Aricent®

CONNECTED CAR INFOTAINMENT
DESK RESEARCH AND SUGGESTIONS

Oct 06, 2015

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INTRODUCTION

Smart phone is the epicenter of our digital lives. But using your smart phone behind the wheel is a terrible idea.

While an interactive screen in most new cars can be a significant impact on purchase decisions. Most of new vehicle's infotainment systems can navigate to a destination, operate a smart phone hands-free, and an entire digital music collection over Blue-tooth.

Automakers/smart phone makers will continue to innovate and push in-car entertainment boundaries in coming years.

MARKET

Today, the connected vehicle is practically standard. Consumers will likely be happy to connect with music and other audio resources, navigation services, and various mobile apps.

There should be some "basic" must-have features in a car.
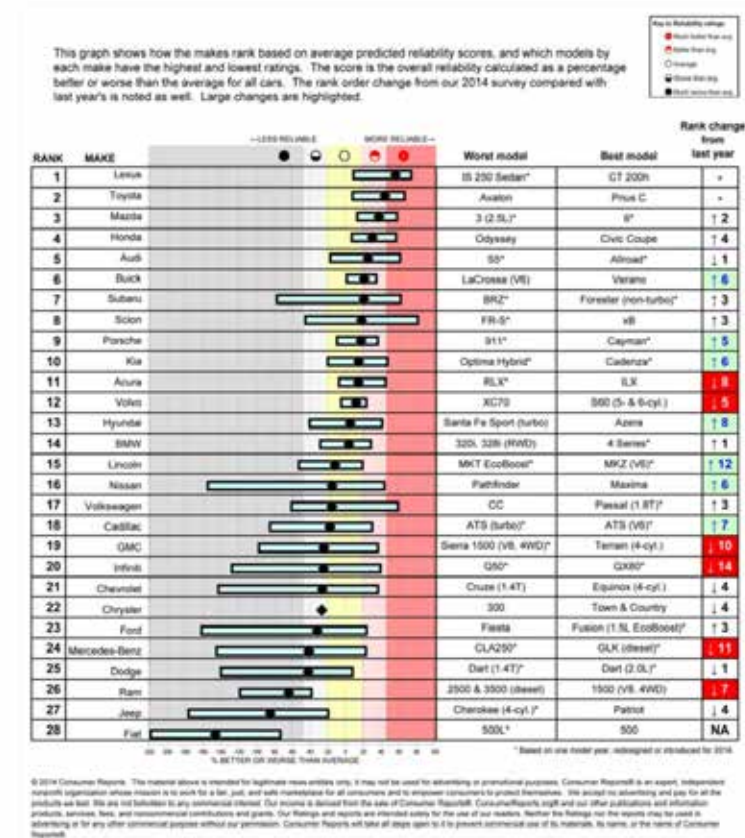
BEST CAR DASH ON ROAD

Rank, brand, model

1. Lexus - CT 200h
2. Toyota - Prius C
3. Mazda - Mazda6*
4. Honda - Civic Coupe
5. Audi - Allroad*
6. Buick - Verano
7. Subaru - Forester
8. Scion - xB
9. Porsche - Cayman*
10. Kia - Cadenza

Source : Consumer report - annual Auto Reliability Survey.

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1&2. Toyota Entune

Pros

Interface has simple menus and customizable screens that make it easy to find what you need. On screen fonts and buttons are large—a big help for legibility.

Better voice recognition

Highly customizable interface.

Phone integration is great

Cons

Lexus "Remote Touch" mouse controller is fussy—that's OK at a desk but bad when driving. Neither system allows phone interaction through the steering wheel.

Fussy 'Remote touch controller'

Manual input method of texting is difficult

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3. Mazda - Mazda6

Pros

Pairing a phone is quick and easy. On screen graphics are uncluttered and the fonts are large and clear.

Simple menus & Big icons

Interface allow use to go back where you left

Very intuitive.

