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Restaurant Menu Card by Using Augmented Reality

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Abstract:
In the era of Food-Taster, Every individual wants to taste every certain kind food for the first time, and if he is concern about ingredients or curious about the cooking method of that food for his own benefits. Augmented Reality is changing education in a dramatic way and will bring a new method to teaching and learning practices through amazing visualization of the real world in an interactive environment. Unlike Virtual Reality that takes over the real world to a virtual environment, AR just supplements reality to the real objects. AR can be conceptualized from diverse angles of characteristics including 3D visualization of objects, real-time user interaction and combine real and virtual environment. By this system, particular person will acknowledge about ingredients that is being used in the food they have ordered.
Key Words: *Augmented Reality (AR), 3D modelling, Mobile Application, Unity, Vuforia, E-menu.*

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I. INTRODUCTION

Augmented Reality is nothing but to Augment (To add) Digital object in real world. AR technology is the latest technology that is being used widely in almost every sector and Restaurant industry is also one of them. AR technology offers a different and most entertaining way to order your food when you visit restaurants rather than old trendy way. To see a dish on your table is a reality. Augmented Reality. It's better than a photo. The entire range of food that you see in Menu AR is a three-dimensional image of the real dishes. You can see the texture of products, their ingredients and size. Nowadays, the excitement of being in the restaurant business lies heavily in the constant state of activity. The people who are early adopters of new promoting advancements appear to increase a few unmistakable advantages. Almost every single restaurants break down in their first attempt. Is it really a matter of pure luck? There may not be an immediate return on investments, those who take initiatives to test, learn and experiment new technologies usually end up with a long-term advantage. Among all the modern trends in restaurant marketing, the one which is rapidly growing in popularity is Augmented Reality. Using Augmented Reality Technology is the best ways to connect your visitors. Augmented Reality plays an important role in developing technology and also helps increase the demand for a restaurant who use new technology. When you visit a restaurant using such technology, you just have to place the smart-phone in front of the QR code which as a result pop-up 3d modules of the restaurant giving you the detail information on your device. The aim of connecting smart-phones and Augmented Reality technology is huge using it in a proper way provide greater benefits. Assume that your guests could examine your logo with their smart-phones and see the menu the eatery is putting forth! Or then again, they filter a menu and they can watch the recipes videos how the meals are cooked, or see the head chef appearing on the phone screen with a welcome address! There are numerous opportunities that AR has to offer. In addition with restaurants meals or restaurant itself, AR can really deliver astonishing and interesting experiences to its visitors. As people always keep on looking for something new, so this technology can become a source of attraction as well as can promote a restaurant in a different manner. Augmented Reality is the joining of advanced information with the live video and user environment. By admitting a visual images, this technology combined new innovation and display the virtual result in the actual world, thereby producing extraordinary experiences. Using AR technology, a smart-phone camera identifies a QR code. By analyzing the QR code, the application software creates a virtual picture on the smart-phone's screen. However, due to the number of computation, only smart-phones are capable of supporting augmented reality with success.

II. LITERATURE SURVEY

The survey regarding this application includes operations from various different sources. These sources include a variety of Augmented Reality applications and similar projects developed previously.

In Augmented Reality System for Learning the Interior of the Human Body. In the AR 3D Pop-up Children Book: Instructional Design for Hybrid Learning, basic thought are given, real successful sample of MAR Serious Games are analyzed in order to remove their narration genre appearance, available device for MAR rapid license are received, and later the idea and evolution of a model ISMAR Serious Game is granted. The paper commits to the traverse research design, IS, and AR technology research association and promote feature integrative research.

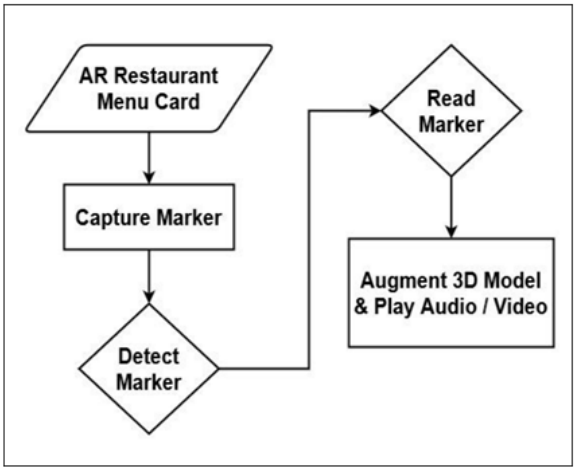
As per Discovering Educational Augmented Reality Math Application by Prototyping with Elementary-School Teachers, In modern generation, augmented reality (AR) technologies for children's entertainment have been expand popularly, and cultural system are increasingly involved in applying this technology to children's educational games. From this paper we understand how teachers and game designers involved together, in order to explore educational possibilities for AR technology.

