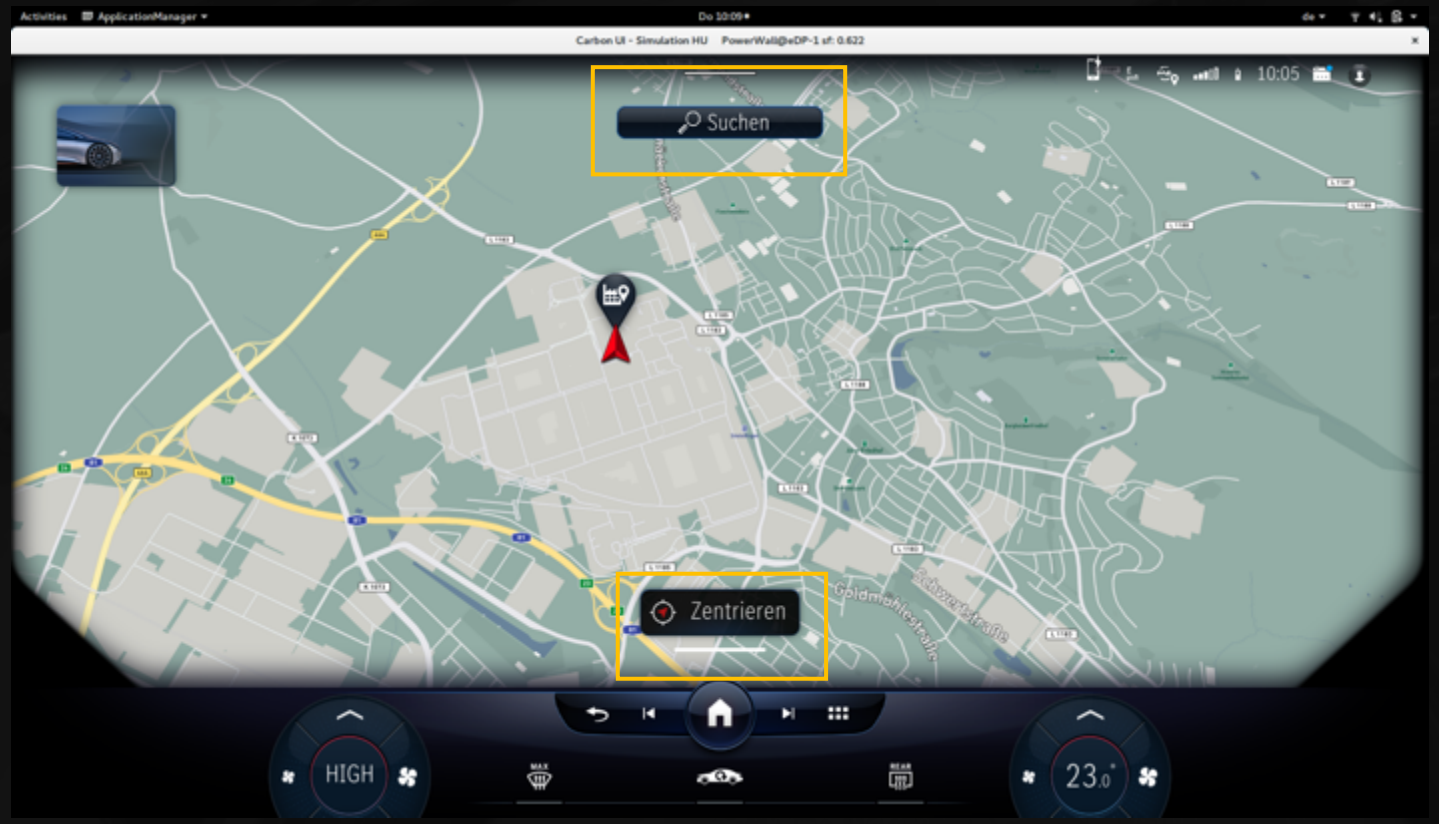
ZERO LAYER



Increased Motor function and frustration.

- To adjust fan speed, user has to execute multiple touches (for instance from 3 to 7)

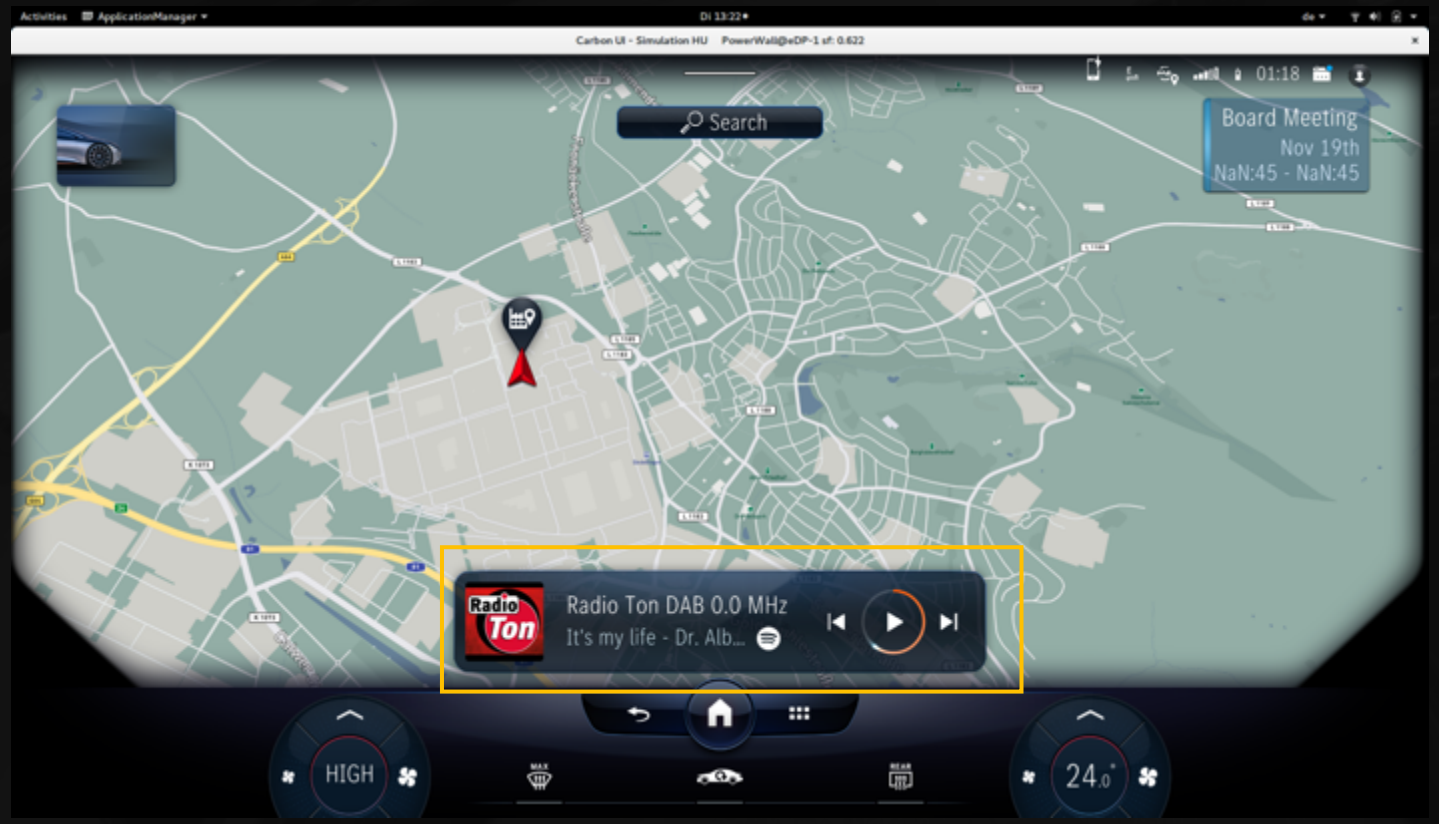
ZERO LAYER



Increased Visual load.

- *Global search* and menu *Swipe* down are in close proximity with intersecting tap areas.

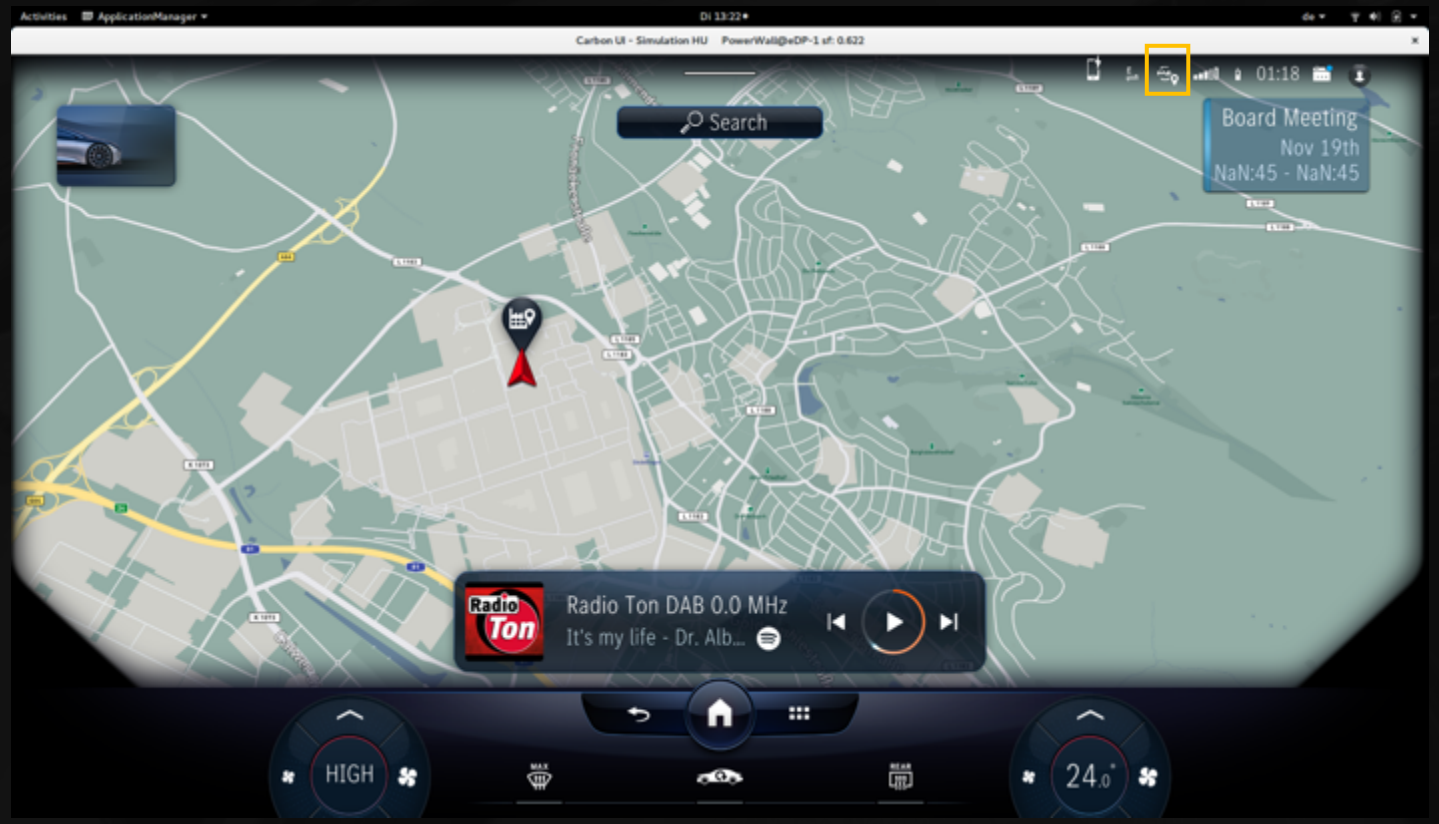
ZERO LAYER



- Increased *learnability* for new users.
- Low *discoverability*.

- No visual cue for swipe up interaction to expand the media view.