Crisp & clear display

Cons

This isn't an easy system to learn, often requiring several steps to conjure simple functions. Voice command procedures are demanding. Some icons aren't intuitive and the system doesn't allow you to interact with the phone through the steering wheel controls.

Voice recognition is not very impressive

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4. Honda - Civic Coupe

Pros

Basic Hondas have friendly non-touch-screen infotainment systems that use big buttons and a large screen that displays relevant information.

Simple menus & Big icons

Simple to use

Non cluttered with lot of information

Cons

Most Hondas and Acuras no longer have a tuning knob. Many cars have versions that use two separate screens—which can be confusing. The system logic is unintuitive, requiring flipping through multiple oncreen pages to complete simple functions.

Lack of voice command across multiple app

Lack of simplicity in interface architecture

Mobile centric world

Infotainments systems have been almost universally terrible, with confusing interfaces, slow response, and an overwhelming number of options. As a result, the best in-car navigation and entertainment system is often the smart phone in your pocket.

Taking advantage here, Apple's CarPlay and Google's Android Auto integrate with a vehicle's existing infotainment system, providing quick access to navigation, music, messaging, phone calls, and more, without requiring you to ever look at your phone. And since they're phone-based, system software and features can be continually updated, unlike most car-based systems.

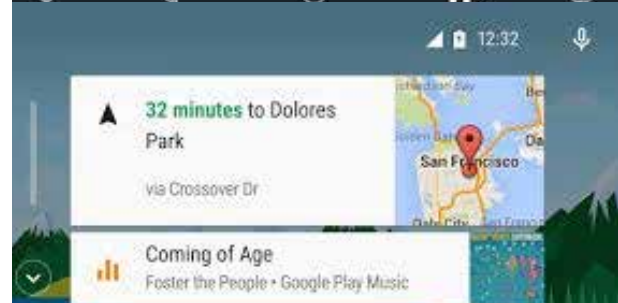Mobile centric

Android auto

Android Auto works by mating your Android phone to your car's USB port and turning the central screen into a larger monitor.

Android Auto's interface and menu structure for apps such as Spotify is not same as on Android phone.

Google went for a more unified look across all apps. Also, only selected phones with the newest version of Android (Lollipop) will work.
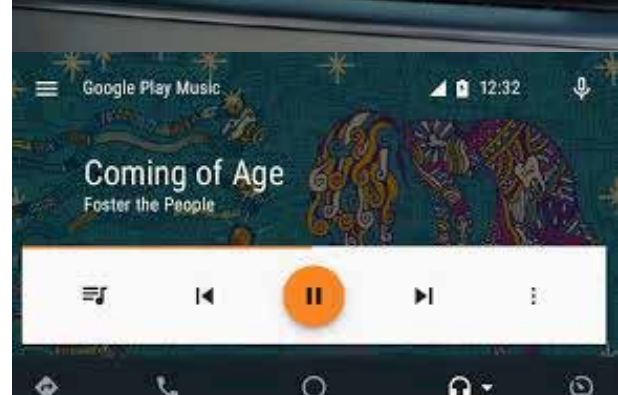
Mobile centric

Apple car play

With CarPlay, Apple brings its iPhone-like interface and excellent Siri voice command integration to vehicles. The system mirrors CarPlay-approved smart-phone apps on the car's screen. Integration with Siri by using voice with natural speech, rather than menu driven—formulaic commands—is a strong point.

Less used features in infotainment systems

'43 Percent of car buyers think modern infotainment systems are too cluttered' - says studies

The lesson from this? Consumers will only want apps in the car if they provide the same level of simplicity, convenience and speed that apps on their smart phones provide. If in-car apps don't improve, consumers will continue to use the apps directly via their smart phones and OEMs will continue to waste time and resources developing features that will rarely be used.

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Less used features in infotainment systems

Infotainment features that car owners typically ignore often include:

• **In-car hard drives for storing music** -- most people keep their music on their phones or iPods, and don't bother loading songs into their vehicles.

• **CD players** -- many manufacturers wonder how long they should continue to build them into cars and let them go the way of cassette players.

