Conceptual Model to Improve Security & Efficiency of Shopping Mart

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ABSTRACT

We describe the problems which were continuously facing by the customers and sellers of shopping marts from so long, some of the time consuming steps which both of them need to face daily. Most popular are the billing process and the security checks. We can overcome these problems by replacing the manual labor through machine labor. This not only saves time but also saves money. We can use an automatic scanner cart for calculating the total amount of the products for both customer and the counter persons and can also help in a security process. That cart is connected with the vendor’s main computer, so as to keep on checking and updating the total billing process of an individual customer. At last the customer is given a card by the counter person after paying the bill successfully, that will work as an opus card (i.e., Delhi metro gate pass) and allow customer to leave the shop. An important result of this study is the prediction of automatic scenario in the supermarket which is not time consuming and well mannerly organized.

Keywords----- Cart, Biling, Budget

I. INTRODUCTION

In earlier times, the paying/billing process is very lengthy and time consuming. And because of this the sellers and customers had faced various difficulties. But after the revolution in marketing world, it brings lots of changes. The application of Magnetic Stripe Card Reader and online billing helps to solve much of the problems. Some of the biggest advantages of this are-

- Calculation is more precise.
- Instant transaction execution with digital payment service.
- It takes comparatively less time for billing.

II. PROBLEM IDENTIFICATION

Besides from all the present day facilities available, there are still some problems which were continuously facing by both of the shop owners and the customers. Through our observation and consulting with Mr. Gajanand Dakhore , Team leader of ladies wear section, Big Bazaar , Surya Treasure Island mall , Smriti nagar Bhilai (C.G.), we come to the point of some regularly occurring problems –

- During unloading the products, it has to pass various steps. First, the product is weighted and then it goes into the price scanning process, where the price and quantity of products are entered into the main computer. After that it is loaded into the aisles. This whole process takes much longer time as it is done manually. For example, let us assume there are 5 packets of India gate Basmati rice is needed to be loaded from manufacturer to shop aisles. It firstly weighted manually (suppose the packet of Basmati rice is 5kg each). Then the number of packets is counted and noted. After that the packets brings to aisles.

- Number of counters is less as compared to the number of customers. During festive season/discount season when the number of customers is very huge at that time the customers and the shop staff members both face troubles in billing process.

- A single security guard at the exit point increases crowd if he starts checking each & every customer properly. And if he does not, there is a chance of loss. Due to less number of exit gates there is a chance of jam at the exit point.

- Sometimes both the seller and customer face problems for change during billing time. When customers pay bill via cash then this kind of problem occurs concurrently.

- Sometimes the customers add products over their budget. And at last, at the counter they remove...
some items for manipulating their budget which is quite difficult for the counter person to adjust in the bill which is already made.

- Credit/debit card payment failure due to low server.

### III. SOLUTIONS

For overcoming the above mentioned problems & making the system smarter and advance we can propose some of the high-tech solutions.

- Unloading the products process should be done automatically in spite of doing it manually. The product should be weighted and scanned for price and quantity under an X-ray scanning type machine. A conveyor belt should be attached for sliding the products which makes the heavy products to move quickly and easily.
- At the time of entering the shop each & every customer is allotted a shopping cart. It is a special type of cart which scans the product as it enters the cart with its price and number of quantity. Each cart is connected with the master computer of the seller electronically, to keep track the records of the customers purchasing. A digital display attached to cart which shows the total amount and the number of quantity of products the customer enters into his cart. This will help the customer to remain into his budget and also makes calculation process easy. There is no problem of bar code reading technique at the counters. So this process saves much of the time of the customers and the staff members.
- And at last, the customers pay their bills by using debit/ credit card or via cash. For that the number of counters must be increased. For change problem the counter person can provide coupons to the customers which can be used further in future in that shop only.
- After paying the bill the counter persons give a gate pass to the customer which will work as an opus card. Opus card is inserted into the opus card reading machine (i.e., Delhi metro gates). Then the customer will allow passing. For this number of exit gates should be increased.

### IV. CONCEPTUAL MODEL FIGURE

![Conceptual Model Figure](image-url)
V. CONCLUSION

Our solution proposes fully automated approach which combines security and convenience of online shopping and experience of offline shopping. Our model assumes fault-less working of billing cart and automated gates which follow almost the same procedure as gates of Delhi metro.

Our solution seems costly in the beginning but cost will be compensated by sales and salary difference of the manual staff. Only disadvantage of this approach is that failure of system may result in chaos. But this is true for almost any system.

REFERENCES