ZERO LAYER

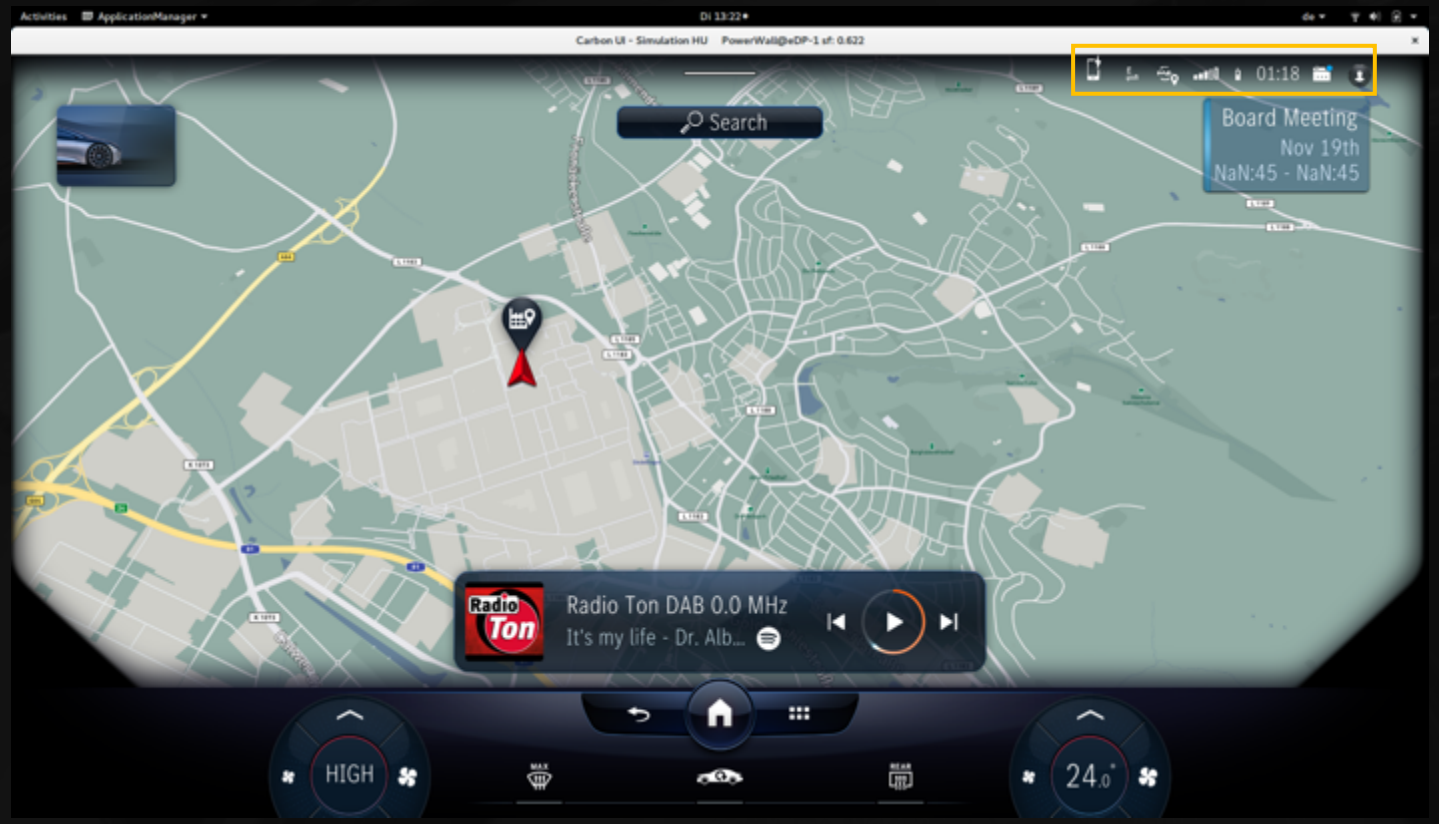


Bad affordance

- Mercedes Me button does not look actionable.

Non conformance to heuristic *“Match between system and real world”.*

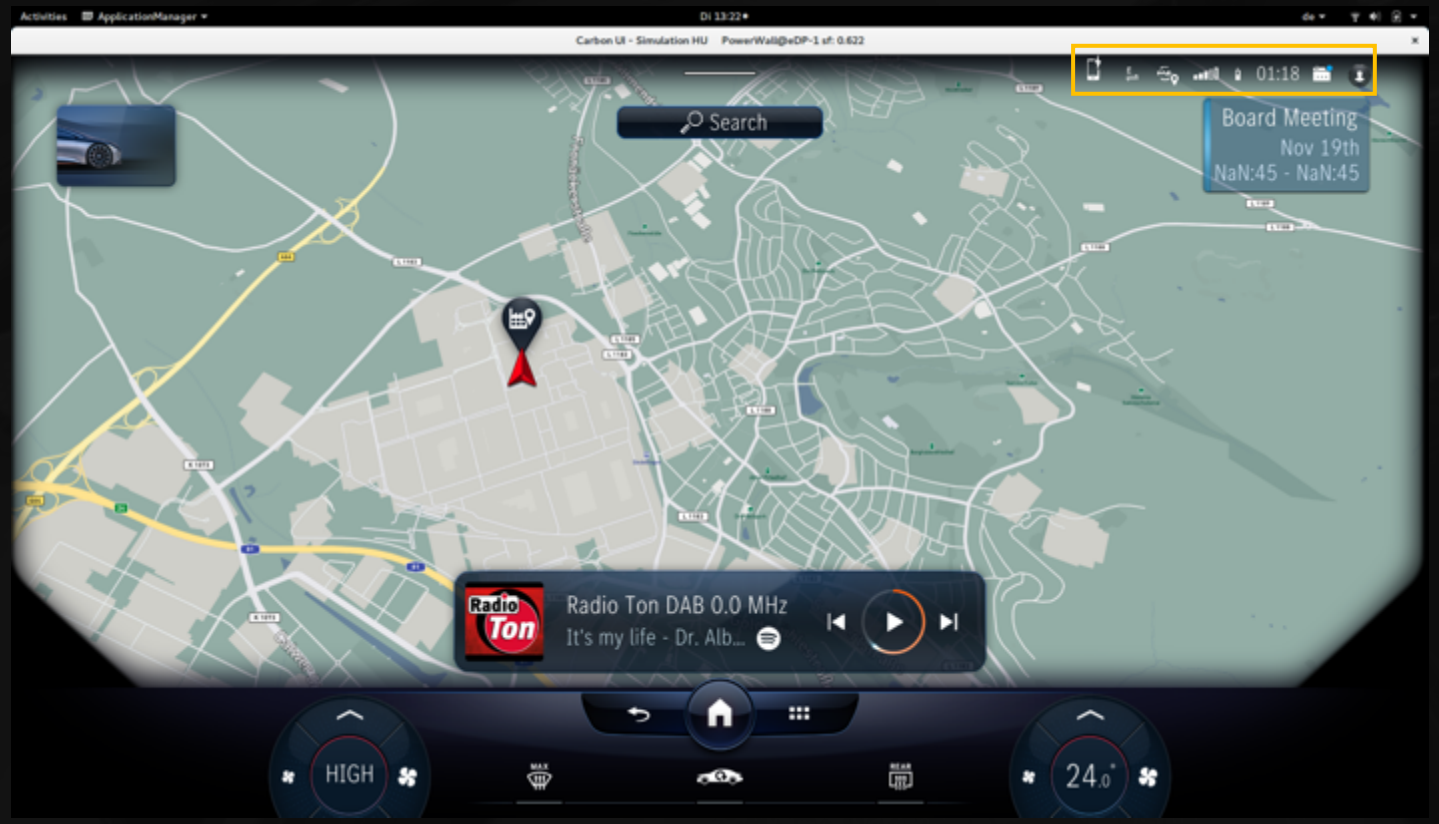
ZERO LAYER



Increased visual and cognitive load

- Tap areas of controls are small and intersect with each other and makes it difficult for a user to accurately hit the target.

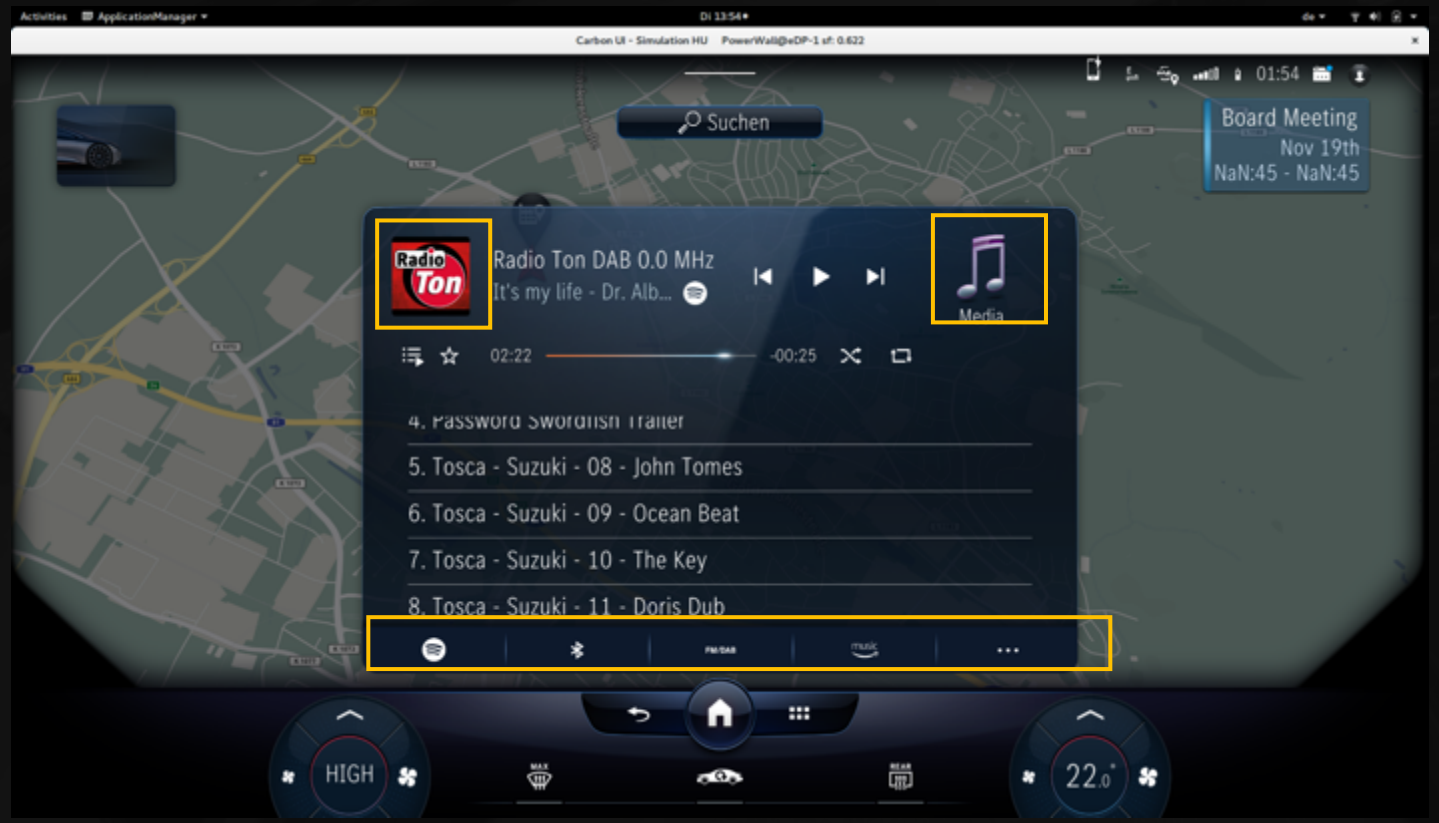
ZERO LAYER



Low discoverability, increased learnability:

- Actionable and non actionable UI elements are clubbed together in the closed proximity.
- No application of Gestalt principles.
- Users would have to manually find out which one of these are actionable.

ZERO LAYER



Increased cognitive load for the user and high learnability:

- No visual cue to user to guide for core tasks like: Media selection and play/pause etc.
- Confusing UI because of a lot of actionable items put together in same proximity without any categorization and visual treatment of the backgrounds.
- Actionable UI elements are in close space and are inconsistent in size.

Non conformance to heuristic "*Consistency and Standards*".

ZERO LAYER

Absence of *visual hierarchy*, increased *Visual and Cognitive load*.

- Media list does not display relevant information like play time and type of media (audio or video) and does not look like a standard media list.
- No visual hierarchy in media list to display Artist, Album, Name, which is a standard pattern across digital solutions.
- Increased cognitive load for a user to scan and find the relevant information like Song name, Artist etc.

