Example of case study on graphical representation of the system

Business, Management

Interface design and security

Interface design and security

Abstract:

The new system incorporates a touch screen register. The new system is designed to increase security for the registers. Traditional registers operated using a key. Anybody with the key could access the contents of the register. However, there was no way of telling which person was responsible for any action in the register. The design of the new system is supposed to ensure every transaction is logged and is traceable. Cashiers are assigned a user id and a password that they need to access the system. The cashier is allowed a maximum of four incorrect tries when a manager unlock logging in. if the fifth entry is incorrect, the system locks, and can only with a key card. This feature is supposed to prevent unauthorized personnel from getting into the system. If the feature was not there, the person can continue to attempt to enter the password until they make a lucky guess. The system also has another security feature; when the touch screen is not used for three minutes, the system locks. This feature is supposed to prevent unauthorized entry. After the register has been locked due to being inactive, only the previous cashier can log in to the system. If the cashier cannot log in, the system has to be restarted.

There have been various issues that have been noted with the system. Cashiers are forgetting their usernames and passwords on a frequent basis. Other cashiers would use their credentials to log in to the system on behalf of those who had forgotten their passwords. This defeats the purpose of the

system, which is to make every transaction traceable to the individual. Some cashiers forget to log out of the system, which requires the system to be restarted before another cashier can log in. this process takes 3-5 minutes each time. Considering the many number of times it has to be done, it is time consuming. The cashiers have also noticed that the keys are arranged in a way that makes it easy for them to key in incorrect entries. This has increased the number of times that the managers have to unlock the registers with their key cards. The cashiers have also noticed that the touch screen gets greasy over time making it less responsive.

There are design issues that have been identified to be problematic. The interface is designed with keys that are placed in a way that makes it easy for the cashiers to key in wrong entries. The system locks after four incorrect attempts and has to be unlocked by a manager using a key card. If the system is inactive for three minutes, the system locks and only the previously logged in cashier can log in. otherwise, the system has to be restarted which takes a lot of time. It has also been noted that cashiers who forget their credentials use their counterparts to log in to the system on their behalf. Finally, the touch screen gets greasy over time becoming less responsive. These are all issues that need to be corrected for the system to be efficient. The first design issue is the interface. The arrangement of the keys needs to be changed.

The current design is inefficient since it is easy for the cashier to key in the wrong entries. The keys should be arranged in a clear manner and be well spaced to avoid mistakes. This would in turn reduce the number of times managers are required to use their key cards to unlock the system. The

second design issue is the system locking after three minutes of inactivity. This is a necessary security measure but the requirement that only the previous cashier logged in can log in again is the problem. The system needs to be changed to allow another cashier to log in without requiring a restart. The third issue is cashiers logging in for their counterparts without their passwords. In order to eliminate this problem, each cashier will be issued with his or her own key card to use with the machine in combination with his or her user id. The last issue is the greasy touch screen, which becomes unresponsive. The system can use a touch screen material that is less likely to get greasy combined with frequent cleaning of the surface. These corrections on the design will make the system easier to use and make the managers happy.

In order to improve this design, a design plan will have to be created. The design plan of this system will concentrate on system security and usability. The current system design has some issues. The first task in improving the interface is to identify the design flaws (Banerji, & Ghosh, 2010). These are the problems being experienced in the current system. The system cannot be improved if its constraints have not been identified. The design flaws are; the poorly arranged keypad, the locking of the system due to inactivity, which requires the previously logged in cashier to log in.

The second task in the design plan is to come up with all the possible solutions to the problems. Each problem can be solved in many ways. This task enables the software development team to decide the best solution for the issue. Because different parts of the system interact with each other, it is usually advisable to go through the whole system to identify inter-related

parts. The developer is then aware of how changes in one part will affect the whole system.

The third task will be to develop the best solutions identified. Development involves writing of the code that is responsible for the functions in the system. First, the developer will change the code for the display. This will be done to re-arrange the keys in a less cluttered manner. This will prevent cashiers making regular wrong entries. The developer will also change the code responsible for automatically locking the system after three minutes of inactivity. This part of the software is still necessary but the way the system can be unlocked needs to be changed. The code will be changed to allow a different cashier to log in to the system without having to restart the machine.

The fourth task is to deploy the system. The new improved interface will be deployed on a trial basis. This will give the cashiers and managers a chance to give their feedback before the final implementation. The developer can make improvements using the feedback from the users.

The fifth task is to test the system. The system will be tested on a pilot basis. One terminal used by the cashiers will be equipped with the new software. The system will be tested while still being used. This allows the cashiers and managers to find out if the system can perform all the tasks it is supposed to do. The testing will be done on iterations of the new software. This will allow the users to determine whether the new software solves the identified problem.

The sixth task is implementation and maintenance. Implementation involves the replacing of the existing software with the new software. Implementation

will be done in a parallel adoption. This allows both the systems to run together at the same time. Parallel implementation allows room to make changes if the new system fails. The old system can continue to be used if any problems are experienced with the new system. Maintenance will be an ongoing process. Any problem that is encountered will be corrected.

This system focuses on security and usability. The system manages to balance both the security aspects and the usability aspects required. The system allows the cashier to log in to the system using a user id and a password. This allows the user to access the register. After three minutes of inactivity, the system automatically locks. This prevents un-authorized access of the system. This is an important security feature (Saffer, 2008). After the system locks, another cashier can unlock the system using his or her user id and password. The material for the touch screen interface has also been designed to be easy to clean. This makes it possible for the material to stay for a long time without accumulating grease, which makes it unresponsive. There are a number of challenges in implementing a secure yet usable system. Usability usually compromises security and vice versa. The system developers have to determine a middle point where the system remains secure and yet usable to the cashiers. A highly secure system can remove some usability from the users. The key challenge is determining the necessary security measures that will not affect the system’s usability (Saffer, 2008).

Conclusion

In conclusion, there is a key change that can be made to the security of the system that maintains security while making the system more usable. The use of user ids and passwords is a problem for use in this system. This system is meant for a fast food outlet. The cashier needs to use the register each time they serve a customer. Using a user id and password for authentication is time consuming. The developer can instead issue a key card for every cashier. The key card contains the authorization credentials for the individual cashier. It is easier to use the key card as it is faster and there are fewer chances of errors in login. The security of the system is maintained while making the system more usable (Dhir, 2004).

Figure 1: Figure showing a graphical representation of the proposed touch interface

References

Banerji, A., & Ghosh, A. M. (2010). Multimedia technologies. New Delhi, India: Tata McGraw Hill.

Dhir, A. (2004). The digital consumer technology handbook: A comprehensive guide to devices, standards, future directions, and programmable logic solutions. Amsterdam: Newnes.

Saffer, D. (2008). Designing Gestural Interfaces: Touchscreens and Interactive Devices. Sebastopol: O'Reilly Media, Inc.