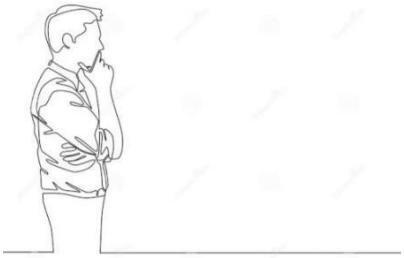
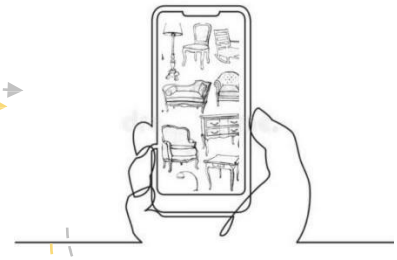
PROJECT TITLE : AN E-COMMERCE APP THAT LETS CUSTOMERS VISUALIZE THE PRODUCT IN THEIR REAL LIFE SURROUNDINGS USING AUGMENTED REALITY





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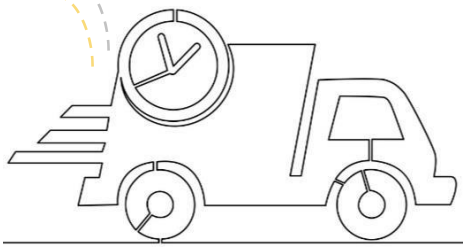
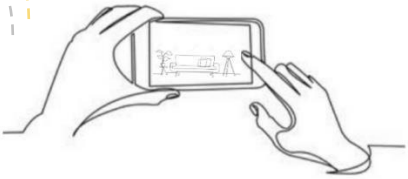


AUGMENTED REALITY



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A

REPORT

on

E- commerce application using Augmented Reality

by

SURYANSH SRIVASTAVA (UIAR ID 11614)

and guided by

Dr. AHSAN RIZVI

(Computer Science Program,

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Submitted in partial fulfilment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY(COMPUTER SCIENCE ENGINEERING)

and submitted to

DEPARTMENT OF ENGINEERING AND PHYSICAL SCIENCES ,

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GANDHINAGAR

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I have taken efforts in finding the most optimum solution with limited resources for this problem statement. However, it would not have been possible without the kind support and help of many individuals. I would like to extend my sincere thanks to all of them.

I would like to express my gratitude towards Institute of Advanced Research , for their kind co-operation and encouragement.

I am highly indebted to my mentor *Dr. Ahsan Rizvi* (Professor, Computer Science Department, IAR), for his guidance and constant supervision as well as for providing necessary information regarding the problem statement.

I also want to thank my parents , family and friends for motivating and guiding me throughout the project .

CERTIFICATE

This is to certify that this report is prepared and submitted by **Suryansh Srivastava** (UIAR ID - 11614, Computer Science Engineering Department). He has successfully completed the semester 7 mini project under the title 'E- commerce application using Augmented Reality' within the prescribed time and the work presented in the report is his own work .

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Gandhinagar).

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PROBLEM STATEMENT

E-commerce websites provides a platform for product providers (manufacturers and/or sellers) and product seekers (customers) to virtually sell and buy a product.
Many a times happens that a certain product delivered product doesn't acts as been desired mainly due to **lack of proper visualization** of the product with the surrounding.
Returning /replacing that product becomes exhausting and the risk of spread of covid19 also increases because of physical contact with others. As a vigilant citizen, one also needs to have least physical contact with outsiders.
On the return of the product, generally, sellers face a monetary loss for it. Customers have to wait for refund if product is returned or have to wait for a replacement of the same product.

LITERATURE REVIEW

E-commerce is the most preferred way of trading goods and services. Today more and more people prefer to buy articles through the internet and assisted technologies. The key factors driving this e-commerce revolution is social media, advances in e-commerce app development , rising preference for mobile commerce, and other digital modes. The role of e-commerce applications is the most significant here.

Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory. Some of the examples are : IKEA Mobile App, Nintendo's Pokémon Go App , Google Pixel's Star Wars Stickers , Disney Coloring Book , L'Oréal Makeup App ,Weather Channel Studio Effects. ... and many more…

According to PwC's Global Consumer Insights survey, prior to the pandemic shopping instore was the dominant method for consumers, with 47% of customers preferring to shop this way for non-food items, compared to 30% who shopped via mobile phone.

Since the pandemic began, those who shop online via mobile phone has increased to 45% according to PwC's report, as well as a substantial increase in those who shop online via computers and tablets.

The Covid-19 pandemic has resulted in consumers adapting how they shop and relying on ecommerce for their purchases, with PwC

concluding that “global disruption has forced the acceleration of a more digital way of life.”

This view is supported by the recent Office for National Statistics report, which analyses the retail sales for Great Britain. According to the ONS, February 2021 was the highest on record for online shopping, with 36.1% of the proportion of retail sales spent online. This is a considerable increase compared to retail sales pre-pandemic, with 20% of online retail sales reported by ONS in February 2020.

A consumer AR survey by Google found that 66% of people are interested in using augmented reality technology for help when shopping. Jennifer Liu, Google’s Director of Product Management, highlights the importance of augmented reality technology in ecommerce, explaining: “For many consumers it’s the next best thing to actually having the product with them in their own home.”

Augmented reality helps to bring ecommerce products to life with detailed information, enabling customers to make confident purchase decisions. Google found that 6 in 10 people “say they want to be able to visualise where and how a product could fit into their lives.” Augmented reality technology enhances the customer experience by allowing this visualisation to be possible before consumers commit to a purchase.

Reducing customer return rates

As consumers continue to prioritise online shopping, high return rates are one of the biggest problems faced by online retailers. Market research company Mintel found that 49% of UK online shoppers had returned items bought in the past year, with that figure rising to 60% when the consumers are aged between 16-34.

Addressing the question of why customers are returning goods, a large-scale 2019 report from UPS surveyed 18,000 Global online shoppers. They found the main reason was due to faulty or damaged products at

30%, but this was closely followed by 27% of consumers who claimed they returned goods as they were ‘not as described’.

As augmented reality technology offers an immersive experience with 3D visualisations, virtual try-ons and product demos, AR provides consumers with the unique opportunity to try before they buy. As a result, augmented reality technology helps to combat high return rates as customers are able to make an informed purchase, which will ultimately lead to a reduction in return rates.

Improving customer relationships

The immersive experience offered by AR gives ecommerce brands the opportunity to not only engage with new consumers, but to build a lasting and trusted relationship with them too. Augmented reality technology helps to increase engagement between consumers and ecommerce brands, which can ultimately result in increased conversion rates.

Research from Facebook’s AR partner Vertebrae has shown that retailers who have utilised AR technology during the Covid-19 pandemic are seeing a 19% increase in customer engagement. In addition, customer conversion rates increase by 90% for consumers that engage with AR versus those that don’t.

Much, much higher conversion rates

This is supported by data recently released by ecommerce platform Shopify, who have claimed that products advertised with VR/AR content saw a 94% higher conversion rates than products without that content.

BACKGROUND AND INTRODUCTION

E-commerce websites provides a platform for product providers (manufacturers and/or sellers) and product seekers (customers) to virtually sell and buy a product.

Many a times happens that a certain product delivered doesn't acts as been desired mainly due to lack of proper visualization of the product with the surrounding.

As a vigilant citizen, one also needs to have least physical contact with outsiders.

Returning /replacing that product becomes exhausting and the risk of spread of covid19 also increases because of physical contact with others. The said Application will be helpful in such situations which uses technological advances like Augmented Reality to help customers visualise the product in their desired surrounding/ background.

Augmented reality (AR) is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound, or other sensory stimuli delivered via technology. It is a growing trend among companies involved in mobile computing and business applications in particular.

