

Homework 9: Patent Liability Analysis

Due: Friday, March 31, at NOON

Team Code Name: J-Team - RFID Xpr3ss Group No. 10

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NOTE: This is the second in a series of four “professional component” homework assignments, each of which is to be completed by one team member. The completed homework will count for 10% of the team member’s individual grade. It should be a minimum of five printed pages.

Evaluation:

Component/Criterion	Score	Multiplier	Points
Introduction and Summary	0 1 2 3 4 5 6 7 8 9 10	X 1	
Results of Patent/Product Search	0 1 2 3 4 5 6 7 8 9 10	X 4	
Analysis of Patent Liability	0 1 2 3 4 5 6 7 8 9 10	X 2	
Action Recommended	0 1 2 3 4 5 6 7 8 9 10	X 1	
List of References	0 1 2 3 4 5 6 7 8 9 10	X 1	
Technical Writing Style	0 1 2 3 4 5 6 7 8 9 10	X 1	
		TOTAL	

Comments:

1.0 Introduction

The purpose of this design project is to make a self-checkout system that reads pricing info from a Radio Frequency Identification (RFID) tag. The system will have a modular design consisting of an RFID reading surface, a printer and the main unit. The main unit will have an LCD screen and keypad for user interaction. A microcontroller is used as the core of this design to coordinate all the actions of the system. The system will e-mail a receipt to the customer after the transaction. The user will also have the option of printing out a paper receipt. It is imperative when designing a product to search for patents that the product might infringe upon. There are several self-checkout systems in the marketplace today, but they may not perform the function in substantially the same way.

2.0 Results of Patent and Product Search

In the search for patents, only one was found that performed substantially the same function as this project.

United States Patent 6,547,040 is for a “self-service checkout with RFID capability” [1a]. This patent was filed on April 2, 2001. The patent is assigned to NCR Corporation with John C. Goodwin, III listed as the inventor. This patent is for a self-service checkout system that weighs products with RFID labels for security purposes. The system uses a scale to weigh the product and a computer that looks up the weight and price that is stored on an RFID tag. The system compares the actual weight with the reference weight stored in the computer. If the weight is close enough payment is accepted. The claims included with this patent are basically a repeat of the abstract. The claims include recording an indication of the product being on the scale, determining actual weight, scanning the RFID tag, obtaining the product information from the computer, comparing the actual weight with the reference weight and initiating the acceptance of payment if the difference of the weights is within a specific threshold.

One other patent that performs the function of a self-service checkout is United States Patent 5,992,570 [1b]. This patent was filed on September 9, 1997 also by NCR Corporation. This patent says that it is for a self-service checkout device which includes a customer operated scanning device to identify each item purchased. It also includes credit card and cash accepting devices as well as a change return. It includes a terminal that displays a total amount owed. This device is also capable of being used as an ATM separately from its function as a self-service

checkout. This patent claims an apparatus for processing items selected by the customer for purchase. The claim states that the transaction is done by the customer indicating each product using the scanning method and using an integrated terminal for accepting payment.

The search did not return any other patents that seemed to match the functionality of this design project. In searching for similar products, only one was found. This product is the NCR FastLane [2] [3]. This product is made by the same company that holds United States Patent 6,547,040 and US Patent 5,992,570 which are mentioned previously in this paper. The actual product is more of a hybrid machine incorporating both RFID and barcode capabilities. It is a self-service checkout station that has an RFID reader, a barcode scanner, cash and credit card acceptors and a screen that displays pertinent information to the customer. This product seems to incorporate parts of both patents previously mentioned.

3.0 Analysis of Patent Liability

This product is fairly similar to both patents mentioned above. A potential for a doctrine of equivalents infringement was found with the first patent and a literal infringement with the second.

Even though the product being reviewed performs substantially the same function as the first patent mentioned, it is performed in a substantially different way. The claims for the first patent indicate that for each station, it includes a computer that stores all product information. The product being designed uses a microcontroller with Ethernet connectivity to gather the information from an external database. This allows several stations to access the same database. Even several stores could use one large database through an internet connection. If this were found to be substantially the same way of performing the same function, it would be an infringement by the doctrine of equivalents.

The product does infringe upon the second patent mentioned. The second patent applies to any form of self-service checkout that includes a device for identifying the items as well as their price. This would be a literal infringement of the patent. The product being designed includes a scanner for the RFID tags. The tag is read when the user places it over the scanner which makes it a "user operated device." It is because of this fact that it is an infringement. Even though the patent includes several more functions than the product being developed, it does not eliminate the infringement.

4.0 Action Recommended

Since the potential for infringement exists for the product under review, it will be necessary to eliminate this infringement before it could be manufactured. Since there is actually a literal infringement with US Patent 5,992,570 [1b], it would be necessary to either pay fees or actually purchase the patent from NCR Corporation. If this product were to be manufactured, neither of the aforementioned solutions would be ideal. It would be necessary to carefully redesign the application so that it was not an infringement of any patent. Since there are substantial differences in the implementation, it would not infringe on the other patent (6,547,040) so no action is needed for that patent.

In actual industry this patent search and analysis should have been completed soon after, if not during, the time when the project was only an idea. It would be a substantial waste of money to complete a prototype of a product before knowing if it was actually able to be manufactured.

5.0 Summary

RFID is a technology that is still not yet cheap enough to implement on a widespread basis for retail checkout. For this reason there are not a substantial number of patents for self-service checkout products that utilize RFID tags as a means of pricing. Only one patent was found for a product that does use it. The law regarding patent infringement states that a product can not perform substantially the same function in substantially the same way as a patent that has already existed for less than 20 years. The hard part is determining what is substantially the same way to implement a function. If using a computer to look up data is different than using the Ethernet to query an external database, then the design project does not infringe on one patent. There is another patent though that seems to encompass nearly any self-service checkout system that could be invented. It is too late to change the specifications of this project; however, in actual manufacturing, the patent analysis should be done as one of the first steps.

List of References

- [1] <http://www.uspto.gov>, all patent info in the document was obtained from this site.
 - a. [US Patent 6,547,040](#)
 - b. [US Patent 5,992,570](#)
- [2] NCR, *Worlds First "Hybrid" Self-Checkout Installed in METRO Group's RFID Innovation Center*, http://www.ncr.com/media_information/2004/aug/pr080904.htm
- [3] NCR, FastLane Overview
http://www.ncr.com/en/products/pdf/hardware/sa_FastLane.pdf

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