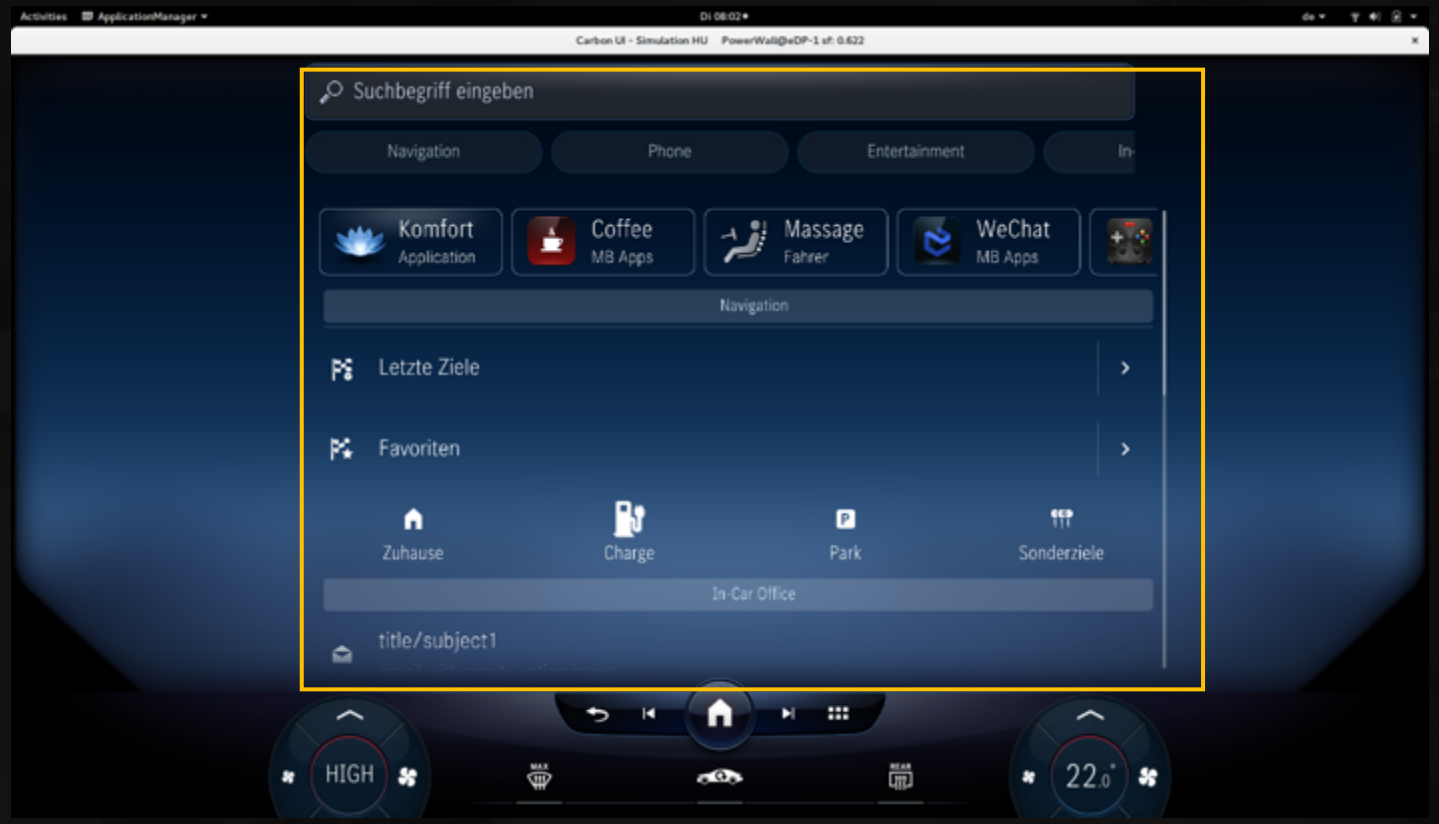
ZERO LAYER

Absence of unified *Navigation Structure.*

- The UI is combination of :
  - Horizontal scroll.
  - Vertical scroll.
  - Tab bar.

- Confusing and inconsistent navigations to other functions like suggestions and media source.

SEARCH

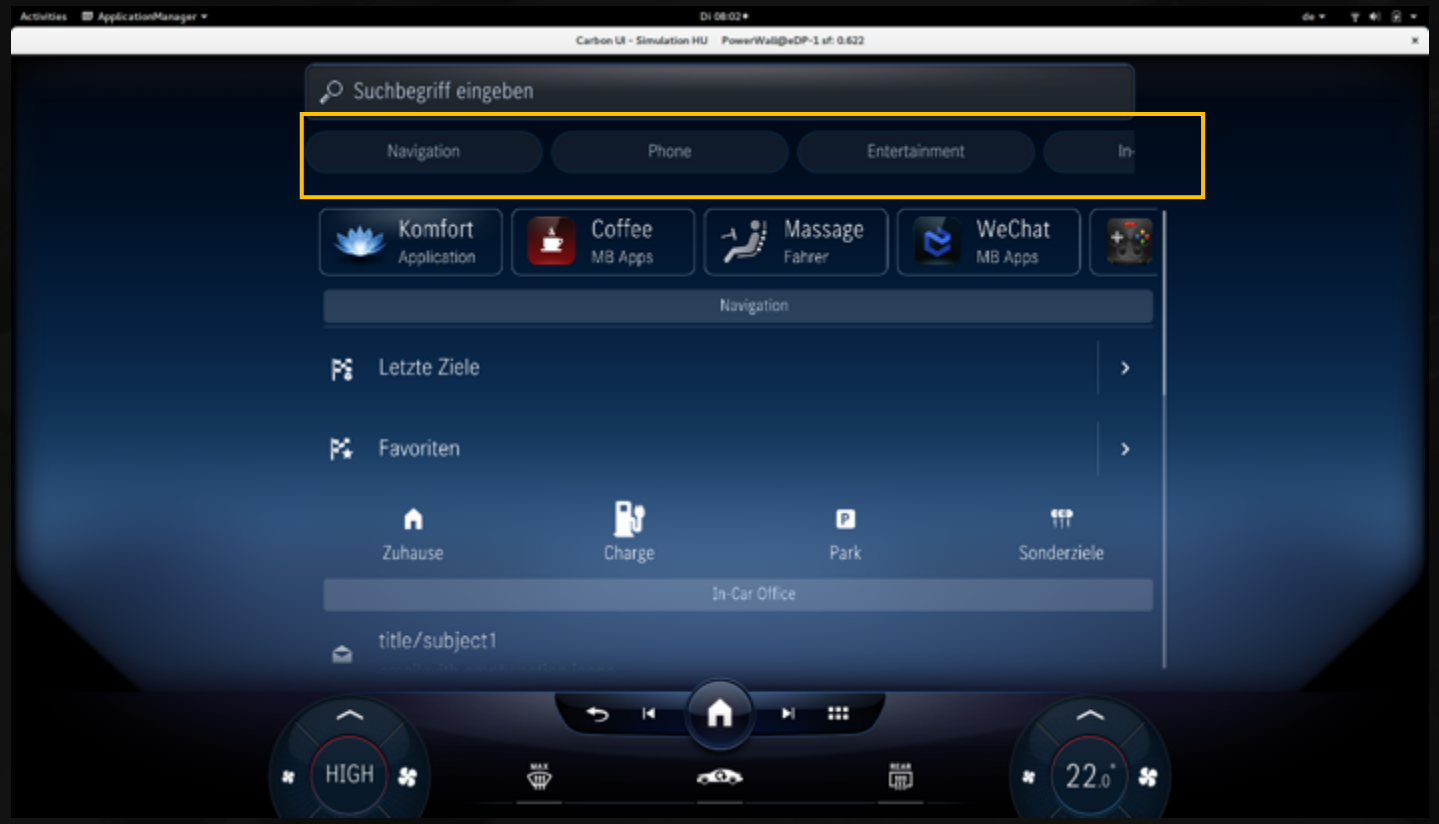


- High learnability low discoverability.
- Increased cognitive load.
- Inconsistent design.
- Non conformance to mental models of the users for search function across digital solutions

Complex *navigation structure* in small real estate and multiple interactions without any visual hierarchy and visual cues.

UI contains:
Vertical scroll.
Horizontal scroll menu
Tab menu.
Disclosure indicators.
List .
Action buttons.

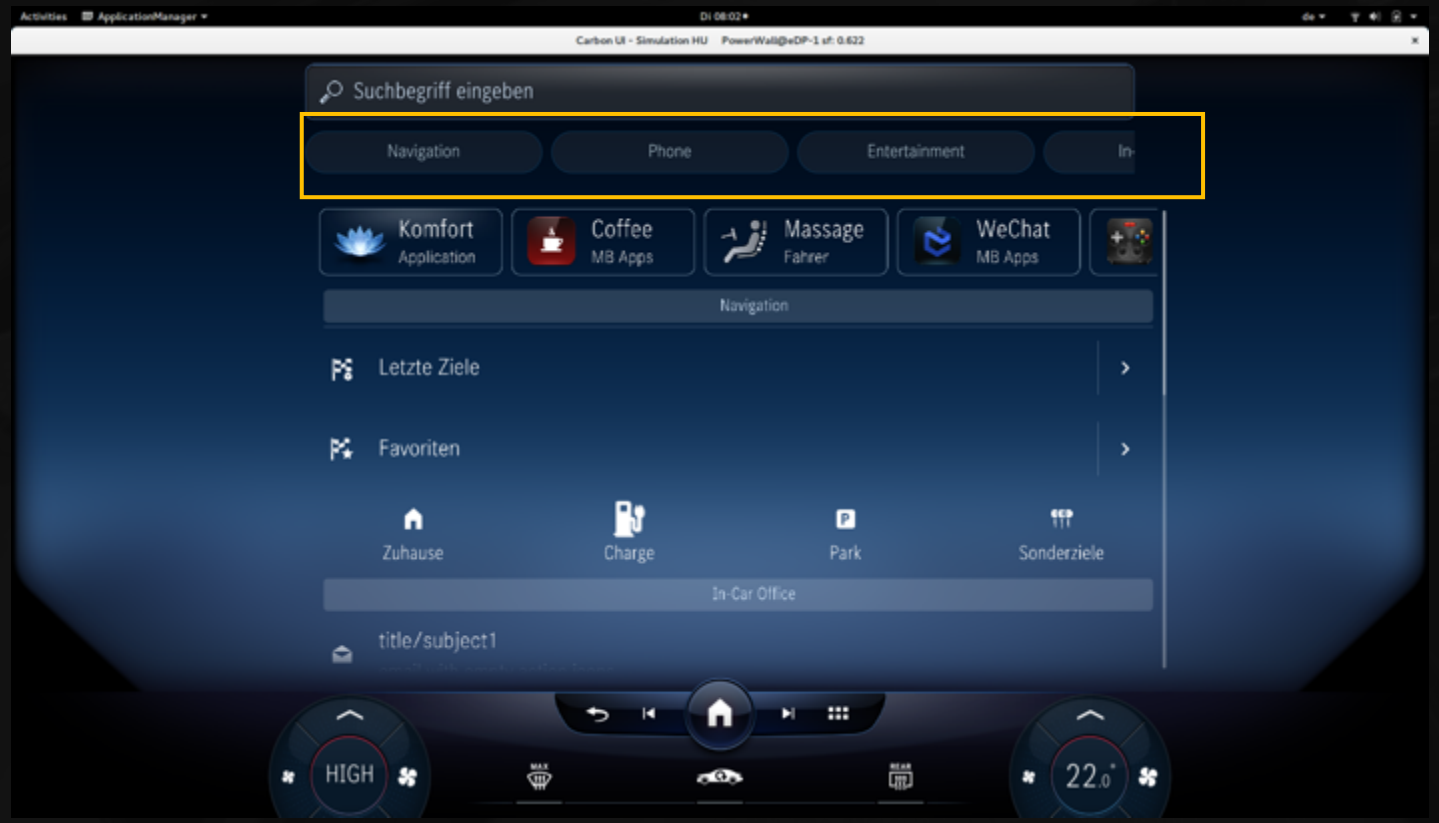
SEARCH



Use of horizontal scrollable tab have low *discoverability* factor.

- A category filter frequently used by a user might be *below the fold*.

