




Usability inspection of a
transit application through the lens of
Bret Victor's user interface theory

Overview

- Introduction 
- Inspection 
- Discussion 
- Future Work 
- Conclusion 

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BVG Fahrinfo: ÖPNV Berlin 4+

Routen, Tickets für Bus & Bahn

[Berliner Verkehrsbetriebe \(BVG\) - AöR](#)

Entwickelt für iPad

[Nr. 33 in Reisen](#)

★★★★☆ 3,8 • 6.654 Bewertungen

Gratis

The end-user benefits of smartphone transit apps: a systematic literature review (2022)

BIAN J., LI W., ZHONG S., LEE C., FOSTER M., YE X.:

“[...] transit app use leads to a significant reduction in actual wait time.”

“[...] perceived safety,
reduced waiting anxiety at transit stops,
increased perceived reliability of transit services [...],
and improved positive impressions towards transit”

User interface evaluation in the real world: a comparison of four techniques (1991)

JEFFRIES R., MILLER J. R., WHARTON C., UYEDA K.

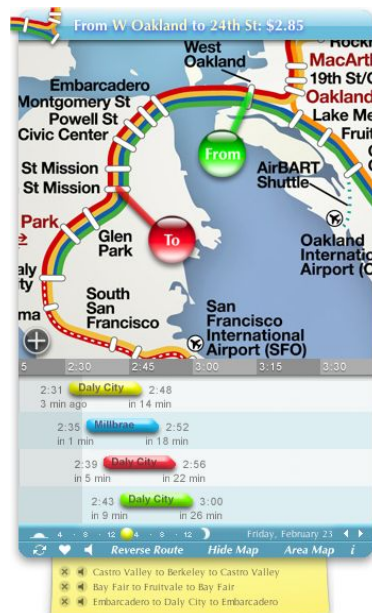
	Advantages	Disadvantages
Heuristic evaluation	Identifies many more problems Identifies more serious problems Low cost	Requires UI expertise Requires several evaluators
Usability testing	Identifies serious and recurring problems Avoids low-priority problems	Requires UI expertise High cost Misses consistency problems
Guidelines	Identifies recurring and general problems Can be used by software developers	Misses some severe problems
Cognitive Walk-through	Helps define users' goals and assumptions Can be used by software developers	Needs task definition methodology Tedious Misses general and recurring problems

An empirical study of perspective-based usability inspection (1998)

ZHANG Z., BASILI V., SHNEIDERMAN B.

Table 4: Aggregated problems found by 3 inspectors

	Tech.	Problems(%)	Improve(%)
H	Heuristic	21.8(5.0)	26.5
	Perspective	27.7(4.4)	
J	Heuristic	24.1(7.2)	35.7
	Perspective	32.8(7.4)	



Apple Design Award
Best Mac OS X Dashboard Widget

Macworld
Nov 2005



Magic Ink: Information Software and the Graphical Interface (2006)

BRET VICTOR

- **information** over interaction
- bespoke **graphics** over generic menus
- user **context** over manual input

software = **context-sensitive information graphics**

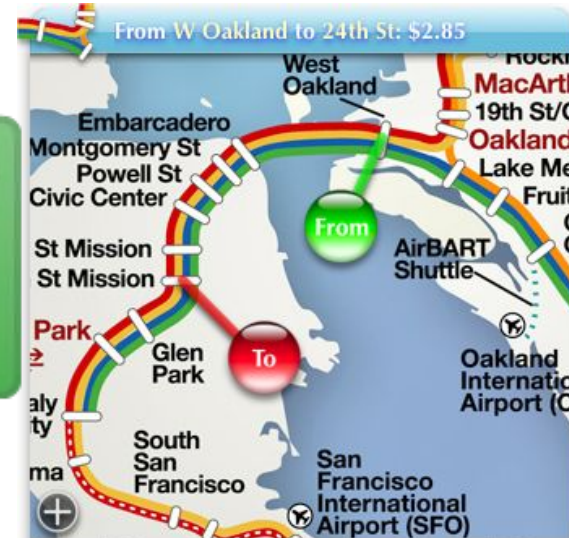
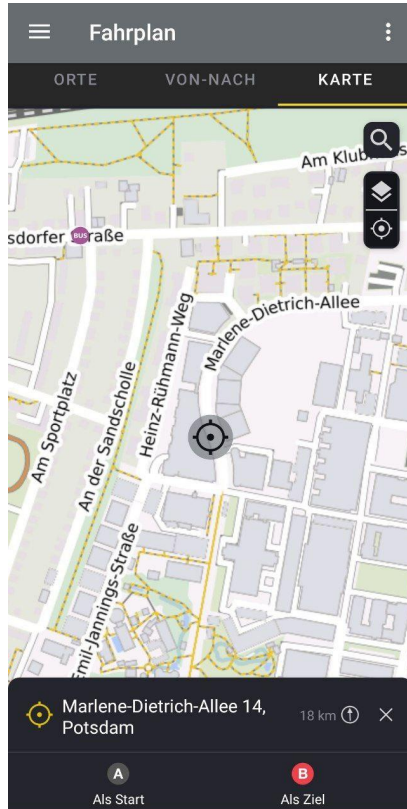
Inspection

Alternative trips are presented in a timeline

12:19 +1	S S41 S S7	12:47 +0
	28min 1x 4,00 €	
	Der Anschluss kann voraussichtlich nicht erreicht werden.	
12:29 +2	S S41 S S7	12:57 +0
	28min 1x 4,00 €	
	Der Anschluss kann voraussichtlich nicht erreicht werden.	
12:39 +0	S S41 S S7	13:07 +0
	28min 1x 4,00 €	
12:49 +0	S S41 S S7	13:17 +0
	28min 1x 4,00 €	
12:59 +0	S S41 S S7	13:27 +0
	28min 1x 4,00 €	
13:09 +0	S S41 S S7	13:37 +0
	28min 1x 4,00 €	
13:19	S S41 S S7	13:47