On the return of the product, generally, sellers face a monetary loss for it. Customers have to wait for refund if product is returned or have to wait for a replacement of the same product. So this application will be beneficial for both the parties.

EXISTING SOLUTION

IKEA (Augmented Reality Web Application) provides a solution in this field.

DFS provides a solution in this field.

PROPOSED SOLUTION

The proposed application is based on android development and augmented reality .

It'll be beneficial for the following :

i) Visualisation of the product using AR
ii) Reduced monetary loss for both seller and buyer
iii) Reduced replacing and returning of the product and hence maintenance of social distancing

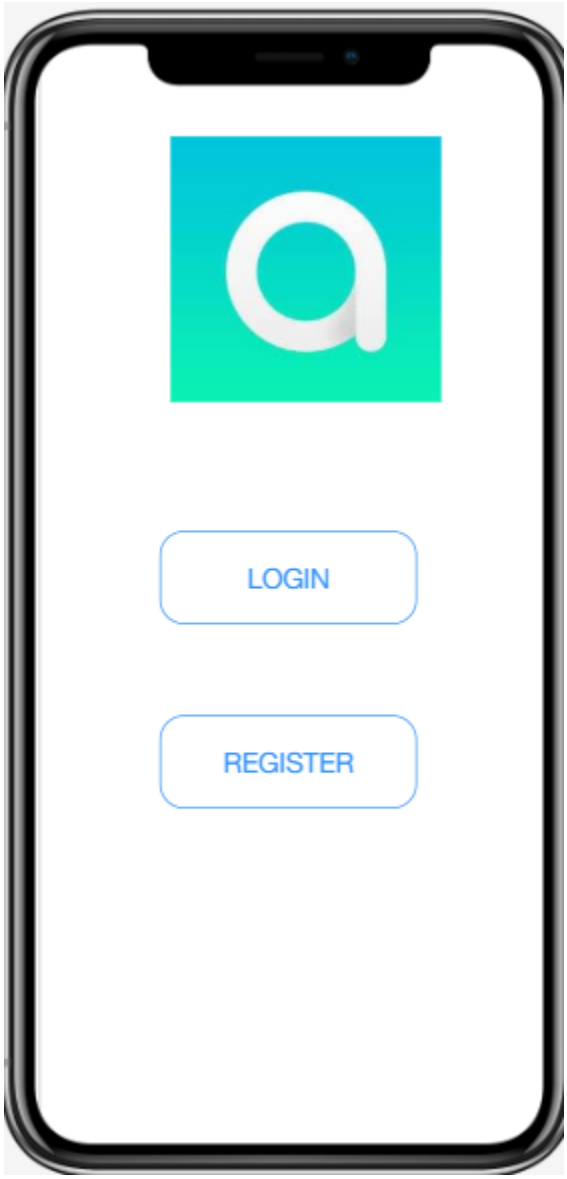
DEVELOPMENT OF THE APPLICATION

The following things are used for development of the application :