SEARCH

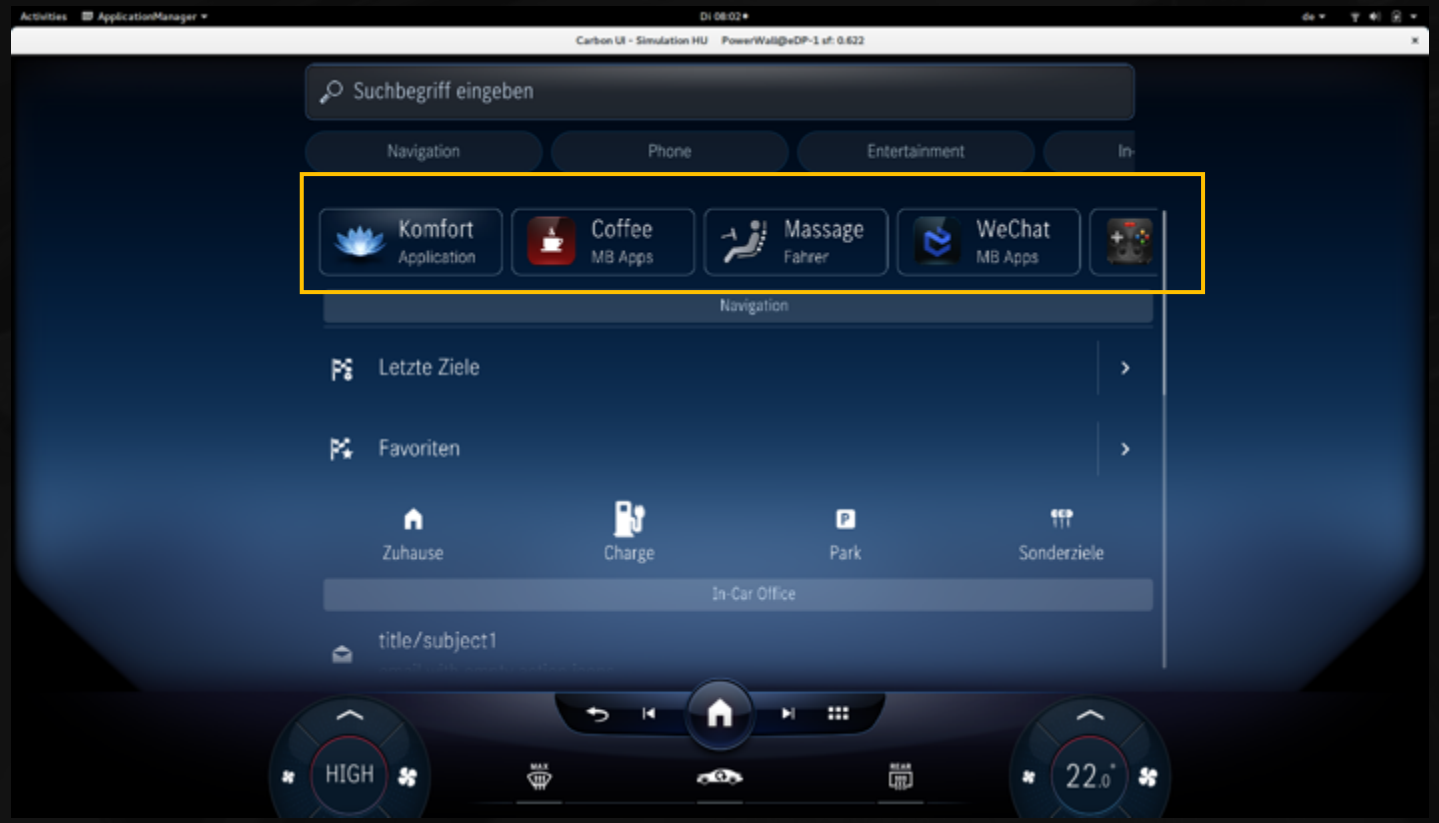


High learnability for the user:

- These tabs are not a standard UI pattern for category filters in the search.
- Not a standard *mental model* for search module and categories.

Non conformance to heuristic "*Consistency and Standards*".

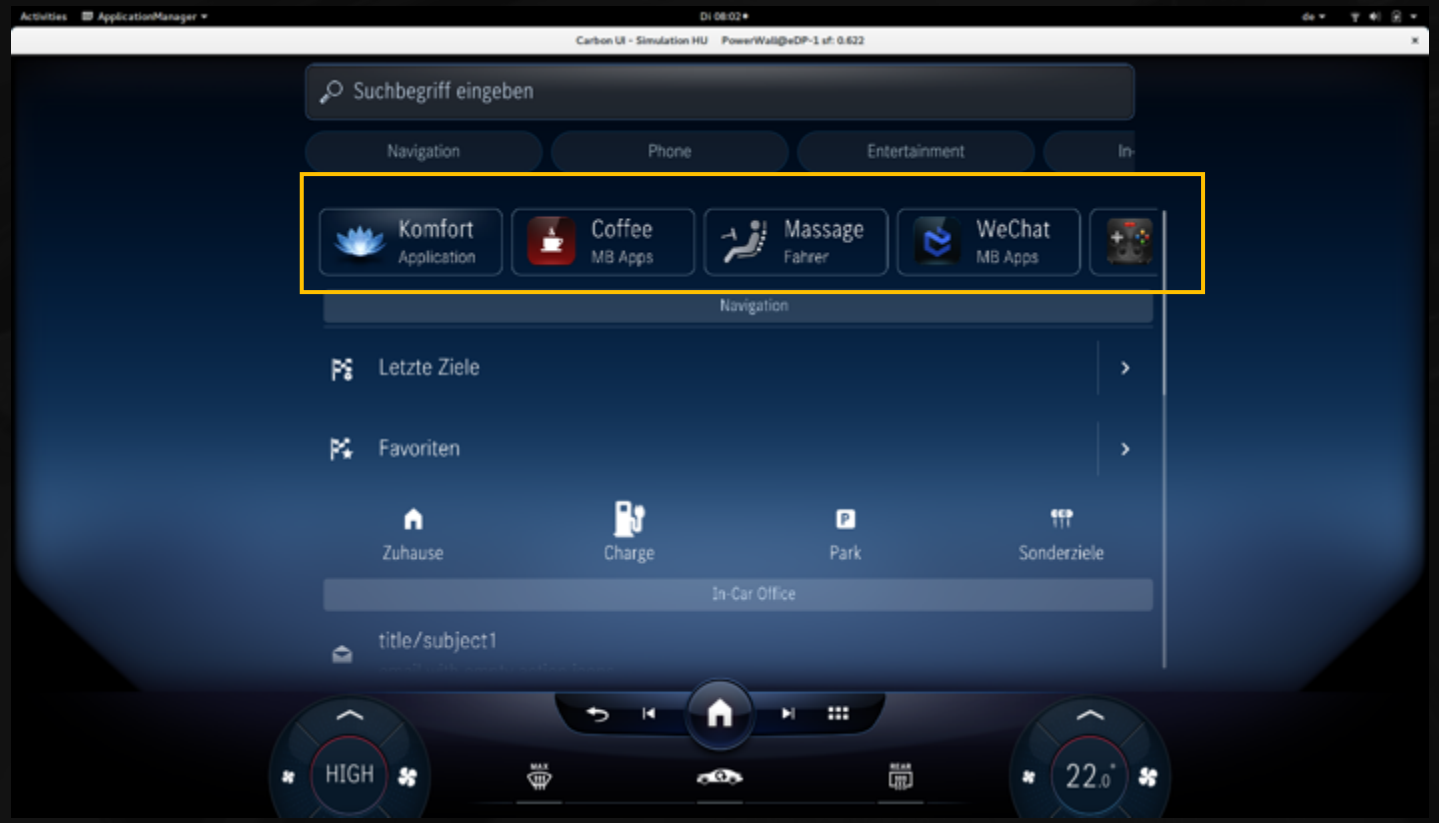
SEARCH



Problem in user's orientation.

- *Recently used* title is missing.

SEARCH

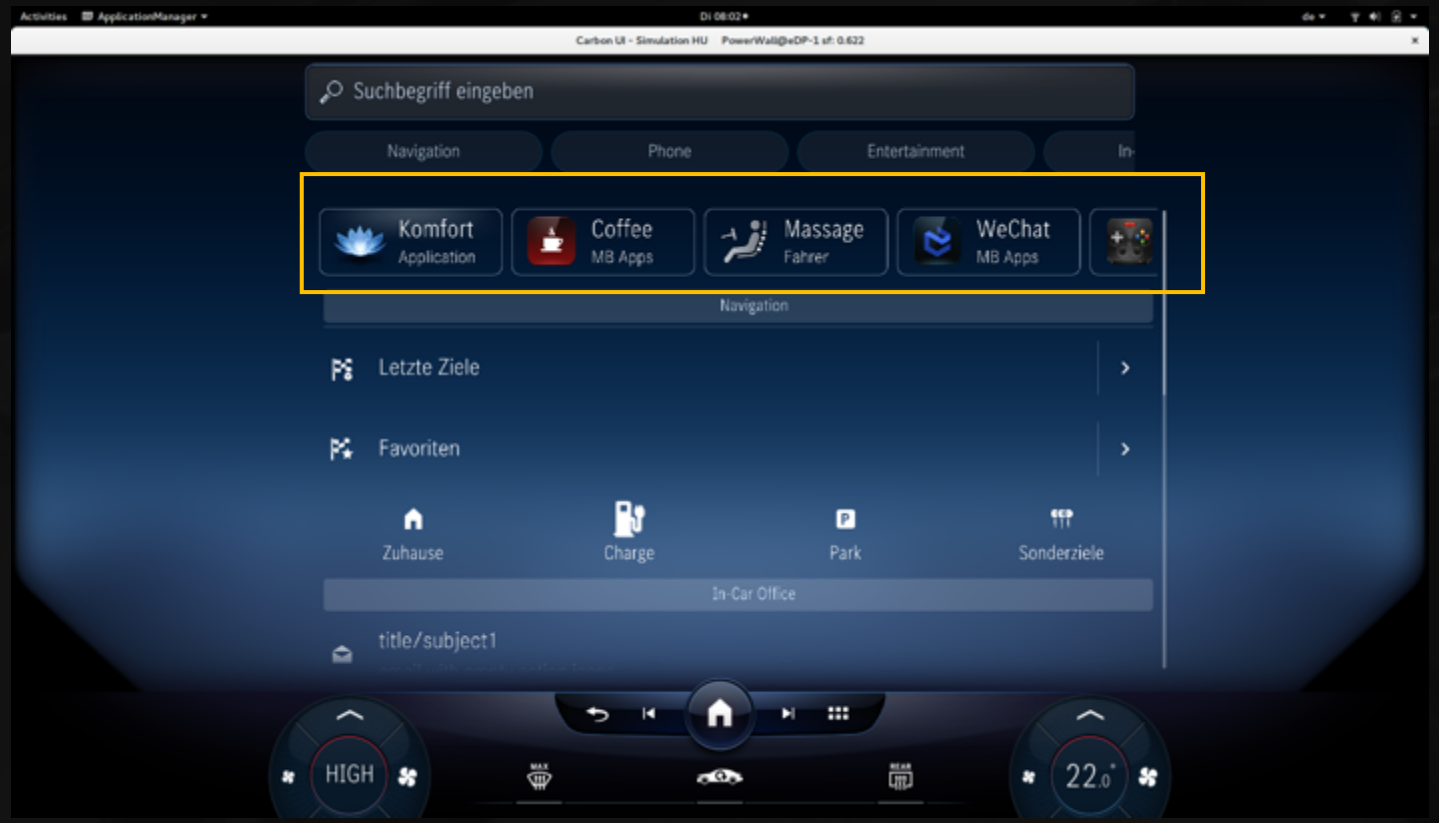


Problem in user's orientation.

- Category "All" is missing.

(If a user selects any category, for example "Entertainment", its difficult to navigate back to search list with all results.)

SEARCH

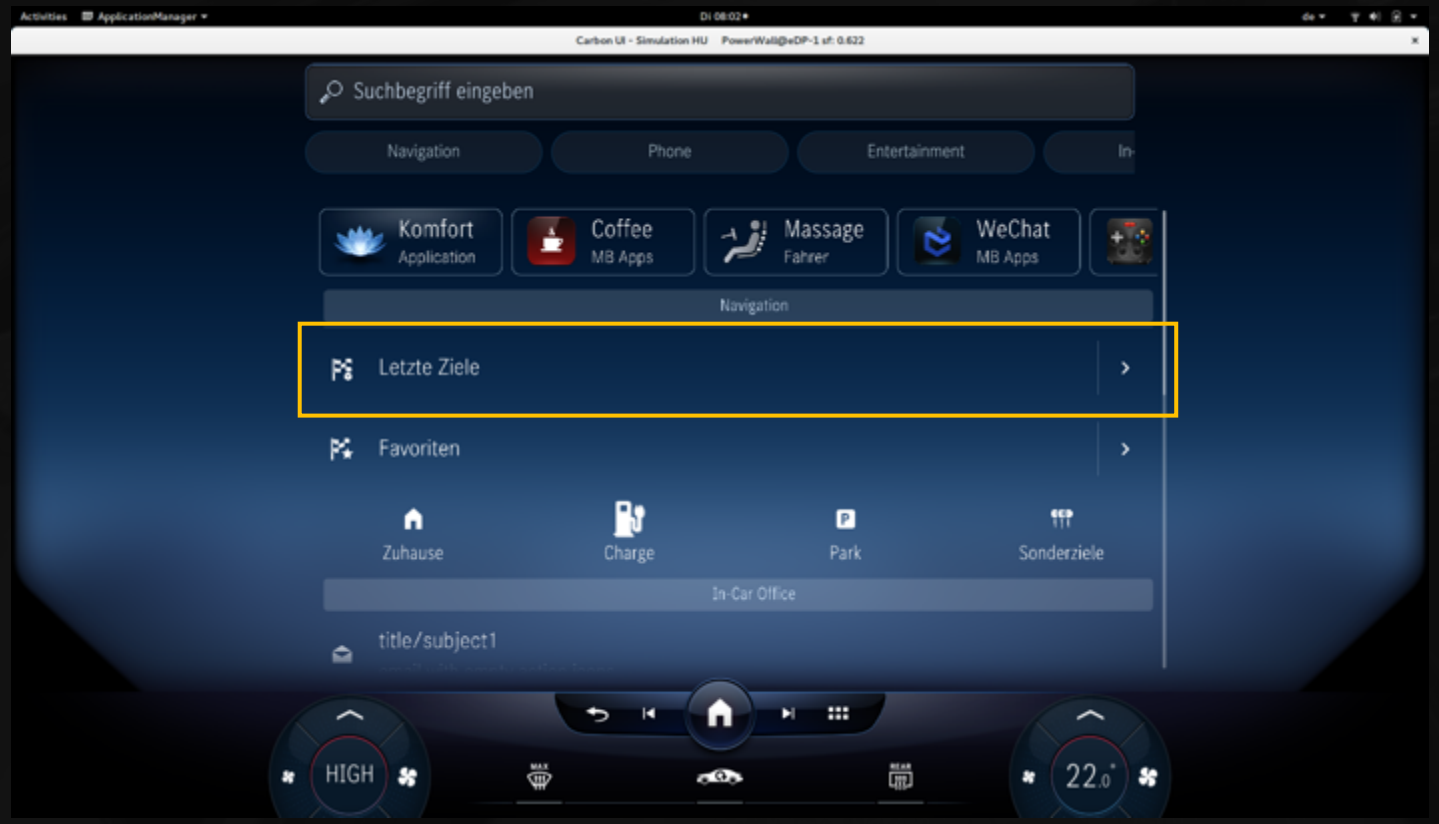


High learnability and increased confusion for the user:

- Actionable UI elements like Comfort, Coffee are placed between category menu and search list which create a disconnect between search and results list during the standard interaction of search.