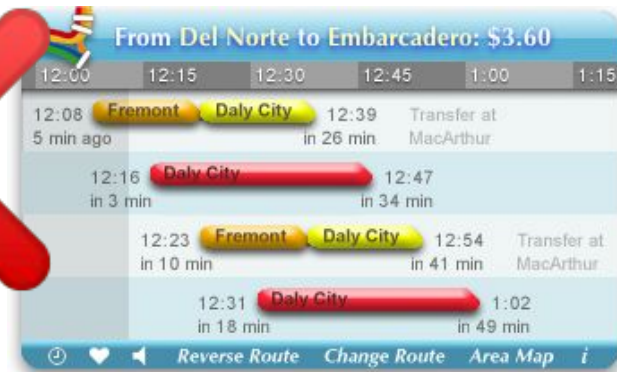


The trip stops can be configured through selecting positions on a 2D map interface

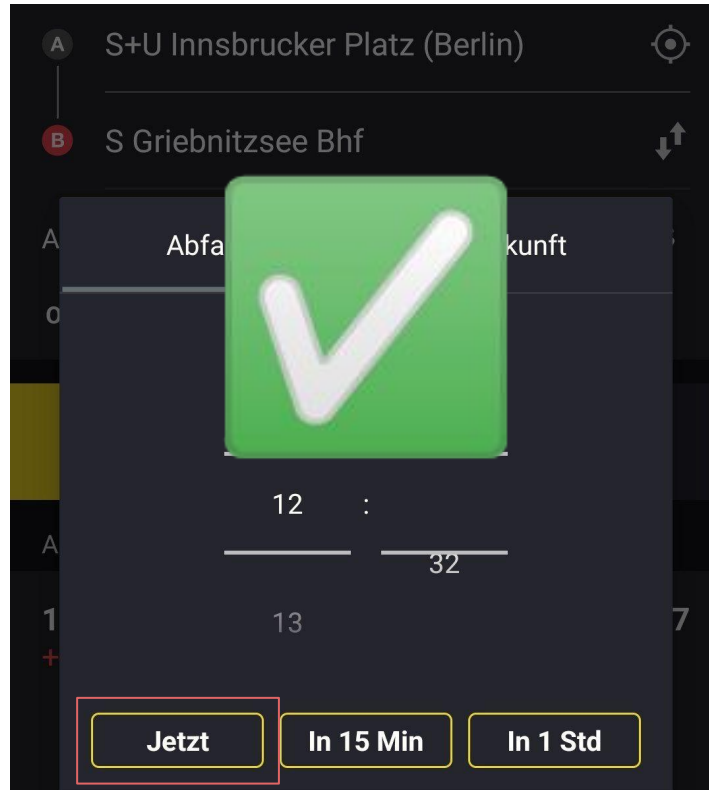


Departure time, arrival time, and duration of alternative trips are visually comparable through their graphical layout

00:09	S S41 S S7 🕒 28min 🔄 1x 💰 4,00 €	00:37
00:29	S S41 S S7 🕒 28min 🔄 1x 💰 4,00 €	00:57
00:49	S S41 S S7 🕒 28min 🔄 1x 💰 4,00 €	01:17
01:22	BUS M48 BUS N16 BUS N17 🕒 1:27h 🔄 2x 💰 10,70 € ⚠️ Ausfall von Zwischenhalten ℹ️ Ein Halt wird mehrfach durchfahren 👤 Hohe Auslastung erwartet ⚠️ 5 Meldungen vorhanden.	02:49
02:22	BUS M48 BUS N16 BUS N13 BUS 694 🕒 1:40h 🔄 3x 💰 10,70 € ℹ️ Ein Halt wird mehrfach durchfahren 👤 Mittlere Auslastung erwartet ⚠️ 4 Meldungen vorhanden.	04:02



The current time is the baseline for navigating through the time domain



Temporal information is set in relation to the current time and synced automatically

12:19 +0	S S41 S S7	12:47 +0
28min	1x 4,00 €	
werden.		
12:28+1	S Westkreuz (Berlin)	Gl. 11
Umsstieg		
12:30+0	S Westkreuz (Berlin)	Gl. 2
S S7	→ S Potsdam Hauptbahnhof	
17 Min., 4 Halte		
Alternativen alle 10 Minuten.		
Fahrradmitnahme möglich (S Westkreuz (Berlin))		
Fahrradmitnahme möglich (S Griebnitzsee Bhf)		
12:32+0	S Grunewald (Berlin)	Gl. 1
12:33+0		
12:40+0	S Nikolassee (Berlin)	Gl. 3
12:42+0	S Wannsee Bhf (Berlin)	Gl. 1
12:43+0		
12:47+0	S Griebnitzsee Bhf	Gl. 1



12:19 +1	S S41 S S7	12:47 +0
28min	1x 4,00 €	
Der Anschluss kann voraussichtlich nicht erreicht werden.		
12:29 +2	S S41 S S7	12:57 +0
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28min	1x 4,00 €	
13:09 +0	S S41 S S7	13:37 +0
28min	1x 4,00 €	
13:19	S S41 S S7	13:47

Discussion

6/13

of examined UI features are either
insufficiently implemented or nonexistent

Discussion



Future Work

- compare lens-based inspection with other techniques
- lens-based inspection of other transit apps
- inspection on “Bret Victor-esque” prototype
- “Magic Ink” inspectors vs. normal inspectors

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