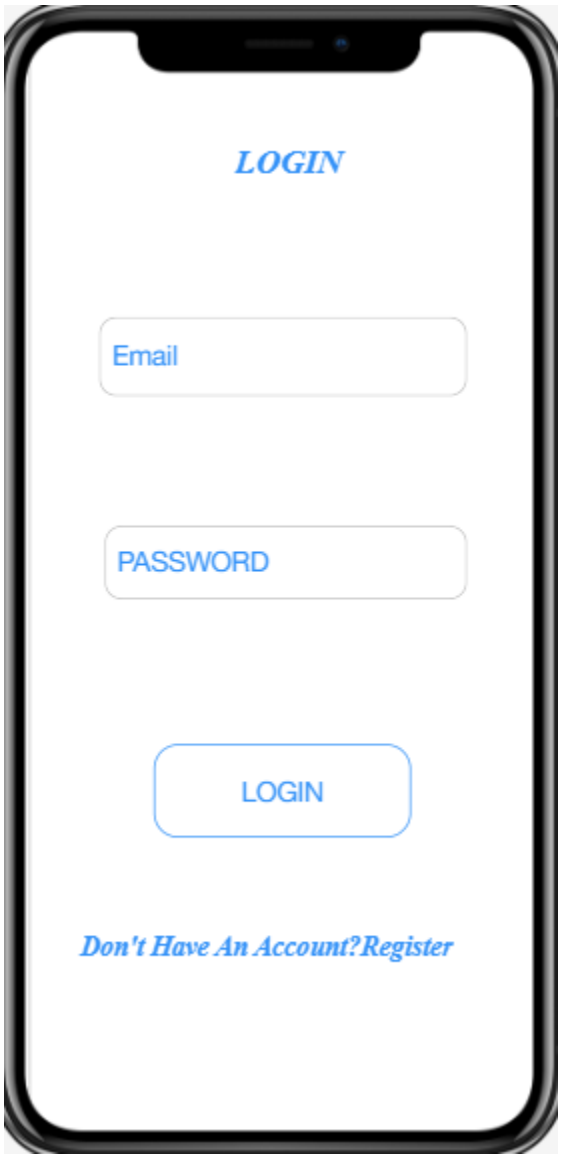
- Language used : Java
- For database : Firebase
- Android version – 7.0 (nougat) or above
- Sceneform plugin
- ARCore Libraries

WORKING OF THE APPLICATION

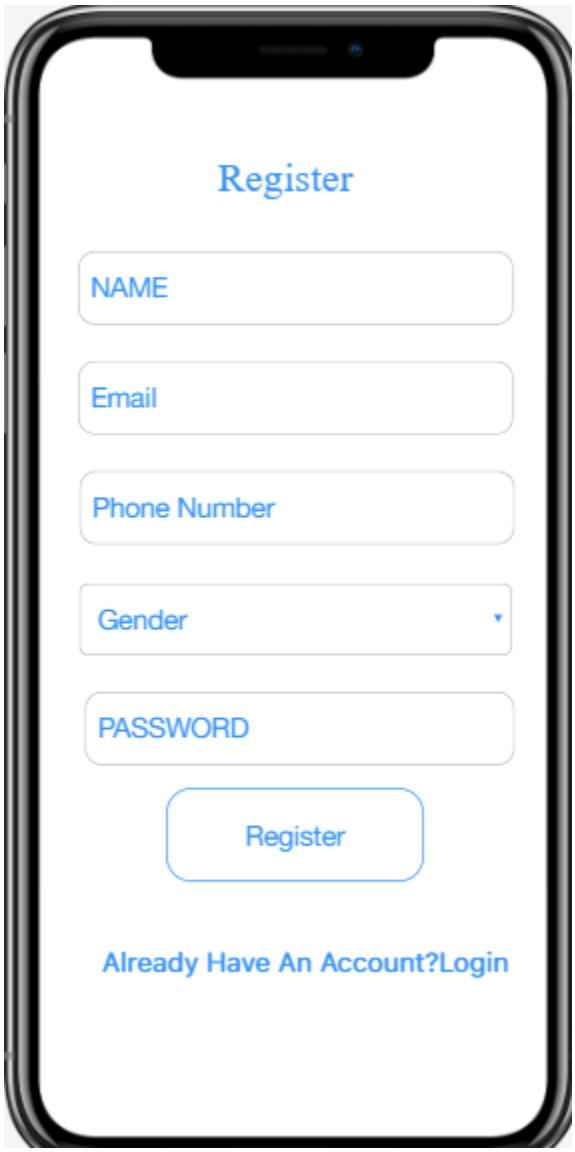
This is the starting page of the application. It has a Get Started button, on clicking that button we will be redirected to the Login Register page.