• **Concierge services** -- OnStar has a large following but other automakers' services like BMW Assist and Hyundai BlueLink attract few takers after the introductory free trial expires.

• **Voice Recognition** -- the technology is improving and the most recent crop of cars and light trucks are significantly better at understanding spoken words. But most consumers who've had experience with in-car voice recognition have thrown up their hands and stick with punching buttons.

Talking to Your Car is Often Distracting

All of the above mentioned systems can impair road safety. AAA-University of Utah studies show that despite public belief to the contrary, hands-free, voice-controlled automobile infotainment systems can distract drivers, although it is possible to design them to be safer.

"The primary task should be driving. Things that take your attention away make you a poor driver and make the roads less safe."

Some of the most advanced technology, such as Siri, can lead to high levels of distraction while driving. When these systems become more complex, like sending text messages or posting to Facebook, it pushes the workloads to pretty high levels and may be dangerous while driving.

Source : AAA-University of Utah studies I Study leader-David Strayer

Solution

Making systems
Less distractive

Better voice recognition

Uncluttered interface

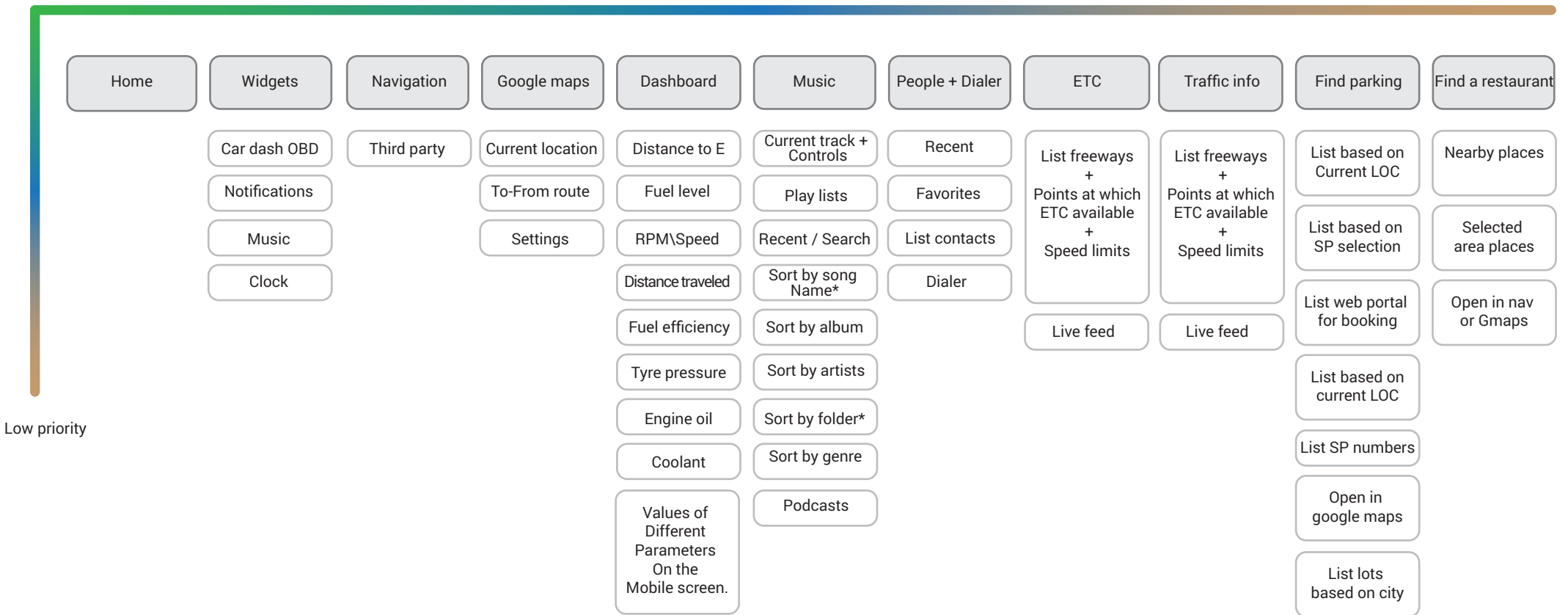**Seamless connectivity**

Customization options

Information architecture

High priority   Low priority

Home	Widgets	Navigation	Google maps	Dashboard	Music	People + Dialer	ETC	Traffic info	Find parking	Find a restaurant
	Car dash OBD	Third party	Current location	Distance to E	Current track + Controls	Recent	List freeways + Points at which ETC available + Speed limits	List freeways + Points at which ETC available + Speed limits	List based on Current LOC	Nearby places
	Notifications		To-From route	Fuel level	Play lists	Favorites			List based on SP selection	Selected area places
	Music		Settings	RPM\Speed	Recent / Search	List contacts			List web portal for booking	Open in nav or Gmaps
	Clock			Distance traveled	Sort by song Name*	Dialer			List based on current LOC	
				Fuel efficiency	Sort by album		Live feed	Live feed	List SP numbers	
				Tyre pressure	Sort by artists				Open in google maps	
				Engine oil	Sort by folder*				List lots based on city	
				Coolant	Sort by genre					
				Values of Different Parameters On the Mobile screen.	Podcasts					

Low priority

Fluid - **Highly customizable, Functional and clutter free.**

Simple interface with highly customizable options. The user can add or remove any features to a home screen with simple steps. This will enable the user to find things which he wants to in a glance.

Design Direction - 01
Fluid

Status

Voice activation status

Call David....

