



# AAA CENTER FOR DRIVING SAFETY & TECHNOLOGY



2018 CADILLAC CT6 PREMIUM LUXURY

## INFOTAINMENT SYSTEM\* DEMAND RATING

High Demand



The 2018 Cadillac CT6 CUE infotainment system\* placed high demand\*\* on drivers in the study. Interactions with audio entertainment, calling and dialing, and text messaging imposed moderate demand on drivers. However, interactions with the navigation system generated very high levels of overall demand.

### Standard and Optional Features in the 2018 Cadillac CT6 infotainment system

○ Optional

● Standard

	Standard	Luxury	Premium Luxury	Platinum
Android Auto	●	●	●	●
Apple CarPlay	●	●	●	●
Mobile App Support				
Text Messaging			●	●
Navigation	○	●	●	●
Touch Screen	●	●	●	●
Gesture Control				
Heads-Up Display			●	●
Voice Commands	●	●	●	●
Console Control	●	●	●	●

## ABOUT THE STUDY

Researchers evaluated 2017 & 2018 vehicles' infotainment systems\* to measure overall demand\*\* placed on a driver when using voice command, touch screen and other interactive technologies to make a call, send a text message, tune the radio or program navigation, all while driving.

## STRENGTHS

- Steering wheel interface and layout is intuitive and easy to navigate.

