Smart online offline Augmented Reality in Retail Sector

Pooja Lohchab[1], Dr. Neetu Sharma[2]

[1]M.Tech. Scholar, [2]Associate Professor

Computer Science & Engineering, Ganga Institute of Technology and Management Kablana, Jhajjar, Haryana,

India

ABSTRACT

We all aware about the online shopping because this is the trending market scenario. Many people love to do online shopping just to save the time, energy and of course many choose this option when they are in hurry. So online commerce is a new business strategy that draws potential customers to make purchase in virtual stores. And offline commerce is also a business strategy(combination of technology and manpower) that draws potential customers to make purchase in physical stores. As retail sector is undergoing many changes & online shopping is increasing because of the features it offers with many other benefits, customer experience can be improved by bringing this online features into the offline retail i.e. O2O(online to offline). More than 80% of retail sales will still happen at physical locations in 2020. And despite the best efforts of Amazon.com, just over 8% of retail sales happen online. This will not enrich the customer experience but this will take the retail sector to a next level with great convenience and innovation with the help of AR(augmented reality). To achieve this kind of environment this paper proposes a solution by immersing AR technology into the offline retail. The proposed solution allows the customers to purchase their product with ease in less time with help of a handheld device which is used by everyone now days like our smartphones etc. That device provides a 3d AR based interface that combines the online features and brick and mortar shopping. Customers/shoppers can browse the shelves and products just like in online shopping and can get the information about that product. The device or we can say the application which we used will act as a nexus between the traditional and online commerce.

Keywords : Augmented Reality, SCANIT, Marker Based Tracking, IOT's (Internet of Things).

I. INTRODUCTION

The major role of internet is to get the things online and the information about everything easily through some browsers and application which are experts in their particular task. Internet of things plays a great role in retail sector because online shopping provides many advantages to the customers without doing lots of task, so offline retailers are facing so many problems to attract the customers. Because the benefits which are available in online manner is not present in offline manner. So to make the offline shopping interesting and smart or to increase the retail

sector I designed an application that is "SCANIT" which is based on AR. So this application provides a way in which online and offline retail can be converged. This AR application improves the users perception by overlaying the graphical or digital information over the real world. So the motto of this paper is to build a great solution to merge the online and offline shopping. And also it gives comprehensive and calculative information to ones when doing the shopping offline. This application enables the users to browse various kinds of products which are placed in the shelves of shops and get the correct and exact information about that product.

II. Methodology

It follows some steps:

a) Firstly install the SCANIT application.
b) Now open the application.
c) Now the first screen appear is splash screen it means it is the way to enter into the SCANIT application.
d) The next screen which appears after the splash screen is the home screen which has the specific layout to hold the contents.
e) Now the time comes to get the results and at the right side in the bottom it has a button to start the process of scanning.
f) Click on that button and put the product which is to be scan in front of the camera of mobile phone.
g) Now it scans the QR or Barcode of the product and gives the results on the basis of that QR or Bar code.
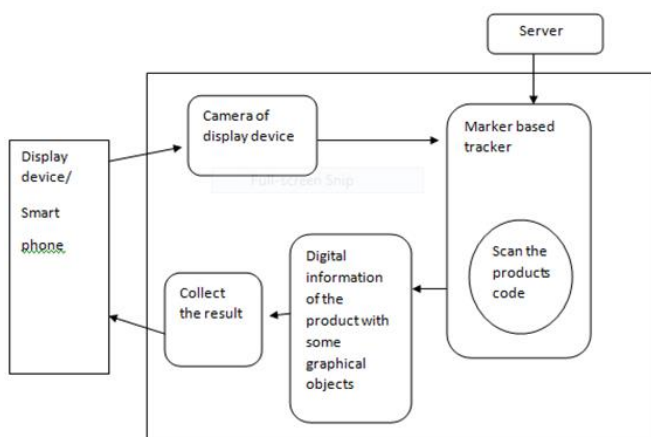h) Results are simple and easy to understand and also this contains a database to store the recent scan values.

Fig: 1 working overview of SCANIT app.

III. Features of the application

A. Copy and Paste

As the name suggest this feature is used to copy and paste the content to anywhere. Because sometime user wants to save the content personally what

he/she gets in the application or can also share it on other application like whatsapp, twitter, instagram or on the social media or can access the contents. So here the application has this option so that a user can use it accordingly to their requirement.

B. Code Type

This is the first part of the home screen. We can also say that this is the most important part of our application because the QR code or Bar code scans by this application are shown in this part. It means when user scans the code then firstly the value or data hold by this. It is important because it holds the data TYPE as well as the meaning behind the data.So this contains the current values.

C. Create QR Code

The application SCANIT has one more feature i.e. create QR code. I think this is the best part of my application because we can create the QR code easily of any type of content. This is the purpose of our thesis that we can get the data from any QR code or Bar code easily or can create the QR code.Let's take an example suppose we are in the market and searching for different type of clothes that are unique, comfortable and low in price, if every fabric in the market contain the QR or Barcode then it would become easy for the customer to get the clothes according to their requirement at low prices without asking to someone else because in India there are so many people who feel bad about asking the price of anything. So this app will help those people to come out from their comfort zone and choose the product which suits their lifestyle and of course which suits their pocket.

