Interaction Design Guideline for Drivers

Byungsoo Kim

Master of Industrial Design Student, College of Design, North Carolina State University

Dr. Sharon Joines
Committee Chair

Dr. Russell Flinchum
Committee Member
The typical car is idle for [ ]% of its existence.

Source: Getaround
The typical car is **idle for 92 %** of its existence.

Source: Getaround
Carsharing
1. **Join**
   - Apply online in 2 minutes and we'll organise approval.

2. **Reserve**
   - Use your Zipcar using the website or our app.

3. **Unlock**
   - Unlock it with the app or your Zipcard.

4. **Drive**
   - And simply return the car to the same reserved parking spot.
$5 hour
For use of the car*

*$5 is the minimum hourly rental rate

General Motors launches Maven car-sharing service

Ford's new peer-2-peer car sharing will let you rent your car to other drivers

Avis to buy car sharing service Zipcar in deal worth nearly $500 million

Carsharing Market, Number of Members and Vehicles, 2006-2014

Source: Carsharing: Evolution, Challenges and Opportunities (2014)
Dissimilar Controls from Different Companies

2015 Pagani Huayra

2017 Buick Cascada

2017 Jetta
No time to learn controls! I am just going to start driving!
How to improve the safety and usability of interaction design for drivers related to carsharing system?
Feedback from Experts
3 experts (Designers from Hyundai, GM)

Importance of BRAND IDENTITY
Market Review
20 recent cars (2015-2017)
in 9 different car companies

Survey
44 participants
Age range: 18 to 54 yrs

Interview
5 participants
Market Review
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in 9 different car companies

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5 participants

Findings:
Various interaction design for **SECONDARY FUNCTION**/information, unlike essential function
volume control, media switch, phone call, radio station switch
Turning on temp. control, fan speed adjustment, air distribution control
are the most important secondary function/information controls
Observation

7 participants (male: 3, female: 4)
Task: Start Driving

- Own car
- Rented car
Task: Change Radio Station

- Own car
- Rented car
Example_Result of Participant #2
Low chance of checking out the same car
Four car brands were used during eight car sharing experience

Unfamiliar controls increase embarrassment
Participants stop a car to figure out controls

Prefer to use steering wheel control
“I am more focusing on this (pointing at steering wheel control) area.”

User sequence of control
Media on-volume control, fan speed control-temperature control

Different terms
Media, source, CD/AUX, Audio

Driving related function happens to be activated
Grade assist button accidentally activated and it had affect on driving speed
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**Interaction Design Guideline for Car Sharing System**

**Design principles**

1. Consistency / familiarity to users
2. Controls that are used most often should be the easiest to perform
3. Arrange/design controls to follow the flow of the user sequence
4. Minimize what users have to remember
5. Allow tolerance for error

**Interaction Design Guideline for Car Sharing System**

- Reserve a car
- Find a car
- Unlock the door
- Damage check
- Learning the car’s function
- Drive a car
- Park car/Damage check
- Lock car

- Quick Guide
- Showing information on display in a car
- Learning information
- Remaining time/Additional time
USER SCENARIO  PEER TO PEER

CAR OWNER

TIME TO BUY A NEW CAR...

I WANT TO MAKE SOME MONEY WITH THAT..
USER SCENARIO

PEER TO PEER

CAR OWNER

TIME TO BUY A NEW CAR...

I WANT TO MAKE SOME MONEY WITH THAT...

WOW! I CAN UPGRADE TO A CAR-SHARING FRIENDLY CAR!
USER SCENARIO  PEER TO PEER

CAR OWNER

TIME TO BUY A NEW CAR...
I WANT TO MAKE SOME MONEY WITH THAT...

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USER SCENARIO  PEER TO PEER

CAR OWNER

TIME TO BUY A NEW CAR...

I WANT TO MAKE SOME MONEY WITH THAT...

WOW! I CAN UPGRADE TO A CAR-SHARING FRIENDLY CAR!
USER SCENARIO

PEER TO PEER

I NEED A CAR FOR GROCERY SHOPPING

CAR SHARING USER
USER SCENARIO  PEER TO PEER

I NEED A CAR FOR GROCERY SHOPPING

I PREFER A CAR WITH SHARING FRIENDLY OPTION!

CAR SHARING USER
USER SCENARIO

PEER TO PEER

CAR SHARING USER

START A CAR!
WELCOME!
DO YOU WANT TO SEE QUICK GUIDE FOR THIS CAR?
(ONLY TAKE 30 SECONDS)
YES NO

THIS IS MY FIRST TIME DRIVING THIS CAR, SO WHY NOT?
USER SCENARIO  PEER TO PEER

CAR SHARING USER
USER SCENARIO  PEER TO PEER

CAR SHARING USER

SAME LOCATION & INTERACTION REGARDLESS OF DIFFERENT BRANDS
USER SCENARIO: PEER TO PEER
CAR SHARING USER

CLICK! BY ACCIDENT
USER SCENARIO  PEER TO PEER
CAR SHARING USER

CLICK!
BY ACCIDENT
USER SCENARIO
PEER TO PEER
CAR SHARING USER

CLICK!
BY ACCIDENT

UNDO?
YES
NO

RADIO

Dashboard and speedometer drawings.
WANT TO EXTEND 30 MORE MIN.?

YES  NO
USER SCENARIO - PEER TO PEER

CAR SHARING USER

WANT TO EXTEND 30 MORE MIN.?  
YES  NO

RETURNING ROUTE
7 min  1.2 mi  12:39 PM ETA
Usability Test

5 participants (male: 3, female: 2)
Usability Test
Expert Feedback on Developing Guideline

1 expert (Utility Vehicle Designer)

Guideline
- Impressive research
- Interesting research method
- Excellent user experience based suggestion

Prototype
- Thickness should be lower than current version
- Possible to accidently activate function while driving
Future Research

- Refine the written design guideline
- Refine the example for how to apply design guideline
thank you