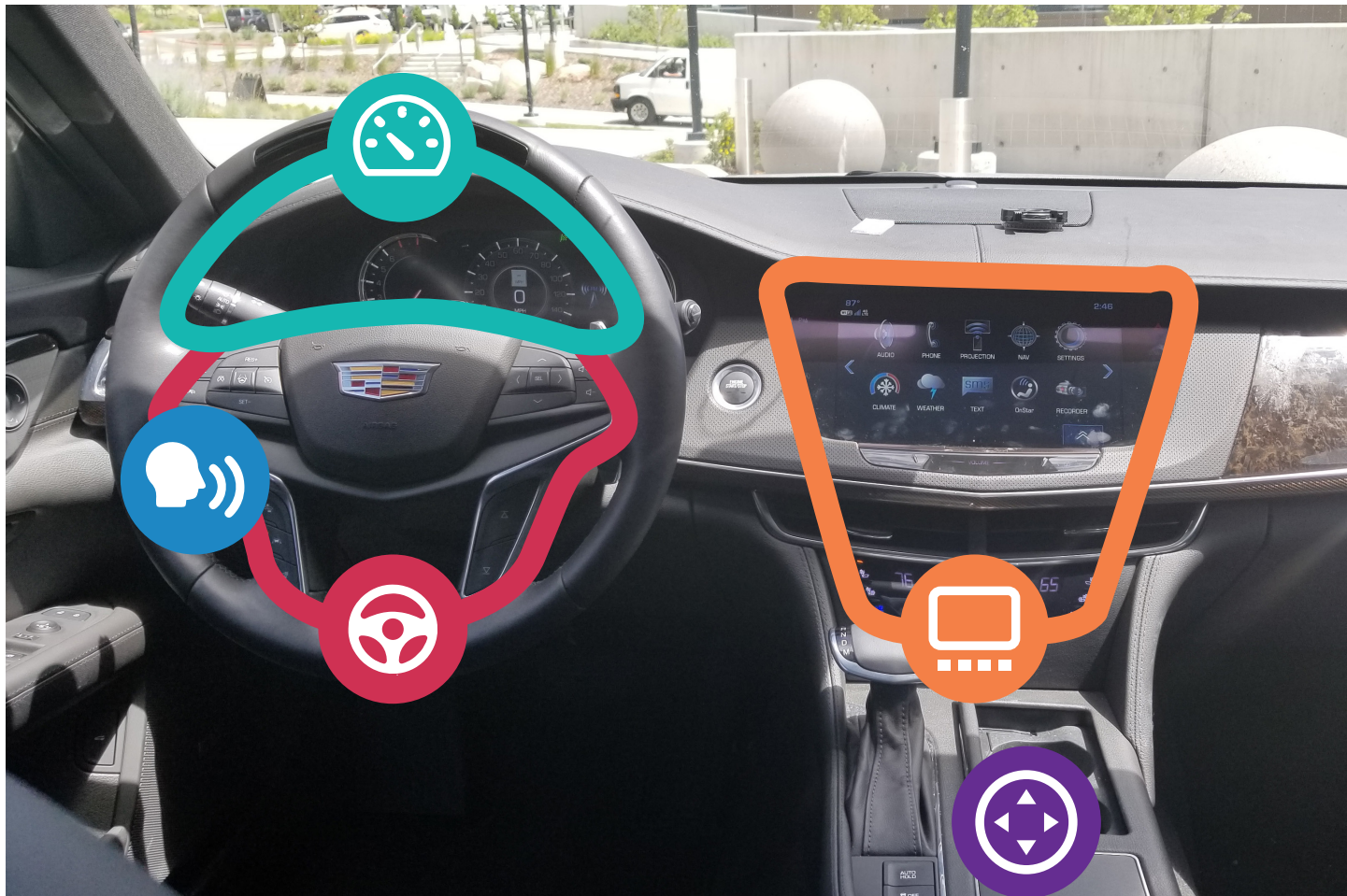
## WEAKNESSES

- The instrument cluster, which offers excessive information, can be accessed while the vehicle is in motion.
- The voice command structure for navigation demands system-specific commands that are not intuitive for the driver.

\* Infotainment System: Vehicle system that combines entertainment and information content

\*\*Overall demand measured: visual (eyes-off road), cognitive (mental), and time-on-task

# VEHICLE OVERVIEW: CONTROLS AND DISPLAYS



VOICE COMMANDS



STEERING WHEEL COMMANDS



INSTRUMENT CLUSTER



CENTER STACK



CENTER CONSOLE

# INFOTAINMENT SYSTEM

The 2018 Cadillac CT6 CUE In-Vehicle Infotainment System offers the following features:

## CALLING AND DIALING



Calling and dialing functions are accessible in the 2018 Cadillac CT6 CUE via voice commands, the touch screen and the steering wheel. Phone pairing can be initiated by voice commands, but must be completed via touch screen. A new device cannot be paired while the vehicle is in motion. The contact list, recent calls and a dial pad to manually enter a number can be accessed on the touch screen while the vehicle is in motion. From the steering wheel, the driver can scroll through their contact list, recent calls and favorites. The voice command system allows the driver to call contacts and dial numbers.

Drivers took an average of 16 seconds\* to place calls using the center stack, but being able to access the contact list in its entirety contributed to high cognitive (mental) and visual (eyes-off-road) demand.

Calling or dialing using voice commands took drivers an average of 16 seconds\* , but required high cognitive and visual demand. The slow speech rate of the voice command system when accessing calling and dialing features was a major contributor to the high demand levels.

Placing calls using either the center stack or voice commands posed moderate demand overall as they could be completed quickly, but required high cognitive (mental) and visual (eyes-off-road) demand.

## TEXT MESSAGING



Once a phone is paired, drivers can access their text message inbox and have their message content read aloud. Drivers can only access the four most recent text messages and have the option to call, reply or delete a message. When the vehicle is in motion, the driver is unable to scroll through their messages and can only select from four predefined messages to reply to texts. To listen to a message, the driver can press the speaker icon in the inbox view or press the listen button once the message has been opened.

Replying to text messages in the 2018 Cadillac CT6 CUE placed overall moderate demand on drivers, who took an average of 16 seconds\* to complete tasks. Cognitive (mental) demand was high while visual (eyes-off-road) demand was moderate when accessing text messaging. Researchers^ noted the high cognitive demand could be attributed to unintuitive menu displays and icons, which were inconsistent from other menus in the system.

## AUDIO ENTERTAINMENT



The 2018 Cadillac CT6 CUE provides access to standard audio sources: FM, AM and SXM radio; and Bluetooth audio connectivity. Drivers can access the audio entertainment via the center stack touch screen, touch pad, voice commands or the steering wheel. Icons on the center display are intuitive for audio features and help ease the driver experience. By using the tuning pad on the touch screen, drivers can quickly type in radio stations. Via the steering wheel, drivers can select from all available sources or browse the current audio source. They also have the ability to scroll through favorites or presets. By using voice commands, the driver can use short and simple commands to play specific songs, artists or radio stations.

The 2018 Cadillac CT6's audio entertainment system imparted an overall moderate level of demand on drivers. Using the center stack to access audio functions lasted on average 14 seconds+, but generated high cognitive (mental) and visual

++Compared to a recommended maximum of 24 seconds

^ Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicle

\* Infotainment System: Vehicle system that combines entertainment and information content

(eyes-off-road) demands on drivers. Researchers<sup>^</sup> noted that the high levels of demand found when using the center stack are due in part to the lack of manual controls for tuning and volume.