D. Recent

As the name suggest it holds the recent values or we can also say that this is the database of our application which holds the previous values. This is

the storage area where the recent values are placed and also at the bottom part it holds the current values brief details like if we scan our any kind of ID proof which have these codes then it provide the values basis on that codes.Let's take an example if we scan the QR code present in our pan card then it will gives the complete details about that QR code like name, father's name, DOB, Pan number. Whatever has present in the codes it scan the whole code and provide the details.

E. Share

Now come to the one more feature that is "SHARE". This part is used to share the content on the internet and it will provide the exact details about that product. Sometime when we scan any code then it contains the numeric or alphabetic values and we are not aware about that values and what is the meaning behind that values, so here the option "SHARE" is available which share it on the internet and provide the exact and brief details about that product. Because sometime it become little messy to type on the internet and after that we get the access to the data, so here this application provides the direct share option for the user.

F. Scan Icon

The icon which is situated in right at the bottom part i.e. "scan icon" . When we click on this Icon then it scans the code and provides the content to the user basis on that code. As I discussed in detail above, the values are present in the "Recent" part which is the second part of the home screen and in the "code content" which is the first part of the home screen.

G. SAVE

This option is used to save the generated code in the application. We can see the captured code in the photo gallery of our device.

IV. Techniques and technology

➢ Marker detection

a) Collects the input value- a real world information or image is captured by using the camera of display device then this captured information is given to the server or can say the database of the server.

b) Marker detection and matching-this is used to find out the real world information which uses the QR or barcode of the product to get the efficient result.

V. Some screenshots of the application with real time results:

The application is based on Android platform and uses the the Android tools to access the results. I use the Android platform because the mostly users which uses the android based operating system because it is cheap and affordable by most of the people.
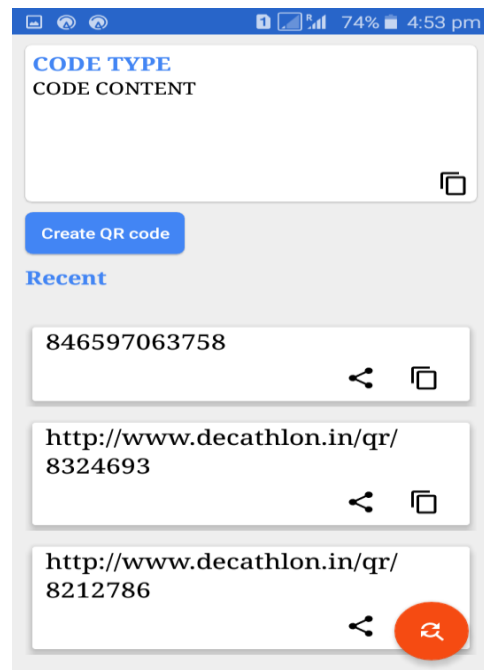

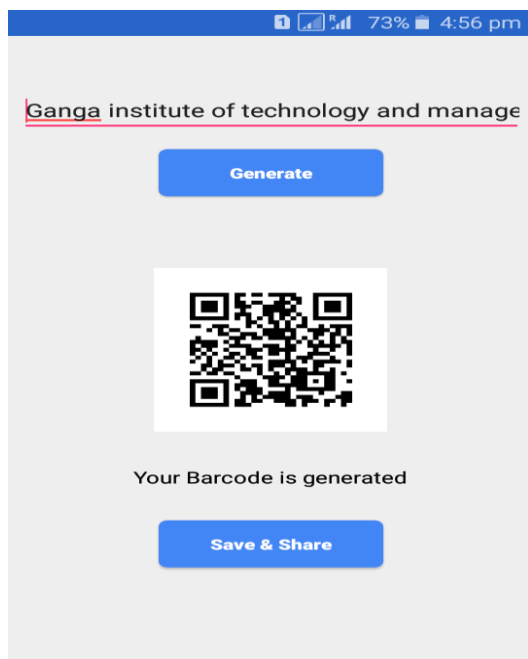Fig: 2 Home screen with the results

Fig: 3 bar code generated of input text

VI. Conclusion and Future scope

The technology takes the offline shopping to the next level. And also merge the gap between the online and offline shopping. System uses the IOT's phenomena to connecting the digital world with real world. Now we know that how much important is technology to fulfill our needs whether to travel from one place to another or to shop something. Every activity includes the technology and devices through which we can access the data according to our requirement. Here augmented reality has the huge scope in future because day by day every single person is attached with the internet and takes access to the different kinds of technology like OLA cab to travel from one place to another, Foodpanda to have the meal at the door step, cars24 for buying and selling the cars etc there is so much for discussing about such things. Now our application that is "SCANIT" is one of them.The area which is covered by the augmented reality is retail sector where this technology fills the gap between the online and the physical shops where it offers the great experience to the user in this way. Also the mobile industry has a huge future scope in AR because all are using the smart phones and devices now a days.

This will help the retailers to provide better service and will let consumers make more informed choices about what they buy. Shopping malls and small retailers are the best place to get the result on spot in the real world. But this hurdle can be overcome by enhancing what consumers have always enjoyed about in-store experiences such as the joy of discovery, atmosphere, scent and tangible interaction.

VII. Acknowledgement

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