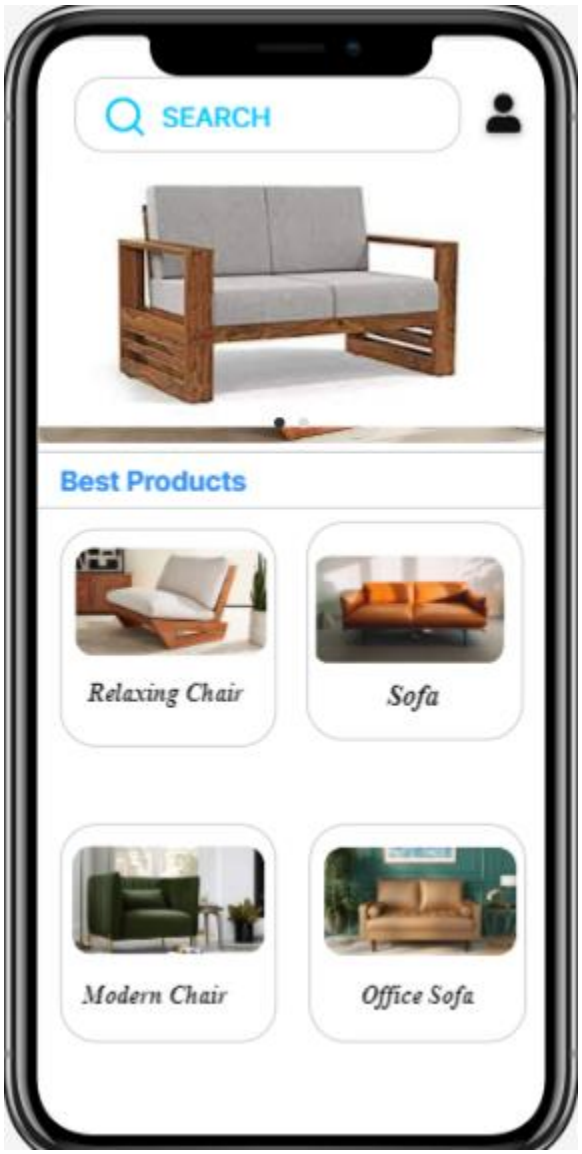
Login Register Page: We will land on this page which allows customers to login into their respective accounts or register themselves on the application if they are not.



Login Page - here the customer has to enter the email and password

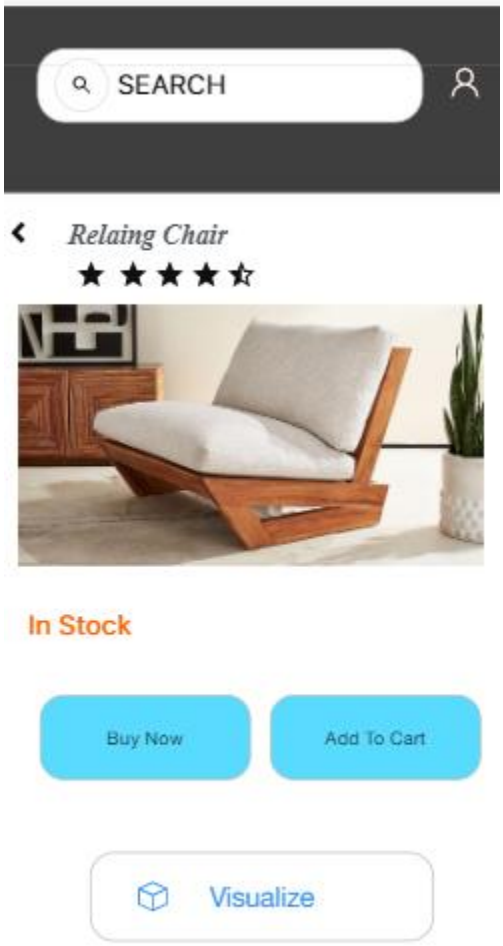


Registration Page - the customer has to enter his/her name , email id , and other details and have to set a password. After clicking on register button here the customer will land on the login page



after logging into the account the customer will land on the home page of the application.Here you can see the products.

