Moving Photography: An Examination of an Automobile Camera

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Introduction to the Car Cam

Features

- Controlled from steering wheel
- Communicates wirelessly with camera which can be mounted anywhere on the vehicle
- Joystick allows easy camera re-positioning
- LCD display allows users to preview images and set camera preferences
- Slots in the top for various flash media types

Participant Demographics

- 2 men, 1 woman
- Ages 35, 54, 58
- All experienced digital camera users and drivers
- All had tried to take photos from a moving vehicle on at least one occasion
- Only one continues this practice. Others discarded due to poor results

Study Methodology

- Users completed study in their own vehicles, with them as the driver
- Test evaluator sat in the passenger seat with a laptop and wired Quick Cam attached to USB port (positioned on passenger side window)
- Users attached the control console to their steering wheel and simulated using the device
- Evaluator used Quick Cam to snap pictures when instructed by the test user, both while stationary and while driving.

Study Methodology

- An iPod in photo slideshow mode was used to simulate the previewing of photos via the LCD display. Users completed the same set of tasks while driving and while stationary to compare results.
- Users were asked about what preferences they would want, how they'd use the buttons on the console, etc.

Image Preview Task

Users were shown photos such as these which were actually taken from a moving vehicle.

Doesn’t matter which one is actually “best”, only that user select the same best one while driving as while stationary.

Preliminary Study Findings

Overall, three participants is insufficient to report on any area conclusively. Still the following conclusions can be gained:

- Control console is too thick and doesn't fit the contours of the steering wheel
- Control console has too much of a space gap between it and the steering wheel – wobbles when you click the buttons.

Preliminary Study Findings

- Manipulating buttons with the thumbs is not intuitive, but seems right when explained to user
- Users with small hands have a hard time keeping hands on the wheel and controlling buttons at the same time.
- Control console interferes with other steering wheel buttons such as horns, cruise control, and potentially airbags
- The LCD is too small, but it is unclear whether a larger screen would still address the difficulties users had with the preview task

Preliminary Study Findings

- A non-functional prototype proved to be a severe limitation
  - The response times for positioning the camera and snapping pictures could not be measured
  - Users had trouble conceptualizing where the camera was actually positioned without use of the preview screen
  - A person's ability to manage their attention to both a primary task (driving) and a secondary task (photos) is unclear and requires further research
- There are too many variables that couldn't be tested for that could impact the results
  - Driving speed and road conditions
  - Other people in the car – distractions
  - Time of day/excess lighting (glare)

Conclusions

- Further research is required before this product can be redesigned.
  - What has already been learned about how people divide their attention when driving?
  - Has any research been done on photography in moving vehicles?
  - What kind of usability metrics have been collected by manufacturers of other in-vehicle gadgets and what can be learned from these?
  - How is moving photography done by those who do it for a living (example – paparazzi)?