Non conformance to *"Gestalt principle of similarity and proximity"*.

SEARCH



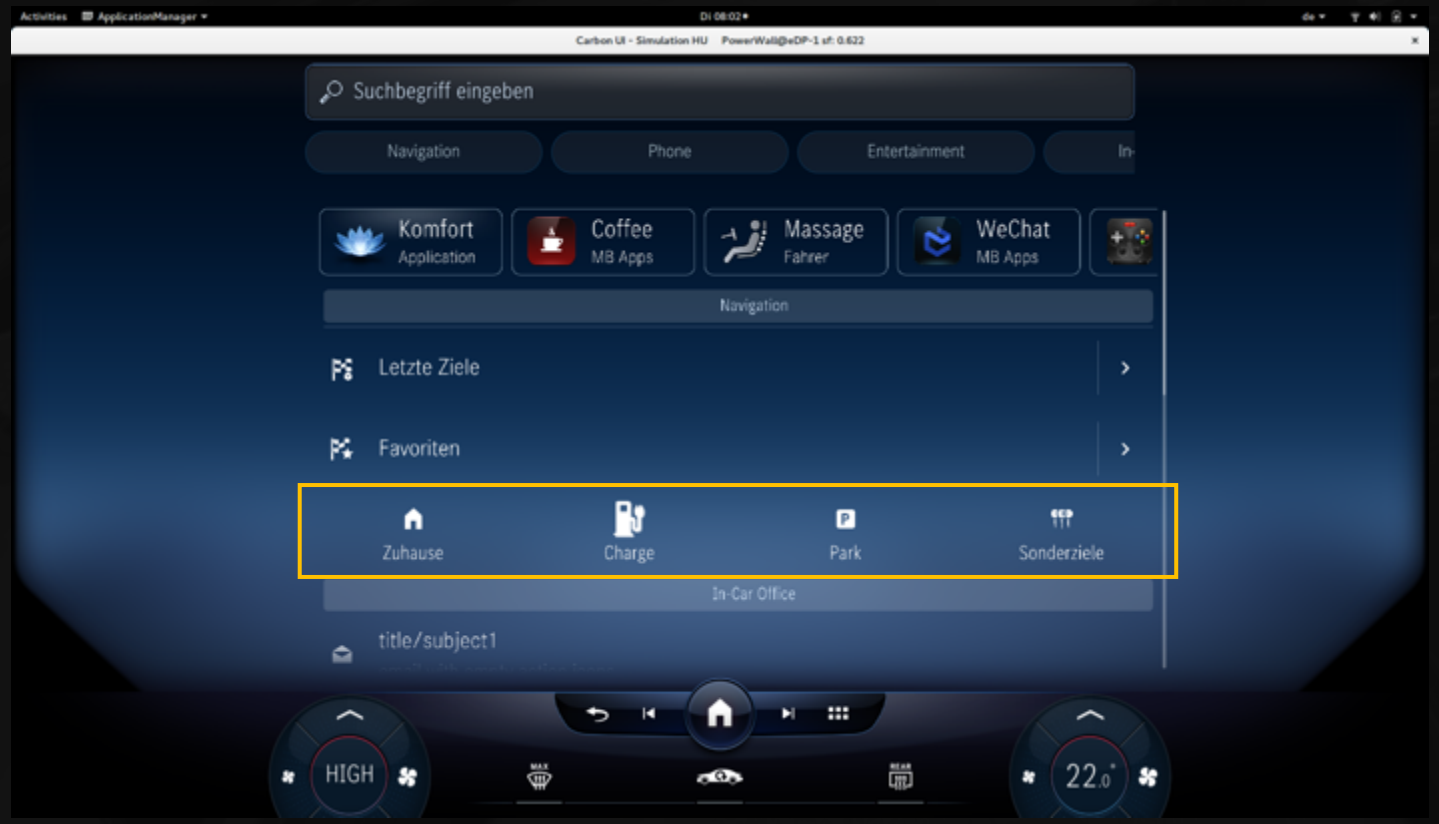
Important information is below the fold.

Task: When a user wants to quickly navigate to a recently visited POI.

- Recently visited POIs (like Letzte Ziele) are below the fold.

- From Zero Layer it requires 3 touches to start a navigation to a POI

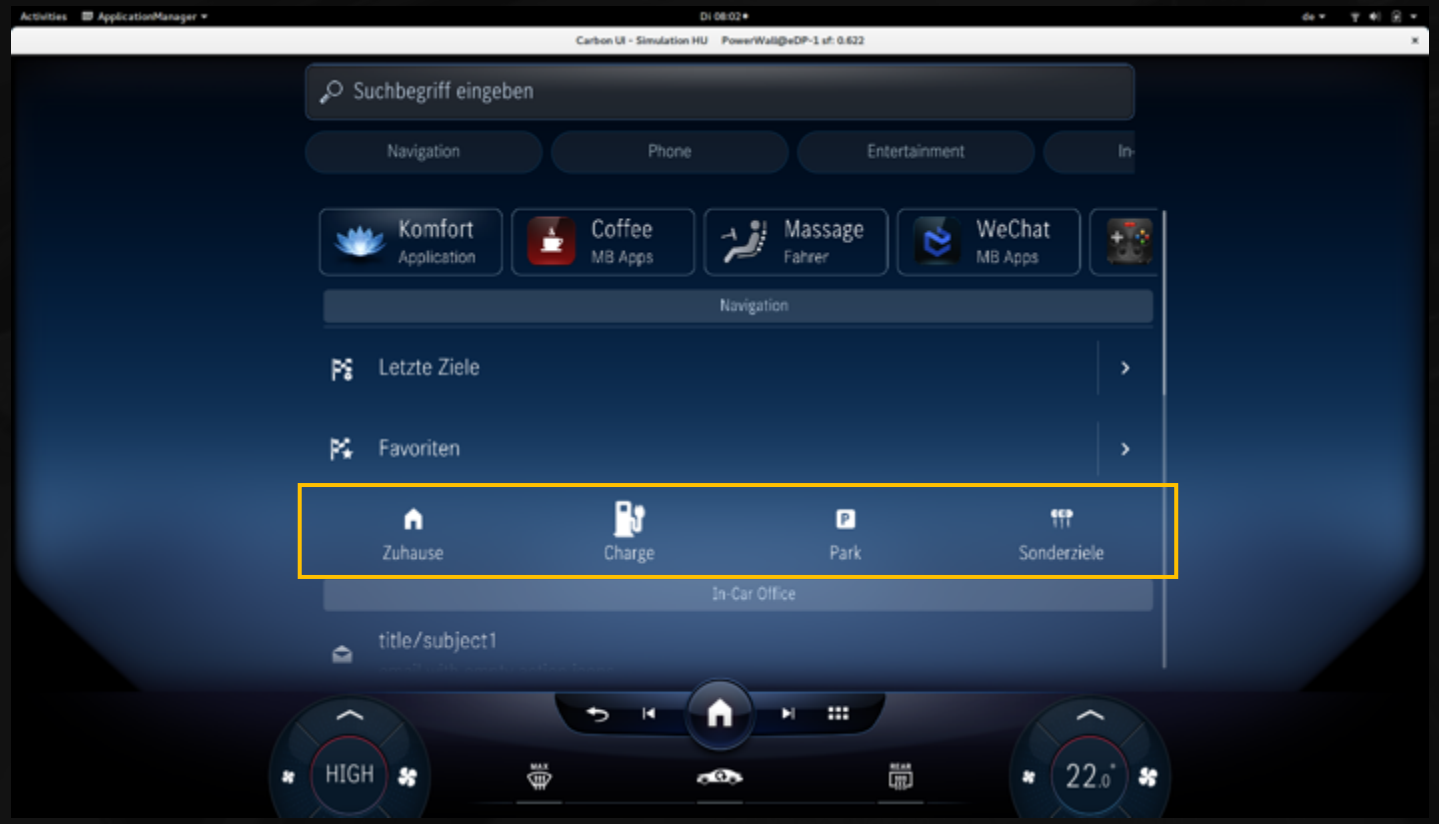
SEARCH



Complex information architecture.

- POI selection is in the middle of the search result list which is confusing and creates a disconnect.

SEARCH



Bad affordance.

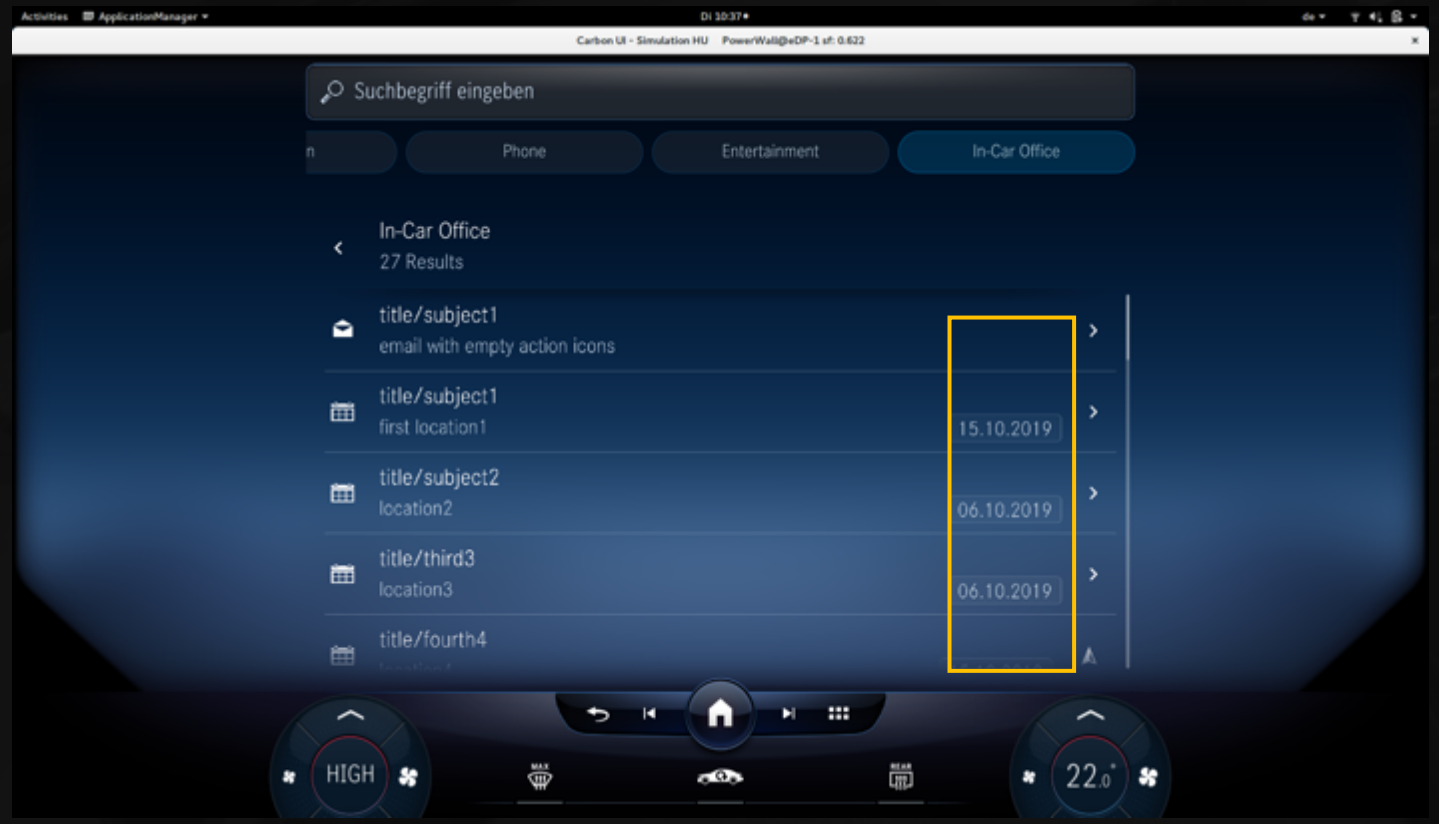
- The icons do not look actionable rather just indicators.

