DEVELOPMENT AND APPLICATION OF DEALER-BASED CUSTOMER DENSITY MEASUREMENT SYSTEM

Cihat Şahin[1*], Emre Benzer[2+] and Hüseyin Ünal[3]

[1]General Manager/Kilim Furniture, Turkey(csahin@kilimmobilya.com.tr)
[2]Resarch&Devolopment Manager/Kilim Furniture, Turkey (ebenzer@kilimmobilya.com.tr)
[3]IT Manager/ Kilim Furniture, Kayseri /Turkey(hunal@kilimmobilya.com.tr)
[*]Corresponding author: csahin@kilimmobilya.com.tr
[+]Speaker: ebenzer@kilimmobilya.com.tr
Presentation/Paper Type: Oral / Full Paper

Abstract- Today, the most important analysis is to get correct data about the number of customer in businesses like stores, shopping centers, banks and public enterprises. Especially, the most important outcome of the R & D and Designs made within the enterprises is the increase in the number of customers. There is no any data in many factories about the analysis of increase in number of customer and traceability of the increasing.

The customer measurement systems used in the current technology considers the customer as well as the personnel. These results do not reflect the reality, but lead to false analysis.

Marketing activities of companies like advertising, promotional, promotional gift coupon etc. can be measured in which stores, which periods they caused changes and what kind of changes occurred, and these actions will be taken accordingly by means of the project. With this data, businesses will have the opportunity to manage and review their marketing strategies. When these data are used to make strategic and operational decisions, the actions that will ensure the success of the companies will be effective.

In our study; after the UHF type RFID personnel cards are identified, the exact number of customers in stores is determined by the software we developed with an ip camera, mini pc and RFID reader placed in the store entrance.

SQL queries and software that will be developed with output of the project will engage reporting module and in Turkey our dealers located in different cities will have instant analysis with this technology. In this way, the peak time will be determined, lunch time and breaks will be revised according to this. Furthermore, the effect on sales of the customer who has month based entered to our store will be monitored with the reporting.
The project was approved by the Ministry of Industry and Technology with **KLM.ARGE.18.08** number

Keywords- RFID, UHF, reader, customer density, marketing

I. INTRODUCTION

RFID (Radio Frequency Identification Devices) technology, which enables the automatic identification of people and objects by using radio waves, is developing day by day and the application areas are expanding due to the decreasing system costs especially the label.

Although the development process of RFID technology has not reached the level of satisfaction yet and especially the label, the cost of investment hasn't fallen to the level that will compete with the barcode, many benefits can be provided such as customer follow-up easily and safely, accurate and simultaneous data flow, measuring the time-dependent customer volume in case the technology is used for personnel determination.

In this project, the structure, features and application areas of RFID technology are mentioned and the studies and benefits are revealed by using IP camera to separate the personnel from the customer.

II. MATERIALS AND METHOD

A smart mini pc will be installed in Kilim furniture dealers, the software will be made by us and the network will be drawn. The software to be developed from the RFID reader will send the data to Kilim Furniture Service. With the UHF type RFID personnel cards which have 15-meter coverage area, the data of the people with the staff of the store will be processed as hour, day, month and year. (Fig.1)

On the other hand, the head of the customers passing through the IP camera will be counted and the data coming from the camera will be meaningful with the app and the actual customer and staff will be determined. (Fig.2) So the count of net customers will be measured.
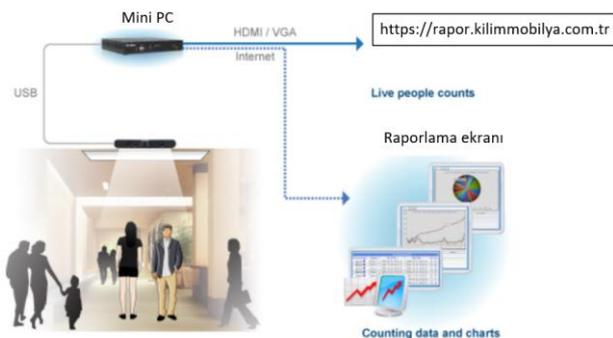

Fig. 2

III. Results

The data from the UHF-type RFID card and the data from the camera will be synchronously separated by the software we will write and the data from the dealers will be collected in Kilim Furniture local server.

Incoming data can be reported in our database with the SQL queries by way of the Logo Might Inside Qlikview and the web. The users will be able to reach digital data live analysis results via mobile phone, tablet and computer.

When we send the products we design and R&D to the dealers, it will be computationally make a time-dependent analysis the count of customers.

IV. DISCUSSION

It is observed that the current packaged software calculates customer count by camera or a sensor. Therefore, the systems cannot measure the count of exact customer numbers.

V. CONCLUSION

By means of the software and hardware package we developed the exact customer count emerges with the camera and RFID. With the other dealers to be installed, it is possible to make a lot of analysis such as hour based customer volume, daily turnover / count of customers.

Fig. 1