Home

Say something

11 : 23

Album l Song

Customizable widgets

Fulton St

Fulton S

14th Ave

nston Ave

1

1

Collapse/Expand widgets

20⁰C

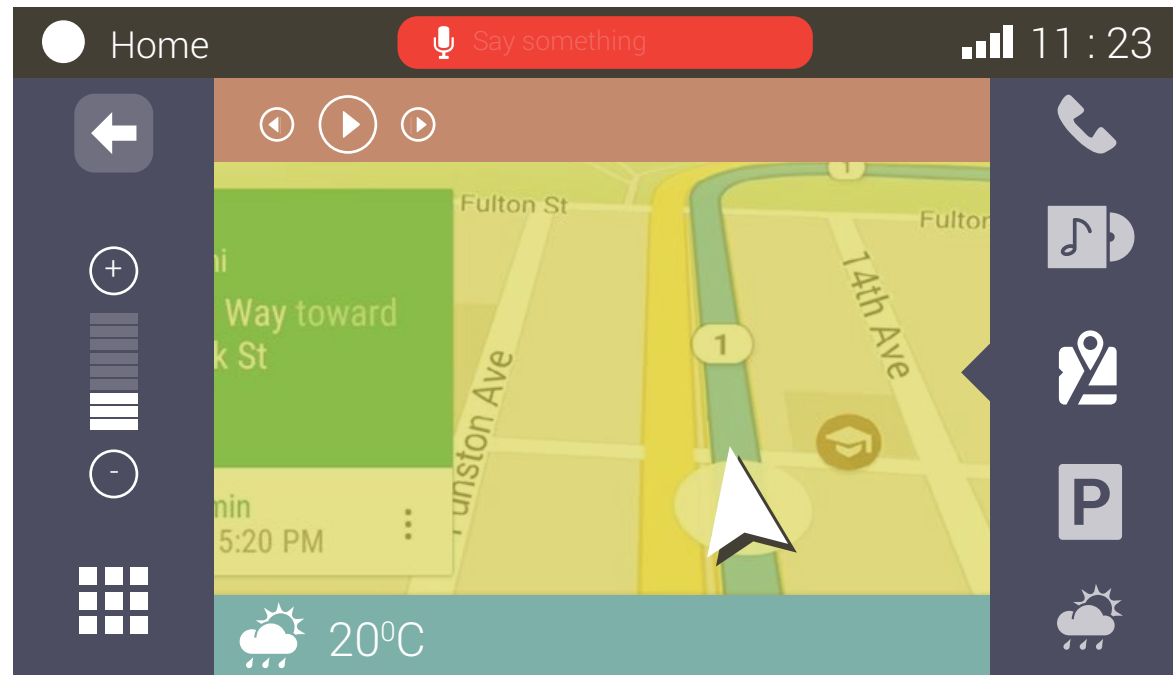Easy accessible primary menus

Accordion - Strong, recognizable and grounded

Based on a concept of one information at a time, enable user an uncompli-
cated user experience. Accordion interface allows user to swipe through dif-
ferent widgets easily and quickly.

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Design Direction - 02
Accordion