SEARCH

False affordance.

- Considering the current visual language, the USB fields look actionable .

SEARCH



False affordance.

- Considering the current visual language, the **Date** fields look actionable.

SEARCH

- Inconsistent and confusing interaction behaviour, increased learnability and cognitive load.

Tapping on any result auto selects the category on top without changing result list.

Tapping on any category filters and shows the results only of selected category.

NOTIFICATIONS

Inconsistent interaction and deviation from standard behaviour.

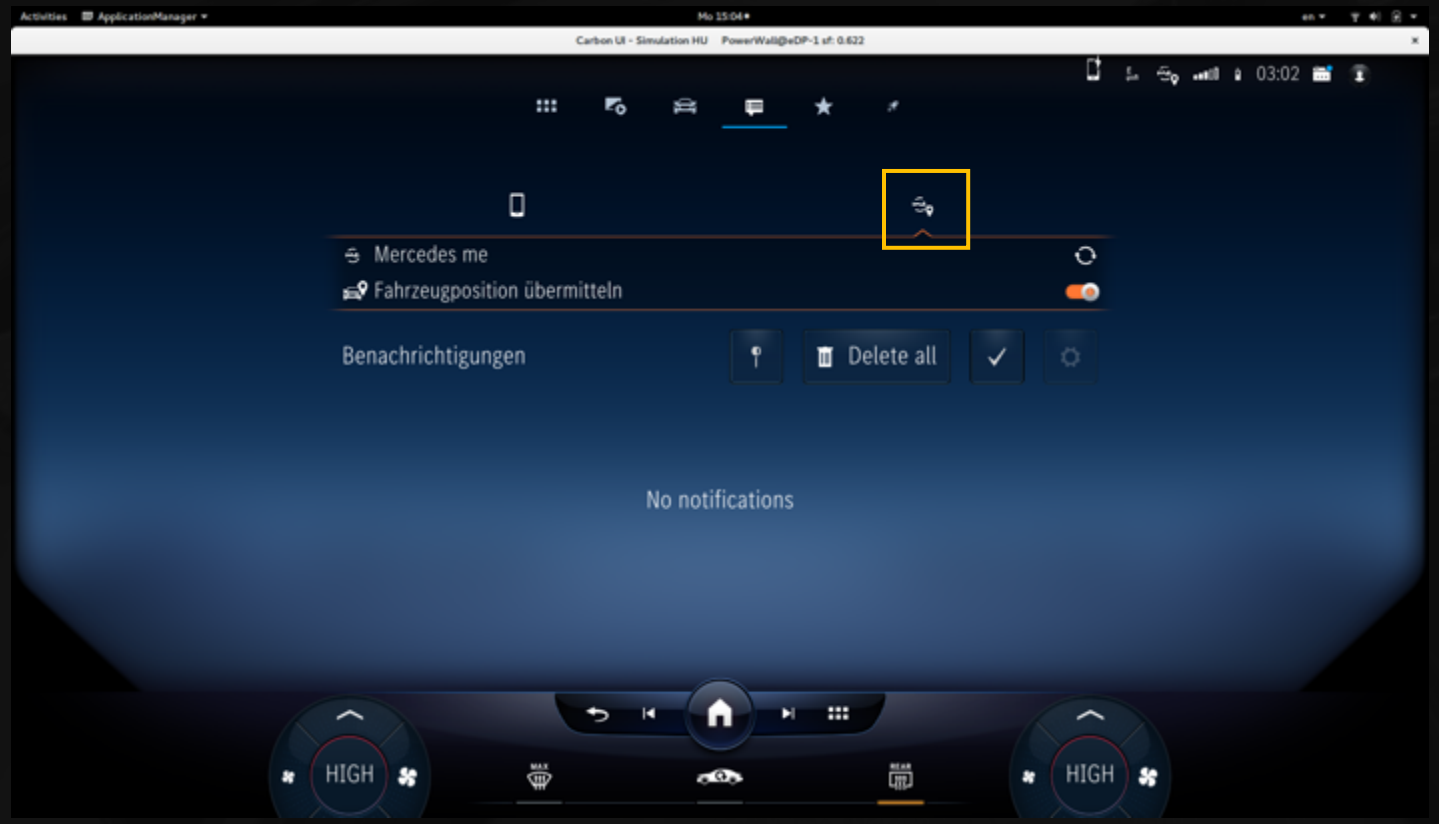
Increased motor load because the touch movement is diagonal.

Increased visual load because of the diagonal scanning.

- Mercedes Me button tap opens up the notification view and to go back a user has to either press “back” or “home”.

- Redundant behaviour, same menu opens up from swipe down.

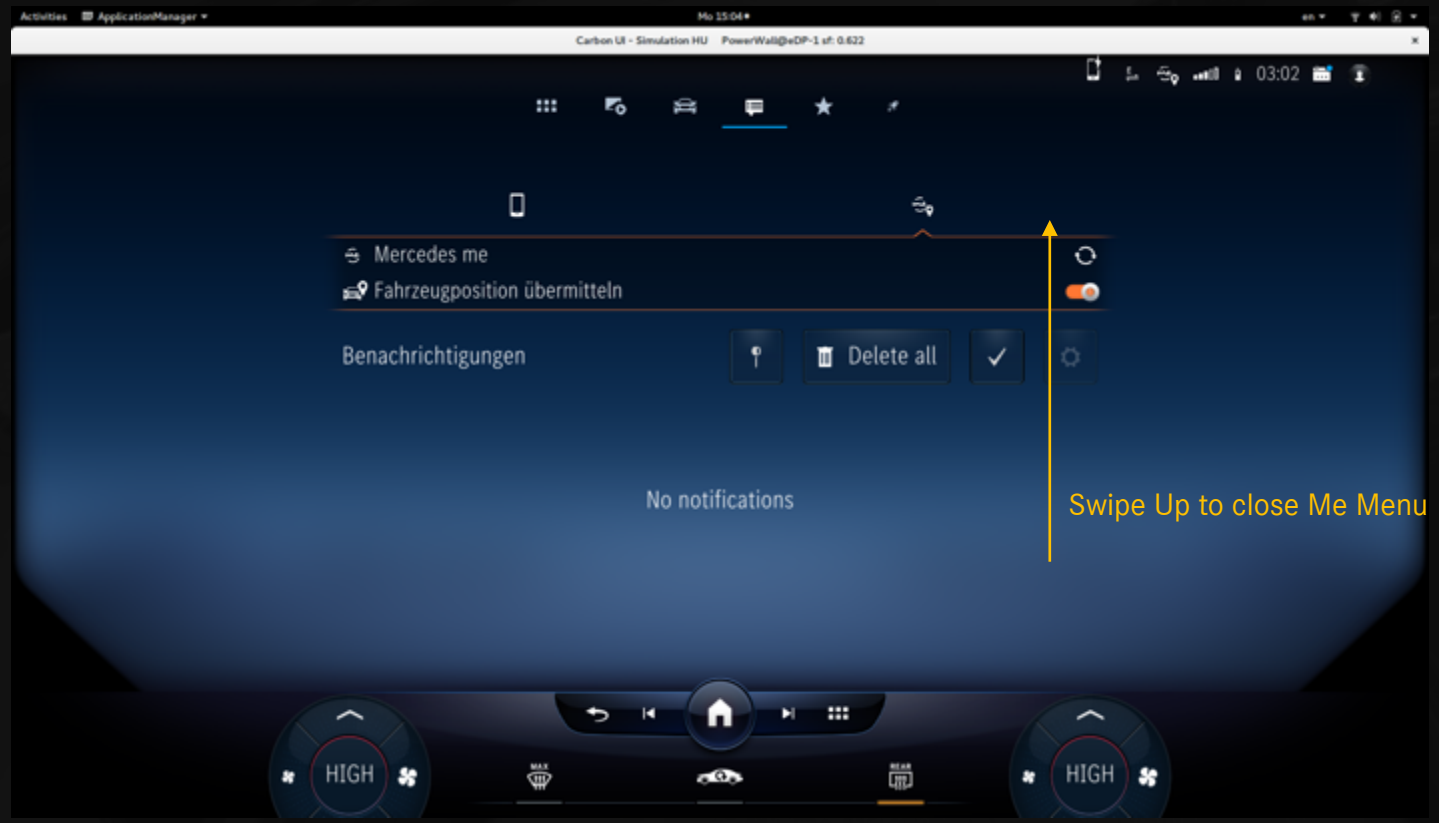
NOTIFICATIONS



False affordance

- The UI conveys false affordance of drop down menu.

NOTIFICATIONS



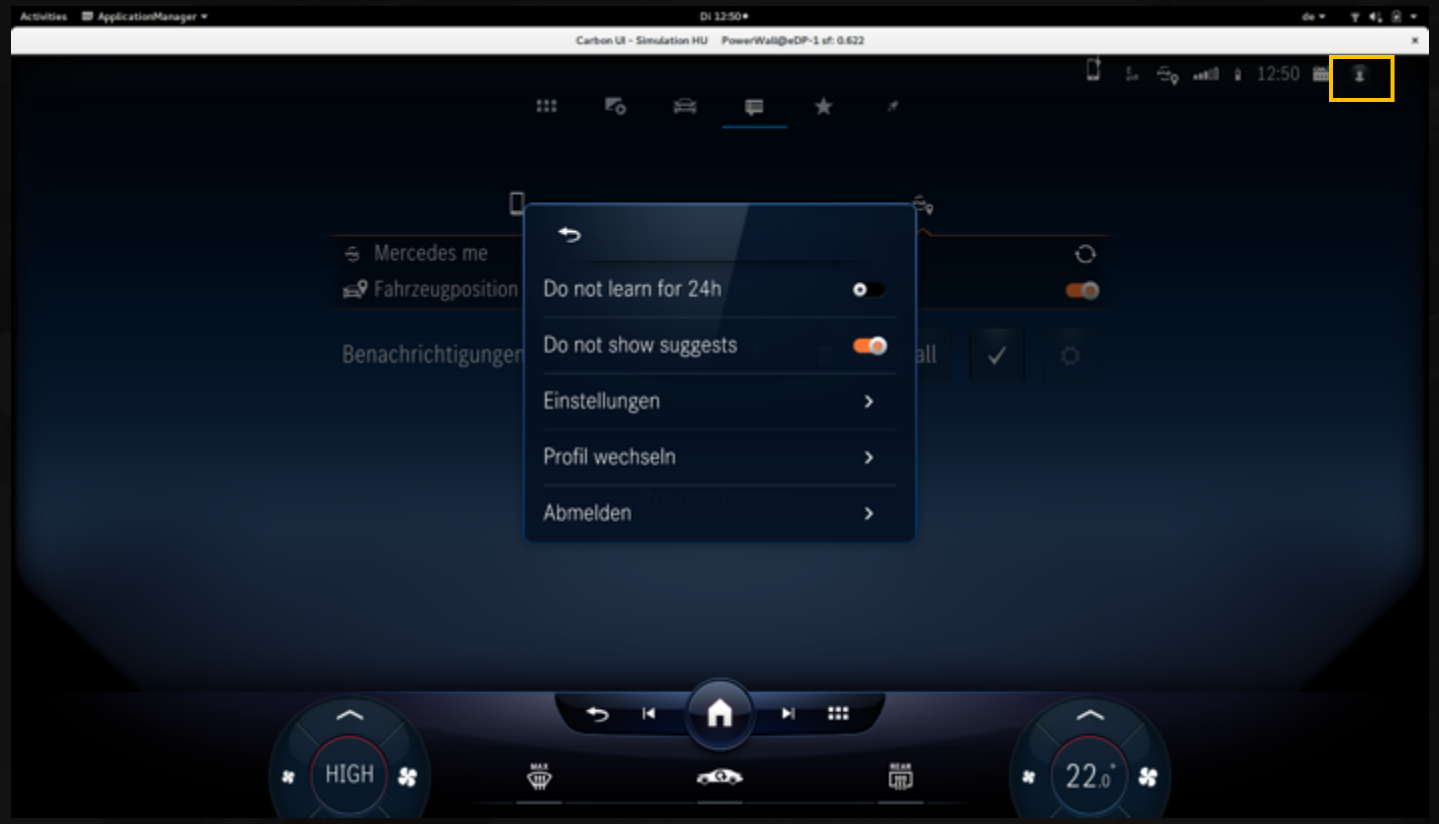
Increased frustration for the user.