When using voice commands to access the audio entertainment, drivers had an average task interaction time of 16 seconds<sup>+</sup>. Despite this moderate task time, drivers experienced high cognitive (mental) and visual (eyes-off-road) demand. The voice command system's visual feedback, as well as system-specific verbal response requirements, contributed to the high levels of demand.

## TURN-BY-TURN NAVIGATION SYSTEM



The Cadillac CT6 CUE includes a turn-by-turn navigation system accessible via the center stack touch screen, center console, and voice commands. Using the touch screen, track pad or voice commands, the driver can search for points of interest, resume a previous route or cancel a route. When accessing navigation via voice commands, the driver can take advantage of prompts on the instrument cluster and center stack guiding them through the process. The system does not allow the driver to program favorites or a home address preset and the vast categorical options results in extensive interactions when locating destinations in the menu structure.

Drivers who used the navigation system in the 2018 Cadillac CT6 CUE experienced very high levels of overall demand. Interaction time when using voice commands to access navigation features was 34 seconds<sup>+</sup>. In addition to this interaction time, the system generated high visual (eyes-off-road) demand and very high cognitive (mental) demand. Researchers<sup>^</sup> noted that these high levels were due to the nonintuitive command structure required by the system along with a confusing categorical menu structure. For example, when searching for a specific location, drivers must say “Find POI.....” and the location name; a simple “Find Starbucks” will not work.

When accessing navigation via the center console, drivers completed tasks in an average of 27 seconds<sup>+</sup>, and experienced very high cognitive (mental) demand and high visual (eyes-off-road) demand. The menu display and the full accessibility of points of interest while the vehicle is in motion were contributors to the very high task time and cognitive demand as well as the high visual demand.

## VEHICLE CONTROLS AND DISPLAYS

### VOICE COMMANDS

The 2018 Cadillac CT6 CUE comes equipped with a voice command system that allows drivers to access audio entertainment, phone calling/dialing, navigation, weather and OnStar. Pressing the designated voice command button on the left side of the steering wheel activates the system and plays back a synthetic female voice with which drivers can interact. With the exception of required navigation cues, common and natural language is accepted by the system; however, voice recognition accuracy is low.

### INSTRUMENT CLUSTER

The instrument cluster features a 12-inch full-color LCD display, which drivers can control using the directional pad and the selection buttons on the right side of the steering wheel. One large central display is surrounded by two half-moon gauges on either side. The main gauges displayed on the instrument cluster are the speedometer, tachometer, odometer, current gear and fuel gauge. Additional features that can be accessed on the instrument cluster are navigation, audio entertainment, connected phone information and voice commands.

++Compared to a recommended maximum of 24 seconds

<sup>^</sup> Researchers with expertise about how humans interact with technology evaluated the usability of the infotainment system in stationary vehicle

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## STEERING WHEEL CONTROLS

The steering wheel contains a symmetrical design of 19 buttons that provide access to audio entertainment, voice commands and phone functions.

## CENTER STACK

The center stack is equipped with a 10.2-inch full-color touch screen with a home display that is organized into rows of large icons and text labels. The first page of the home screen gives access to audio entertainment, phone calling and texting, Apple CarPlay or Android Auto, navigation, climate controls, weather, OnStar and a video recorder. The second page gives access to the camera and traffic information. The screen always has a menu ribbon along the top that provides shortcut icons for all in-vehicle infotainment systems (IVIS) functions. A touch bar houses a home button, sliding volume control and a mute button. The volume bar is inconveniently placed where a driver's wrist would naturally sit to stabilize their hand, making the driver prone to accidental volume adjustments.

The 2018 Cadillac CT6 CUE offers a dual climate control system accessed by a variety of buttons and a touch screen.

## CENTER CONSOLE

A touch pad similar to that on a laptop is located in the center console, accompanied by a manual back button. The touch pad acts as a cursor and facilitates interaction with the center stack display; drivers can navigate menus and make selections by dragging their finger along the touch pad. The touch pad's extreme sensitivity impedes the driver experience. The touch pad can also be hard to control and requires substantial practice to gain confidence on the interface.

## VEHICLE SALES SUMMARY

The 2018 Cadillac CT6 is the 201st bestselling vehicle in the United States, with 9,669 vehicles sold during 2018<sup>1</sup>.

<sup>1</sup> Source: Auto sales data and statistics at goodcarbadcar.net – data updated to 1/04/2019.

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