In Exploring Possible Application of Augmented Reality in Education, The paper also provides a synopsis of some of the possible and promising applications of AR in the area of science, social science, mathematics and language. Likewise, the paper explains aim and the perception towards future opportunities for possible investigation of Augmented Reality for education. In A Medical Training System using Augmented Reality [5], it represents a medical training system using augmented reality by observing an AR marker over a Web camera, computer generated pictures occur on a real space. We planned 3D (three dimensional) anatomical item to display and figure out our system using AR platform. From the preliminary conclusion, we found that our system could overlay the digital information on the operator's enclosing actual world appropriately.

III. PROPOSED SYSTEM

The main proposed system aims to provide an environment that will help the customer placing the artificial 2D and 3D objects into the real world display through the Augmented Reality. Human always believed in what can be seen for example Playing Cricket, listening to Music, Reading books. Even if a person imagines any pictures or images, only that person can visualize. Suppose if an individual person wants to tell a story or incident to another person, he/she would explain that scenario. It would be not easy to visualize story or incident by another person, might be he/she would not understand. So these can overcome with the help of Augmented Reality. Basically, Augmented Reality is an interesting technology that helps us to visualize imaginary things into the actual world with the help of devices like Smart-phones. The proposed system Augmented Reality is also allowed the customer to choose where to put the object in the actual world. Once the object has been placed in a camera scan then it will be displayed accurately according to the display angle in the original picture. The system which we proposed is used to resolves the problem of tracking and virtual gadget interaction. The main advantage of the proposed system is that it is customer oriented and not product or service oriented thus allowing the users to augment a product of their wish. Our project provided smart menu card and recipe of food ingredients with the help of interactive 3D model and graphics. We can use a Tablet or Smartphone to display a3D model. A person can access our application anytime and anywhere they want You have to download the application and physical image. Since most people use Smartphone's, it would be less costly for people who want to use our application. Due to the limitations in the existing system such as limitation in rendering of a fixed number of 3D models, so to overcome it, we proposed a new system. In the proposed system, we are going to implement an augmented reality application which would include a list of various items. Also, each restaurant has a unique sticker (image target bearing name and logo of the restaurant). When the user visits a restaurant and scans the sticker, then the user can select a particular sub-category, then various food items included in that sub-category is displayed. When the user clicks on any of the food item's name, the system scans if the correct sticker (image target) is detected or not and then renders the 3D model of the food item on the sticker accordingly. The image target (here sticker) is being distinguished by making the use of the FAST algorithm, which is a corner detection method, which could be used to extract feature points and later used to track and map objects in many computer vision tasks, for this to happen we're making the use of the AR framework of Vuforia Library in Unity 3D.

IV. BLOCK DIAGRAM



V. CURRENT ISSUES IN RESTAURANT

Since we order same dishes on every visit due to lack of knowledge. People know local dishes but ignorant of regional dishes. People never get to know specialty of a particular restaurant. Lack of understanding about different names of the same dish e.g.: okra=ladyfinger. Also many restaurants fail to accept new technologies in marketing.

VI. GOALS AND OBJECTIVES

AR provides full information about the food we order. It offers exciting and memorable experience to its customers because the customers would be able to know the ingredients that are being used in the food they have ordered. This helps in attracting more customers and also promoting your restaurant in a different manner. We can see AR food menu with 3D view. Removes language barrier. Attracts more new customers. Advertising of restaurants and increase customers.

I. **Increase Level of Visibility & Information** You can have your AR Food Menu customized, to present comprehensive information on each and every dish mentioned – like the ingredients used, nutrition value, size of portions, 360 degrees visualization, recipes, calorie count, etc.

II. **Hike the Number of Items Sold**

The apps can be programmed such that they suggest suitable accompaniments while displaying a dish. For example, a main course with starters, or beverages to accompany the main course, and so on. Owing to this, your restaurant can have a larger number of food items, and drinks ordered, and sold.

III. **Boost Direct Marketing and Promotion** You can directly market and promote special discounts or dishes, happy hours, and other schemes and products via AR food menu apps.

IV. **Augment Engagement of Customers** These apps can be customized to display a variety of content on demand; for example, videos of dishes being prepared, interviews with chefs, testimonials of customers, and so on, to engage customers better and bring about wider brand visibility.

V. **Provide Customer Opinion**

Through the AR food menu apps, you, the business owner, can understand important things like which of the promotional features are being viewed the most by customers, which dishes are getting more popular, etc. They can collect and sort answers to provide you with some very essential information related to your business.

VI. **Help Customers Find Your Restaurant**

If your food mobile app is location-based, it can display several locations over real time images, so as to help people reach your restaurant.

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VII. CONCLUSION

The proposed system shows the overall sequence, structure and working of the **Restaurant Menu Card** using Augmented Reality application. The application provides good user interaction and secure environment. This application is also helping in removing all the language barriers, to see AR food menu with 3D view, to attract more new customers and to advertise of restaurants and increase customers. With the rise of technology and new developments day-by-day, it is necessary to evolve and find various uses of the technologies in different sectors.

FUTURE SCOPE

Since, the application currently consists of food-items available in a single restaurant, we could include multiple restaurants in the restaurant list in the future development. Additionally, the application could also include online order placing facility in the future development.

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