Low discoverability.

Conflicting interactions.

- A user might try to swipe up to close the Me menu which will conflict with the vertical scroll list.

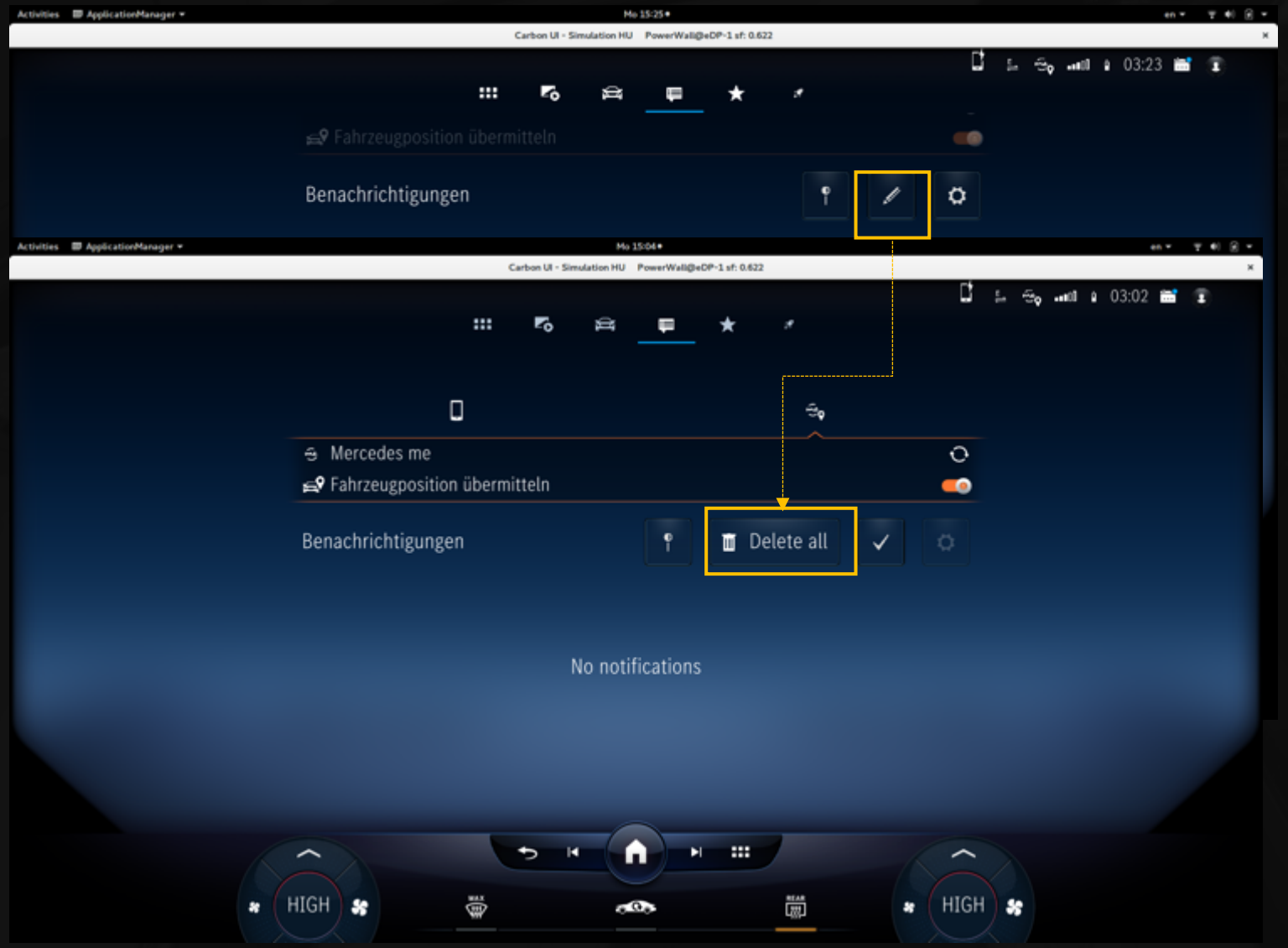
PROFILE



Confusing and inconsistent interaction

- Profile button lands to general settings which is confusing and against the standard mental model of users.
- Settings are not specific to profile and are the combination of app settings (like ”do not learn”), profile settings and “profile switch”.

NOTIFICATIONS



False affordance.

- Edit only introduces delete button.
- Confusing because edit is used for editing the information.

APP MENU

Partial or inconsistent interaction.

- After the swipe down, there is no swipe up to close the menu.
- To go back a user has to touch either Home or back button.

MENU MODULES

No consistent design language and navigation patterns.

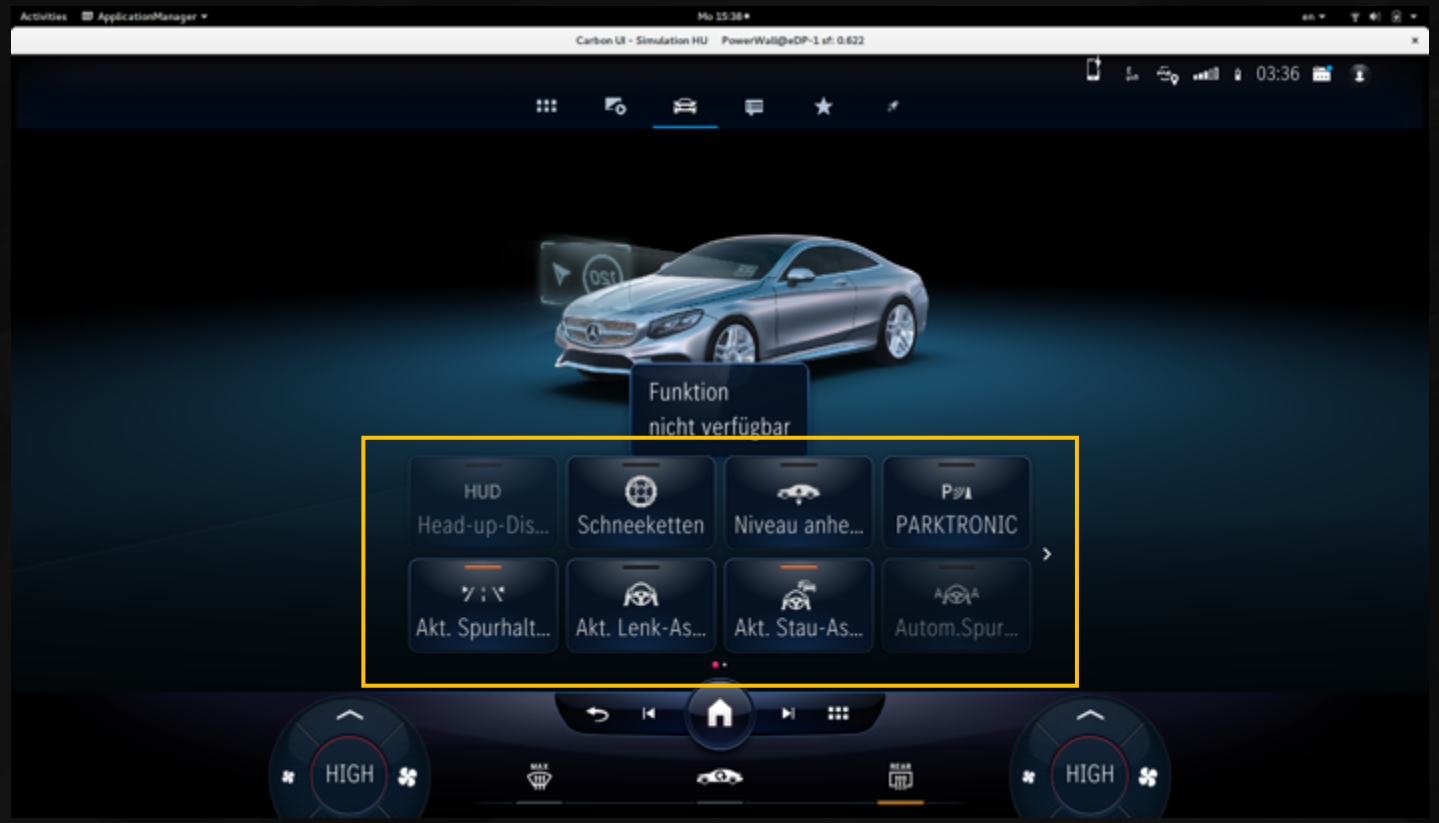
High learnability.

Complex *information structure* and *navigation structure*.

Every module presents the information in different types of Navigation structures namely:

- Vertical scroll.
- Horizontal scroll menu
- Tab menu.
- Disclosure indicators.
- List .
- Action buttons.
- Horizontal menu with doubly stacked action buttons.

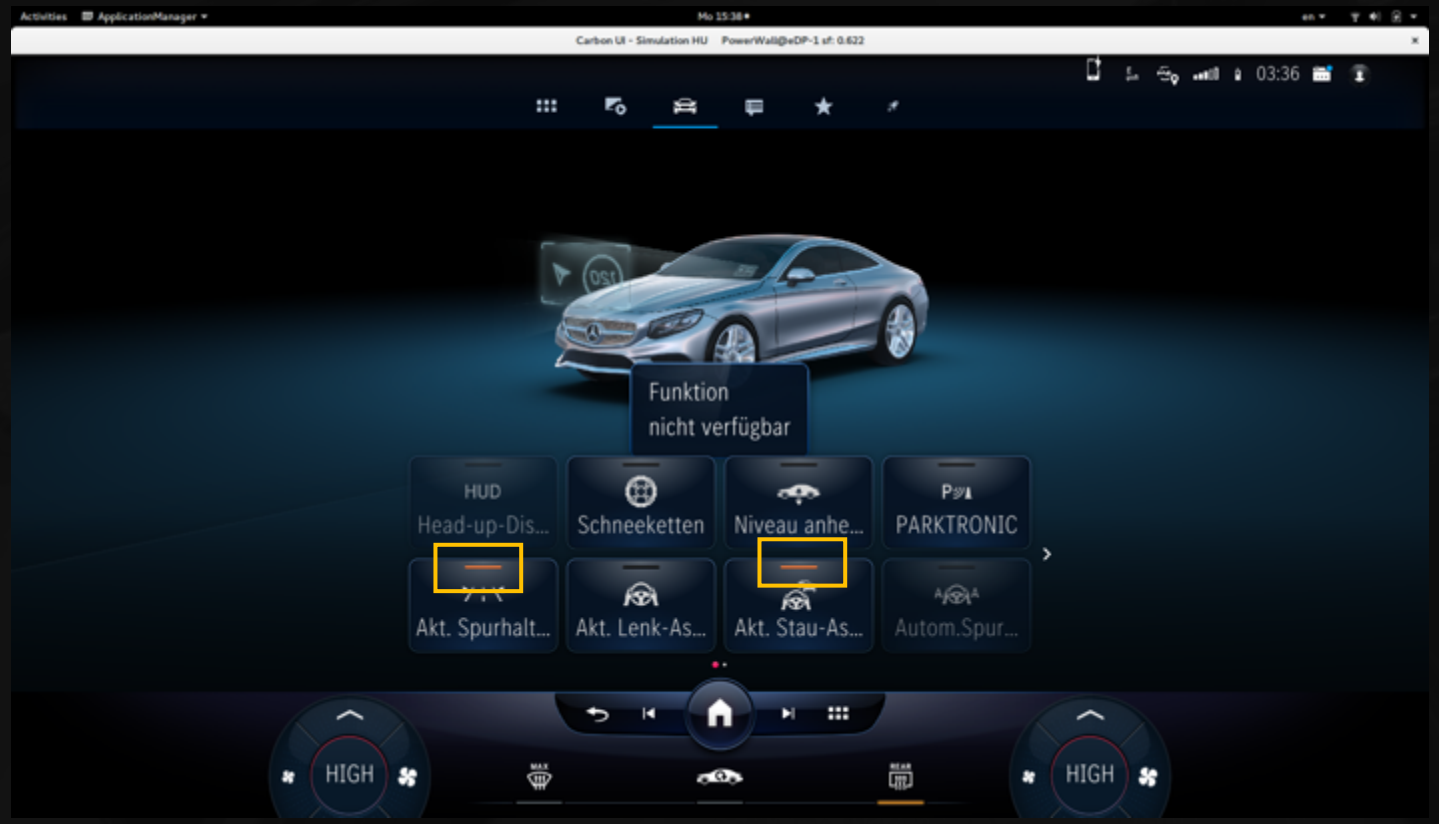
CAR SETTINGS



Low “ease of access.”
Low “user control and freedom.”

- A user might want to access a frequently used *setting* quickly which might be below the fold.
- There is no way to customise the car function menu.
- If a desired function or setting is below the fold, a user has to scroll too much to find and change it.

