

# Designing In-Vehicle Information Systems to Reduce the Effect on Driver Attention

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## Problem

**Distracted driving is a primary cause of motor vehicle accidents each year**, with mobile phones contributing to this type of distraction. This has prompted automotive manufacturers to equip vehicles with an in-vehicle information system (IVIS). However, completing a task through an IVIS **requires drivers to divert attention** away from the primary task of safely driving their vehicle.

## Why Is This Important?

**3,142**

distracted-affected motor vehicle accidents in 2019.

**9.9%**

increase from 2,858 accidents in 2018.

## Design Problem Statement

To use an IVIS while operating a motor vehicle, drivers are forced to divide their attention between both tasks. This results in less attention dedicated to the primary task of driving, which can lead to motor vehicle accidents.

The goal of this project is to design an IVIS interface that allows drivers to perform tasks easily and quickly while requiring minimal attention from the driver. This will allow drivers to dedicate more attention to safely operating their motor vehicle, which will result in fewer motor vehicle accidents caused by distracted drivers.

## Research Methods



Review of IVISs



Survey

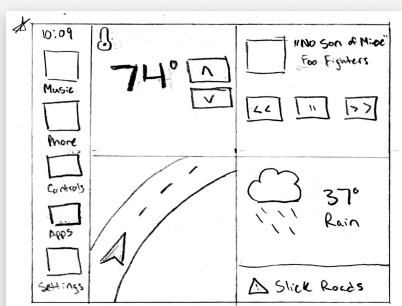


User Observations

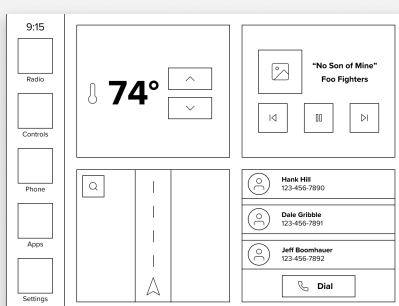
## Project Scope

- Design a home screen with a customizable dashboard layout
- Expand voice recognition capabilities so that drivers can adjust the temperature inside their vehicle, turn climate-based features on or off, change the radio station, adjust the volume, and skip or replay songs
- Redesign the built-in navigation system experience to allow drivers to quickly locate and navigate to destinations near them

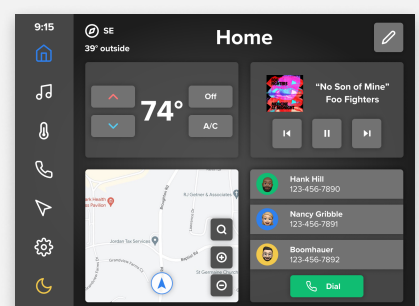
## Design Process



Sketch



Low-Fidelity Wireframe



High-Fidelity Wireframe

## User Testing

Participants were given four tasks to complete using the prototype:

- Find directions to the nearest Starbucks;
- Make a phone call;
- Skip the song that is currently playing and then turn on the air conditioning;
- Customize the layout of the home screen.

As participants completed each task, the researcher asked them to talk through their thought process. After a participant completed a task, the researcher asked if there was anything they would want to change about their experience.