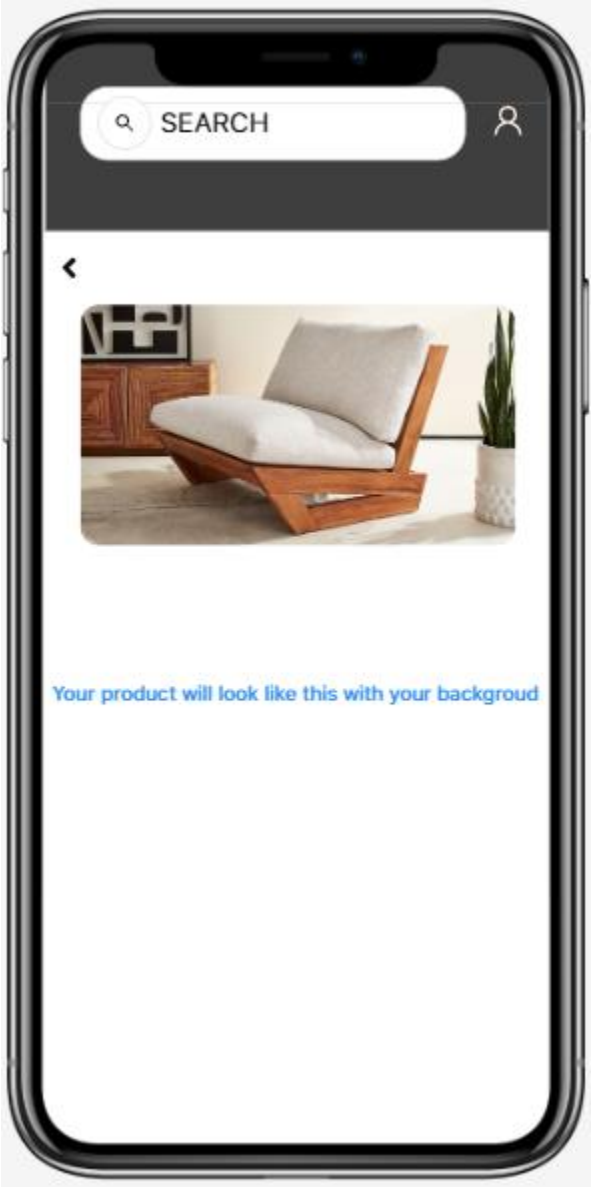
On top right corner of the application, a profile section is given in this section the details entered by the customer is shown.



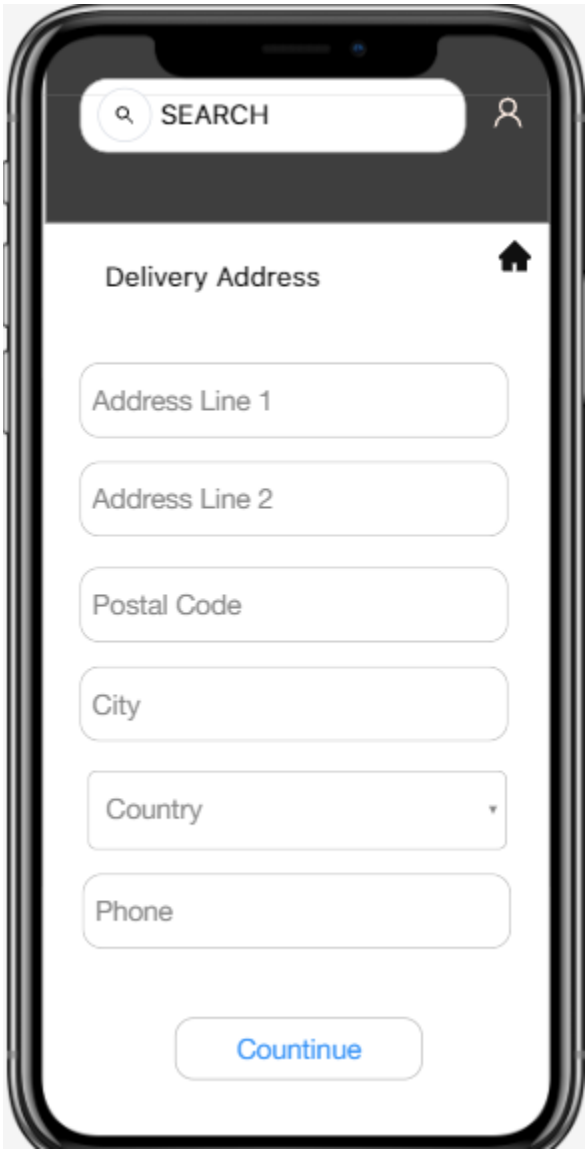
Product page:On this page the product name and image are provided . Additional to that rate of the product, rating given to the product by the customer , status of the product in the warehouse etc are given .