CAR SETTINGS



False affordance.

- Glowing horizontal line suggests swipe down interaction and its not a standard visual cue of on/off toggle.

RANGE

High learnability

- Selection/Toggle indicators, interactions and colours (blue and orange) are different as compared to previous screens (car settings).

Non conformance to heuristic “*Consistency and Standards*”.

RANGE

Increased cognitive load.

High learnability.

- New Users might not quickly understand that these are charging modes because the title is missing.

RANGE

No application of Gestalt principle of proximity

- Confusing Placement of edit button and it does not depict the information to be edited.

CONSUMPTION

- Consumption is not easily understandable and if a user wants to check the values quickly this UI will not make sense.
- The units and values are not apparent and not connected to what they represent like fuel and battery consumption.
- User will lose attention soon (10 seconds rule for websites).
- Complex data visualisation pattern.
- Not a conventional graph, hard to read and interpret the data.
- Non compliant to the mental model of users and high learnability for any type of user.

COMPETITIVE RESEARCH

AUDI

UI Patterns:

- Horizontal scroll menus to navigate between main features.
- Static bottom tab menus.

Review and Insights:

- Banking on mental model of scrollable behaviours in digital platforms.
- The tap areas for bottom menu elements seem small.
- Interactive UI elements scattered across the screen which increases visual and cognitive load with high learnability.

BENTLEY

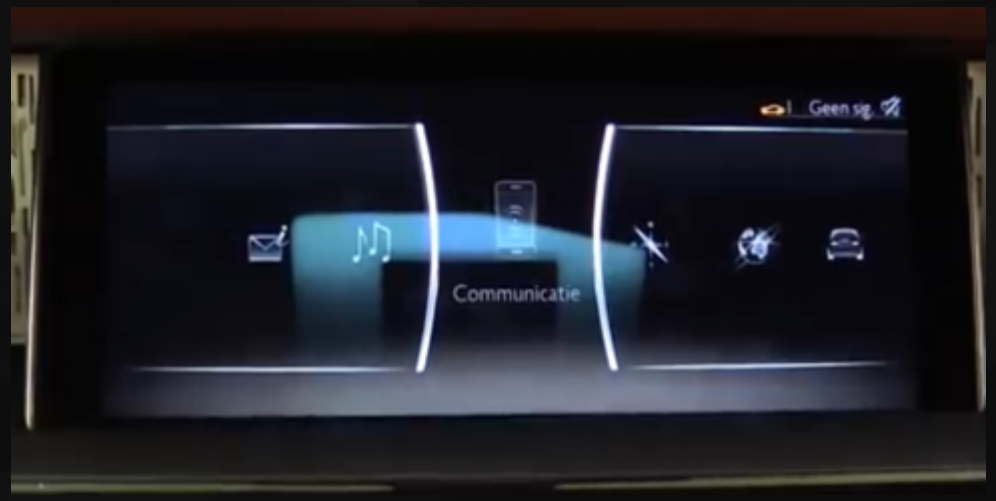
UI Patterns:

- Static bottom tab menu.
- Notifications are on both, top and bottom of screen.

Review and Insights:

- Dark theme and use of black to project sophistication and premium brand image.
- Tap area for frequently used setting ”Auto” is small and hard to access which increases motor load and visual load.
- Interactive notifications are scattered across the screen which increase motor load and visual clutter.

ROLLS ROYCE



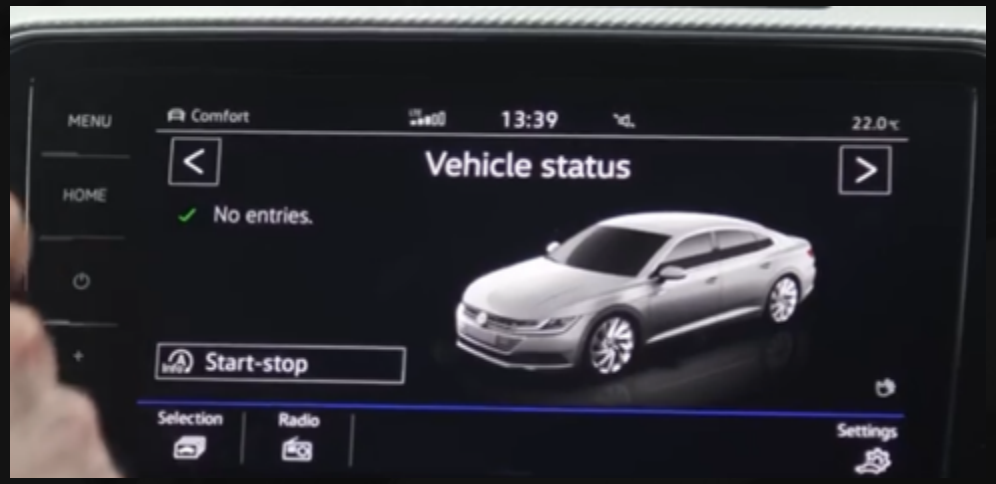
UI Patterns:

- Horizontal scroll carousel menu.

Review and Insights:

- Use of curves in UI elements and shapes to project sophistication.
- The text for an icon in menu only appears once its in the center of carousel. This behaviour has low discoverability.
- More area to the map view in navigation screen which reduces visual clutter and projects navigation function as the core task.

VOLKSWAGEN



UI Patterns:

- Static bottom tab menu.
- Back and forward navigation on top of screen.

Review and Insights:

- Text placed above the icons in the bottom menu, slightly away from the existing mental model of the users.
- Frequently used feature ”Settings” is at the bottom corner which has low ease of access for user in opposite seat.
- Use of compass in navigation improves the sense of direction and map orientation.
- Tap area for ”Comfort” is less and has low ease of access.

LINCOLN

UI Patterns:

- Horizontal scroll menu.
- Static bottom menu.

Review and Insights:

- Smaller fonts and small icon sizes are used which are more aligned with digital hand held devices. This increases the visual and cognitive load.
- Navigation screen uses multiple colours. Difficult to guide the users attention to the core tasks., hence increase in visual and cognitive load.

FISKER

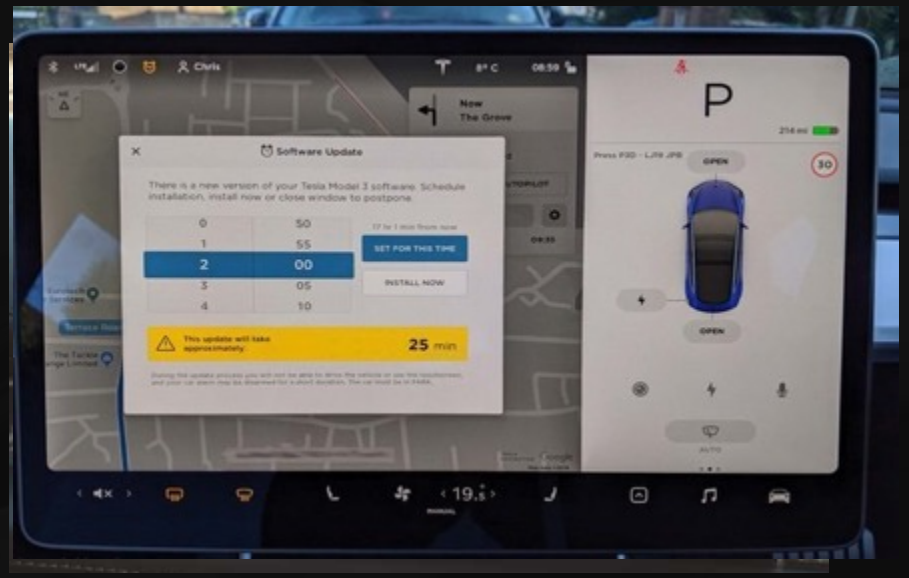
UI Patterns:

- Static top and bottom menu.
- Static climate control on bottom of screen.
- Settings on top of screen.

Review and Insights:

- On home screen, large and important real estate is used only to display time and temperature and less tap area for main features. Assuming the current core tasks of automotive users this behaviour introduces more load and less ease of access.

TESLA



UI Patterns:

- Static bottom menu.
- Brighter theme.

Review and Insights:

- Very small fonts and small icon sizes are used. This increases the visual and cognitive load.
- Very bright theme is used. This might distract the user while driving in low light scenarios or in night time.
- The interface will require more attention even for a quick interaction while a user is driving, which increases cognitive and visual load.

JAGUAR

UI Patterns:

- Static bottom menu.
- Split screen for navigation.

Review and Insights:

- Use of black and shade of pink colour to project sophistication and premium brand image.
- Bottom menu icons lack text and there are 9 features, this increases the visual and cognitive load.
- Home button placement is at the extreme corner which has low ease of access for the user in opposite seat.
- Use of split screen in map to display POI information. The relevant information above the fold and has better ease of access.

CONCEPT PROPOSAL

VISION

How should we approach NTG 7 digital interface Design?

- Should be perceived as a futuristic Operating System for Cars.
- Further iterations should work towards developing Unified design language and Interactions.
- Should exist in intersection of both worlds, Digital and Automotive and evolve from both as a coherent solution.

CONCEPT PROPOSAL

- Consumable and non interactive information
- Profile and related notification cues
- Magic modules and AI suggested personalised scrollable menu
- Essential notifications (for ex. Range)
- Media Center

Note:
Expansion and retraction behaviour of UI elements will be the same as in Zero Layer concept in *Minimum State*, *Parking State*, *Retracted state* and *Driving state*.

CONCEPT PROPOSAL

The temperature / fan speed controls are separated and the respective change in values is *above the fold*.

The confusion of knob behaviour is removed.

- Reduced visual load.
- Reduced cognitive load.
- Better affordance

CONCEPT PROPOSAL

- Improved heuristic “Consistency and standards”.
- Unified interaction language.

The adjustment in fan and temperature values have consistent interaction .

CONCEPT PROPOSAL

- Consistent iconography.
- Improved affordance.

CONCEPT PROPOSAL

- Proper application of Gestalt principles.
- Less learnability.

The common controls are clubbed together.

”AUTO” depicted in proper proximity without confusion.

CONCEPT PROPOSAL

- Reduced visual load.
- Reduced motor load.

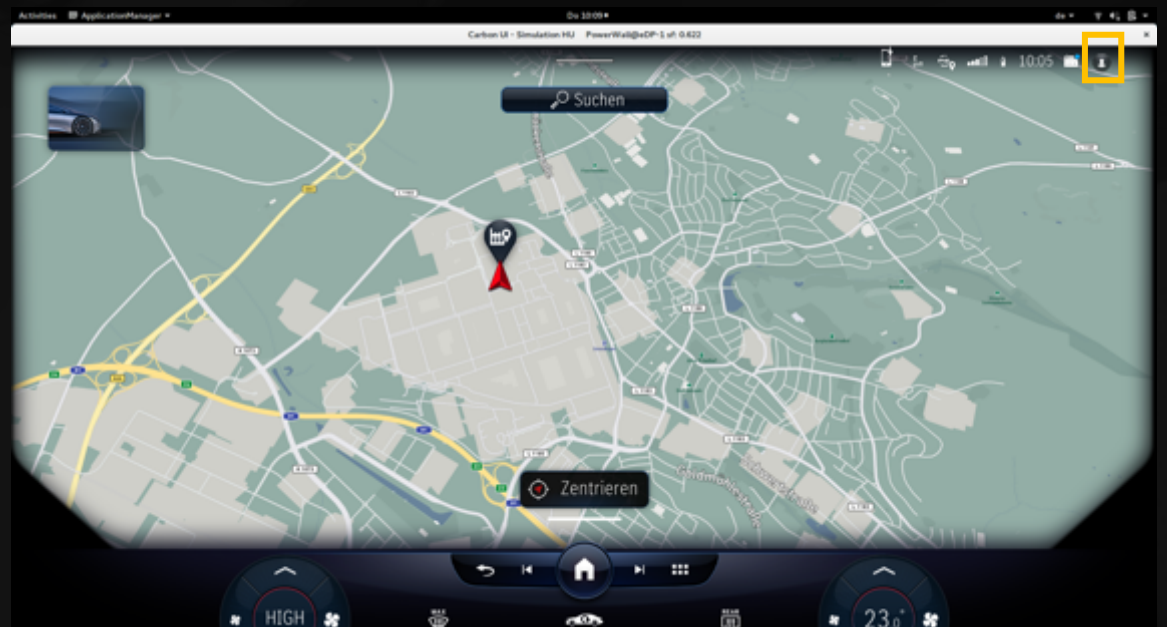
Reduced eye scanning for relevant information.

Less motor movement needed in the case of two important notifications (across the screen in previous design)

CONCEPT PROPOSAL

- Removed redundancy.
- Non intersecting tap areas improving ease of access and reduced motor load.

CONCEPT PROPOSAL



- More touch area for profile improving ease of access.
- Less visual load.