

Observations of automated checkout at Dayton's Bluff Branch of the Saint Paul Public Library

Tasks

- User needs to checkout an item from the library
- User needs to pay fine

Sub-tasks:

- User needs to checkout a book
- User needs to checkout a movie or CD

Task Analysis

For this summary, we will refer to the individuals who were observed as the "users." The user's object is to checkout one or more items from the library. Once the user is ready to checkout, he or she begins the checkout process at the front desk, which is staffed by library employees.

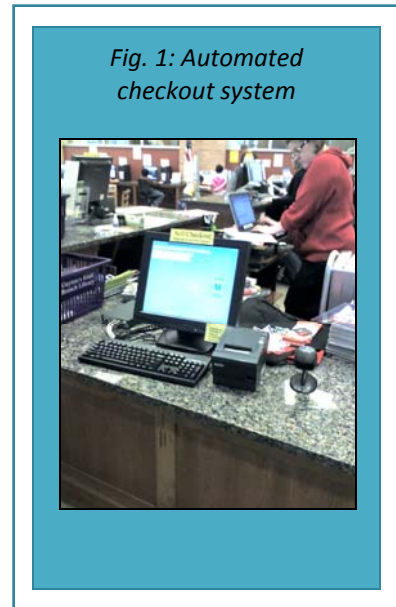
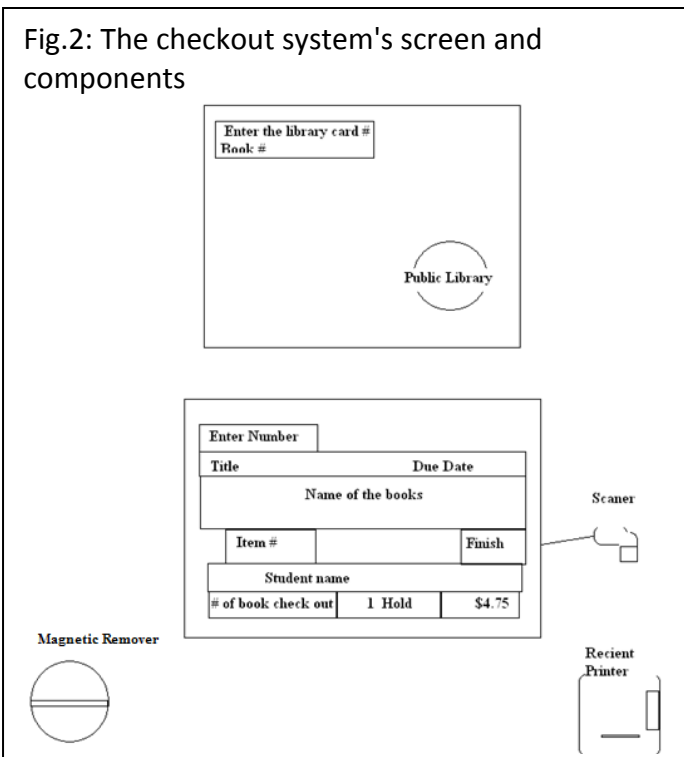


Fig. 1: Automated checkout system



In order to check out material, the user must have a valid library card. Otherwise, the user can apply for a card. To apply, the applicant must show a photo ID with his or her name and current address. The address can be on a document such as a utility bill.

A St. Paul Public Library card can also be used, but it must be registered into their system by a staff member.

If the user cannot use the automated checkout system due to language barrier, confusion, computer anxiety, inability to read, etc., the user seeks the help of the staff at the checkout desk. The staff

Fig. 3: Laser Wand



may either help the user complete the automated process or may take over the process completely.

To begin item checkout, the user places the library card under the laser wand (see Fig.3.) to scan the card's bar code. If a beep is heard and the item information loads onto the screen (see Fig. 2.), the user proceeds to the next step. If not, the card should be waived under the laser wand again. The beep can confuse the user, as it will sometimes beep if the item's information cannot be located in the database. This can result in the user prematurely advancing to the next step. Also, scanning the ISBN number can sometimes result in a beep, causing the user to prematurely move to the next item.

