

Inexpensive Graphic Tablet for Donor Eligibility

Philip S. Abrams¹, Vadim Polyakov², Paul D. Cumming¹

¹Talisman Limited, ²Prepared Mind LLC

ABSTRACT

Electronic Donor History Questionnaires (EDHQ) have been in production for over 10 years. One of the impediments to adoption of EDHQ is the high cost of touch-screen tablets. The recently-released Apple iPad™ appeared to be a promising platform for EDHQ. This poster discusses use of the iPad as a prototype low-cost input device.

BACKGROUND

Automated donor history questionnaires have been used to determine blood donor eligibility since at least 2000^{1, 2}. One of the most effective of these is the Talisman Quality Donor System™ (QDS) that uses audio-visual touch-screen computer assisted self interviewing (AVT-CASI) in which questions are presented to the donor one screen at a time with multi-modal presentation: Audio, text and photograph displayed on a tablet computer. The donor responds by selecting an answer with a finger or a stylus on the touch screen. One drawback to this approach is that touch-screen tablets are more expensive than typical desktop or laptop computers. Typical Windows-based touch-screen tablet computers retail from \$1,500 to \$3,000 (as of mid-2010.)

A recent (April 2010) new product, the Apple iPad, provides a potential alternative to more expensive tablet computers. The least expensive iPad retails for approximately \$500, a fraction of the price of other touch-screen tablet computers, but without a stylus option. Unfortunately this device is not compatible with most mainstream donor qualification software, so a different approach is required to exploit it for this purpose.

STUDY

As noted above, the iPad can not be used as a simple client computer on the Quality Donor System donor health history questionnaire. Therefore we explored alternative approaches to implementing the software on this device. The most promising approach is to create a dedicated application or “app” that runs on the iPad. We developed a prototype app that administers the health history questionnaire on the iPad. In a finished state, the app would communicate with the main server at the end of the interview, transferring all donor responses so they can be reviewed by staff and the eligibility process continued on a standard computer. To the donor, the interview has the same “look and feel” as it does using traditional hardware. The difference is that this device is lightweight, compared to other tablet computers, and can be hand-held by the donor instead of being mounted on a stand or flexible arm. The iPad-based interview was viewed by 24 staff members from 8 blood centers.

CONCLUSION

All reviewers agreed that the iPad realization of the donor history interview had the same look and feel as the interview conducted on more industrial strength tablet computers. The main appeal of the iPad was its relatively low cost compared to other touch-screen tablet computers. There was a concern that the device was perceived as slippery by some users and might be dropped or otherwise mistreated. Further, lacking field experience, it is not clear how robust these devices would be in daily use by donors, especially in mobile environments. From a vendor viewpoint, completing this development and marketing it would incur the additional cost of preparing and submitting a new 510(k) application for premarket approval.

Finally, it is expected that other computer vendors will be offering competing low-priced tablet computers by the end of 2010 or early 2011. Some of these will likely be capable of performing similar functions but within the framework of existing software, thereby avoiding the need for further R&D and 510(k) clearances.

This project has confirmed the vendor’s approach of testing relevant new technologies as they become available with the goal of improving the function and cost-effectiveness of its software products. In this case, the iPad provides an early view of a hardware trend that will likely lower the cost of adoption and ownership of EDHQ. By developing this prototype and exposing it to actual users, we learned how they view this particular device as an adjunct to our system.

This work has been partially supported by a grant from the National Heart Lung and Blood Institute (HL072635 Paperless Quality Donor System™ with Decision Making)



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