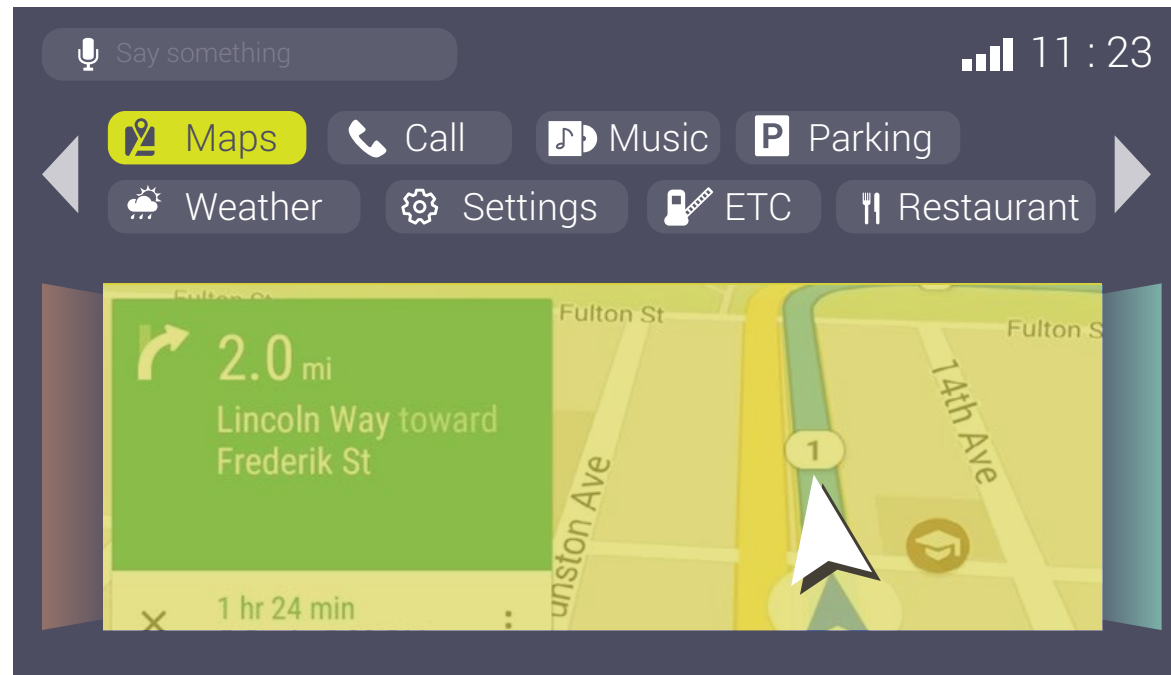
Clear - One tap experience.

Minimizing the number of taps gives a seamless experience for the user. Most frequently used widgets will be laid out on the home screen with clear and big icons

Design Direction - 03
Clear

Say something

📶 11 : 23

| 🗺 Maps | 📞 Call | 🎵 Music | 🅿 Parking |
| 🌧 Weather | ⚙ Settings | 📏 ETC | 🍴 Restaurant |

Fulton St

↱ 2.0 mi
Lincoln Way toward
Frederik St

Fulton St

Fulton S

14th Ave

1

✕ 1 hr 24 min

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Thank You