mobile vce

: research innovation application :

Mobile User Experience Evaluation

Strategic Business Relevance: Nodobo Capture is a new approach to usability testing of mobile devices. Rather than relying on traditional methods - laboratory testing, user recorded interactions, and third-party monitoring - which are time-consuming, expensive, and interfere with the user experience, Nodobo Capture uses the device itself to record its realtime in-field usage, yielding higher quality observations at reduced cost. Initially implemented on Android, it allows operators, handset/tablet manufacturers and app developers to understand usage in the real world, to improve and optimise their offerings

Developed as part of the Instant Knowledge suite of applications, Nodobo Capture is a tool for recording interaction sessions on mobile devices. Software running on the device records a user's interactions, the screen state before and after these interactions, and context information gathered from available sensors. The gathered data can then be synchronised to a PC to be analysed in a complementary playback application, Nodobo Replay.

Usability testing is an important aspect of user interface research and development. It can be used to verify a proposed new interaction method, evaluate an individual application or test the quality of a near-market device as a whole.
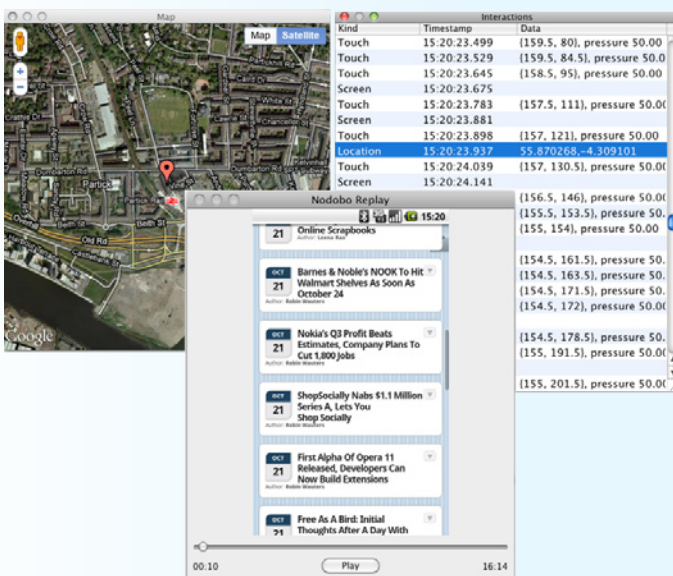
Core Research: Instant Knowledge

This research programme has demonstrated new enterprise service paradigms, proactively offering recommendations of relevant contacts in an organization, based on application and communication context.

By offering new ways of accessing existing information, and novel applications of smart devices, whilst enabling flexible enterprise-defined security profiles, Instant Knowledge enables a richer service offering from operators to their enterprise customers.

Output from the Nodobo replay tool. The screen as the user sees it is in the centre. On the right is a list of context clues and interactions recorded by the software. On the left is a link to Google Maps to show user location.

Virtual Centre of Excellence in mobile and personal communications

MOBILE VCE

For more information see:
www.mobilevce.com

Mobile User Experience Evaluation

Observing how the user interacts with your devices and applications

Concept

Handheld devices are becoming more powerful, with increased processing power, memory, and mass storage capacity. This technological progress allows software running behind-the-scenes to record a user's interactions as well as additional context information. Modern devices are rich with context sensors, including GPS receivers, tri-axis accelerometers, and ambient light-level readers. These sensor readings, along with other software sensors, allow researchers to recreate the user's actual conditions. Nodobo capture runs on smart phones recording this context, along with application and screen state, recording in the background with very low overhead.

Application Scenarios

Nodobo Capture can be used to perform observation studies. Interaction sessions are recorded with the device before being synchronised with a PC for replay with Nodobo Replay.

Demonstration Results

Initially developed for Maemo, Nodobo Capture has successfully been deployed to a Google Nexus One running the Android operating system. The captured data can be synchronised with a PC, and played back in the Nodobo Replay application, which enables the usability examiner to view the recorded sessions.

Currently, generated location data is combined with Google Maps to provide a map showing where the user travelled. Orientation clues are used to change the orientation of the screen display in Nodobo Replay, and the timestamped user interactions are shown in a separate window. Interactions with the touch screen are visualised by compositing a transparent pink circle (the user's fingertip) onto the screen images.

Future Enhancements'

Discussion with usability engineers has led to a list of features that will be implemented in later versions: the ability to filter the interactions based on a particular context or application, the ability to flag points in the captured sessions for later, and the ability to compare two recorded sessions.

Conclusions

Nodobo Capture is a tool for recording user interaction sessions and their context. It can be used to gather data for use in mobile device usability evaluation studies, removing the potential for observation interference in traditional in-the-field methods. The capture system runs independently of the higher-layer software, and so works with all applications without modifications.

The capture system gathers user interaction data and screen contents around the interactions. This data is augmented with context data gathered from various device sensors. This allows an accurate reproduction of the user interaction session to be played back on a computer with a complementary software application for PC, Nodobo Replay. Nodobo replay shows the screen content of the device as well as user location and environmental context.

Industry focused research, innovation & application

Key Points

- Allows in-the-field observation without examiners or user-attached observation devices.

- Reduces cost of trials, while increasing their quality with less interference to the user experience.

- Tool records screen indications prior to an interaction, giving a full picture of what prompted user behaviour.

- Mac and PC playback tools allows data to be analysed easily.

- Potential for UX quantification for applications, handsets, tablets, kiosks and TV.

An in depth treatment of this topic is available to MVCE members in **D-K2.12** *User Demonstrator Prototype*
www.mobilevce.com/dloads10/SEC01117.zip