Once the card is read by the computer system, it will check to see if the user owes any late fees. If the late fee is less than \$10.00, the user may check out items without additional restrictions. If a fee greater than \$10.00 is owed, the user can enter his or her credit card number into the automated checkout screen to pay the fee. If the user cannot pay by credit card, or chooses to pay by check or cash, he or she may pay the desk staff to clear the fine. If the user cannot pay the full amount, he or she may opt to pay a minimum fifteen percent of the fine. In doing so, the user may check out up to two items that day.

If the user is checking out a book, he or she places the book beneath the laser wand to scan the book's bar code. If a beep is heard and the information loads on screen, the user may proceed to the next step. If not, the book should be placed again under the laser wand. If, after several attempts, the system does not read the bar code and display the item's information, the desk staff can intervene manually.

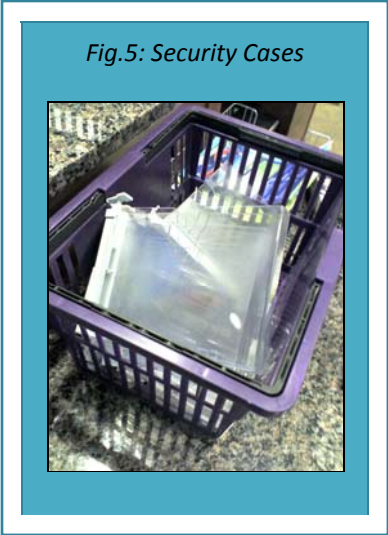
Fig. 4: Magnetic Jig



Once the system beeps, and the item's description appears on the screen. The user will see the item's checkout code, its title and its due date. If the information is as expected, the user will proceed to the next step.

If the user is checking out a movie or CD, it must be removed from its security case (see Fig.5). There is a special magnetic jig mounted on the counter for removing the security case (see Fig.4.). If the user knows how to use the jig, he or she slides the case through it to release the case. The case is placed into the case receptacle nearby. If the user does not know how to use the jig, the desk staff will train the user in its use or will remove the case for the user.

Taking the receipt is the stopping point for the main task



The user repeats the above process until all items are checked out. If the user has less than 100 books, 6 movies and 12 CD's, he or she can proceed to the next step. If he or she has more than the maximum allowed, he or she will need to decide which items can be left at the library.

Once the user has checked out all items, he or she presses the finish button on the touch-screen. A receipt prints that shows each item that is checked out and the due date for each item. The due date will vary depending on the type of item. Books may be borrowed for 21 days, DVD's and VHS tapes for 7 days, and CD's and audio tapes for 21 days.

User Behavior

We observed the users having trouble getting the laser wand to scan the bar codes. The users would remove the item from beneath the scanner, re-orient the item to a position that he or she felt would present an easier image to scan, and re-insert the item for scan. The user's behavior was usually rewarded by having the system beep, accepting the item for scan. I speculate that that many users are having useless behaviors reinforced due to this.

There were two checkout desks: One desk was built to accommodate persons of average height and another desk was constructed at a lower height for use by small children or people in wheel chairs.

Written instructions at the desk were minimized. I speculate that this was a goal to accommodate non-English proficient individuals and other non or low-level readers. The only instructions are a sign that reads, "Self Checkout. Please ask for assistance if needed." Another Post-It-note-sized sign informed the user to press the "Finish" button to conclude transaction.

Greg noticed that one user looked distressed when the transaction could not proceed because her fines were above \$10.00. It appeared that English was a second language for her. One of the children with her helped to gather assistance from the desk staff.

In Fig.6. (see next page) the entire process is flowcharted to illustrate our observations.

Fig.6: Flowchart of automated checkout process

