About the research

Overview

This document describes a test plan for conducting a usability test during the development of cARcompanion.

Goals of usability testing

- Establishing a baseline of user performance
- Validating user performance measures
- Identifying potential design concerns to be addressed
- Improve the efficiency, productivity, and end-user satisfaction.

Executive Summary

- Successful understanding of the meaning of the vehicle's warning signs
- Successful navigation to the troubleshooting support areas (web articles, video tutorials, and vehicle user manual related to those warning signs)
- Successful navigation to finding estimates for parts and service repair
- Successful navigation to the 3rd party support areas (tow companies, mechanics, and dealerships)

Objectives

- To determine flow inconsistencies and usability problem areas within the user interface and content areas. Potential sources of error may include:
    a. Navigation errors – failure to locate functions, excessive keystrokes to complete a function, failure to follow recommended screen flow.
    b. Presentation errors – failure to locate and properly act upon desired information in screens, selection errors due to labeling ambiguities.
    c. Control usage problems – improper toolbar or entry field usage.
- Exercise the application under controlled test conditions with representative users. Data will be used to access whether usability goals regarding an effective, efficient, and well-received user interface have been achieved.
- Establish baseline user performance and user-satisfaction levels of the user interface for future usability evaluations.

Goals & Metrics

Usability Goals

Completion Rate

Completion rate is the percentage of test participants who successfully complete the task without critical errors. A critical error is defined as an error that results in an incorrect or incomplete outcome. Note: If a participant requires assistance in order to achieve a correct output then the task will be scored as a critical error and the overall completion rate for the task will be affected.

A completion rate of [100%/enter completion rate] is the goal for each task in this usability test.

Error-free rate

Error-free rate is the percentage of test participants who complete the task without any errors (critical **or** non-critical errors). A non-critical error is an error that would not have an impact on the final output of the task but would result in the task being completed less efficiently.

An error-free rate of [80%/enter error-free rate] is the goal for each task in this usability test.

Time on Task (TOT)

The time to complete a scenario is referred to as "time on task". It is measured from the time the person begins the scenario to the time he/she signals completion.

Subjective Measures

Subjective opinions about specific tasks, time to perform each task, features, and functionality will be surveyed. At the end of the test, participants will rate their satisfaction with the overall system. Combined with the interview/debriefing session, these data are used to assess attitudes of the participants.

Problem Severity

Impact

Impact is the ranking of the consequences of the problem by defining the level of impact that the problem has on successful task completion. There are three levels of impact:

- High - prevents the user from completing the task (critical error)
- Moderate - causes user difficulty but the task can be completed (non-critical error)
- Low - minor problems that do not significantly affect the task completion (non-critical error)

Frequency

Frequency is the percentage of participants who experience the problem when working on a task.

- High: 30% or more of the participants experience the problem
- Moderate: 11% - 29% of participants experience the problem
- Low: 10% or fewer of the participants experience the problem

Participants

Who are the participants?

- Participants: 10 individuals (2 user groups)
    a. Inexperienced Vehicle Maintainers (5 users)
    b. Experienced Vehicle Maintainers (5 users)
- Male and Female
- Age: 16-20 (Young), 21-50(Middle aged), 51-70 (Elderly)
- Both tech savvy and tech inexperienced
- iPhone users (iOS)
- Those who own, borrow or rent vehicles

How will you recruit them?

Participants will be friends and family of the team members.

The sessions

When and where?

What are the key dates, times and locations?

Dates/Times: TBD

Location: Virtually via Zoom Meeting

Format/Methodology

Tools: Zoom Meeting, Adobe XD

Duration: 30 mins each session

Methods: Screen recording and video conferencing

Info to be collected:

- Data on the successful completion of tasks
- Time taken to perform those tasks
- Metrics on satisfaction
- Suggestions to improve the product

Training:

The participants will receive and overview of the usability test procedure, equipment, and software. They will be provided context along with specific scenarios and tasks to accomplish written during the testing session.

Report

Report Results

The Usability Test Report will be provided at the conclusion of the usability test. It will consist of

- A report and/or a presentation of the results evaluate the usability metrics against the pre-approved goals and specific usability problems
- Recommendations for resolution which will be categorically sized by development to aid in implementation strategy.

The team

Team Members

Ashely Ayres

Maddie Bellon

Laraib Khan

Viren Patel

Trista Lam

Roles

Trainer:

- Provide training overview prior to usability testing

Facilitator:

- Provides overview of study to participants
- Defines usability and purpose of usability testing to participants
- Assists in conduct of participant and observer debriefing sessions
- Responds to participant's requests for assistance

Data Logger and Test Observer:

- Records participant's actions and comments
- Serve as note takers

Ethics

- The performance of any test participant must not be individually attributable. Individual participant's name should not be used in reference outside the testing session.
- A description of the participant's performance should not be reported to his or her manager.