Here buying option and add to the cart option button is given.

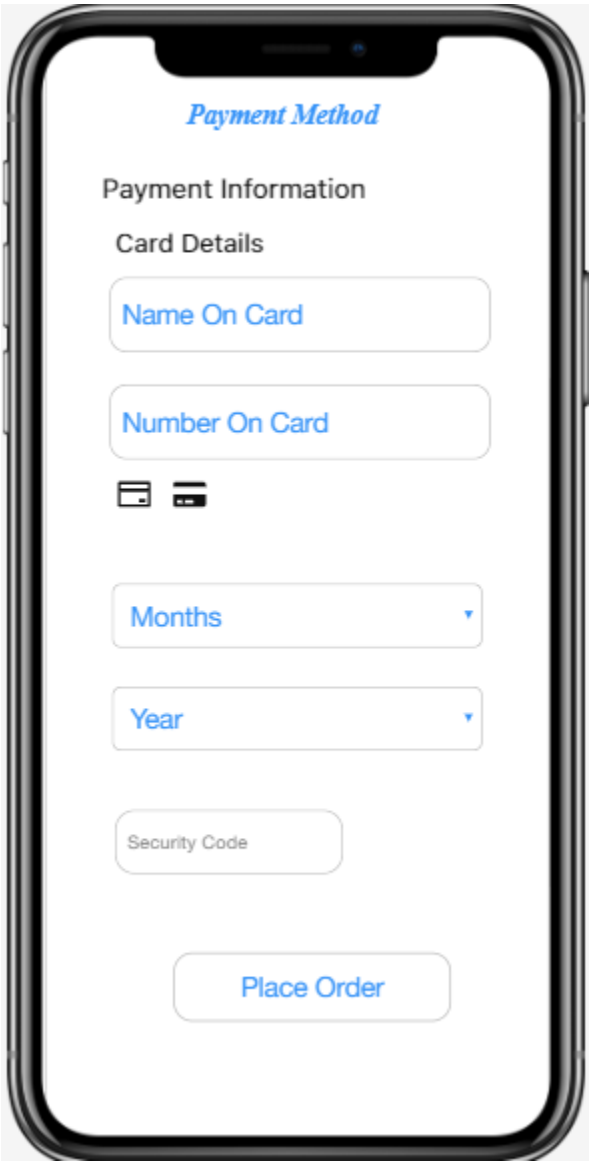
And a visualize button is also given for visualization of the product in the surrounding.



On clicking on the Visualize button user can visualize the product in their space.



On clicking on the add to cart button user will be redirected to the Delivery Address page,here you have to enter your delivery address.



After entering the delivery address next user have to enter the payment information.

And your order is placed successfully!!!

CONCLUSION

This Augmented Reality application makes the online shopping easy. The Augmented Reality used helps for better visualisation.

FUTURE SCOPE

The technology used has a very high potential for the future . Visualisation of the products will ease the selling and buying of the products both for sellers and the buyers .

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