



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## E-COMMERCE FURNITURE WEBSITE USING AR TECHNOLOGY

Ajay A. Valapkar,  
Bachelor of Engineering  
in Computer.

Abhijit A. Patere,  
Bachelor of Engineering  
in Computer.

Sarvesh D. Baing,  
Bachelor of Engineering,  
in Computer.

Vedant U. Khot ,  
Bachelor of Engineering,  
in Computer.

Manasi G. Gore,  
Assistant Professor  
Mumbai Univesity

Rajendra Mane College of Engineering and Technology Devrukh(Ambav), Ratnagiri, India.

### ABSTRACT:

The furniture sector has changed significantly as a result of e-commerce's explosive growth. This extensive project explores the creation and evaluation of a cutting-edge online furniture store. In this paper, we propose a website "E-commerce Furniture Website Using AR Technology" makes moderately cost, high-quality furniture more accessible to rural populations. By using this platform providing some special offer products especially for women's for giving them business opportunities. The paper goes into detail on some of the main aspects of the e-commerce platform, including an intelligent recommendation engine, augmented reality integration, and a 3D product visualization tool. This research explores the impact of AR integration on user engagement, conversion rats, and overall customer satisfaction, highlighting the potential of this technology to revolutionize the way consumers shop for furniture online.

**Keywords:** E-Commerce, furniture, integration tool, Customer satisfaction, user platform.

### I. INTRODUCTION:

E-Commerce Furniture Website is like virtual furniture store on the internet. It has pictures and descriptions of all kinds of furniture from sofas and chairs to beds and tables. You can pick what you like, pay for it online, and have it delivered to your doorstep. These websites have changed the way we buy furniture. They make it easy for us to find the furniture we want, whether we live in a big city or a small town. But there's more to it than just shopping online. We'll also explore how this website use technology to make our furniture shopping experience better, like showing us how a new couch would look in our living room before we buy it using AR technology. In rural areas economic opportunities for women have often been limited, with traditional roles and barriers hindering their financial independence. Therefore, using E-Commerce Furniture Website providing business opportunities for women's by offering special offer products. Unlocking their entrepreneurial potential and fostering inclusive economic development.

### II. AIM AND OBJECTIVES:

Deliver a robust and user-friendly e-commerce furniture platform, augmented with cutting-edge AR technology, to empower retailers. The system will be able to achieve the following objectives:

1. To develop user-friendly E-commerce platform.
2. To enable customers to visualize furniture in their own space.
3. To provide robust inventory management to retailer.
4. To provide marketing support to retailer.

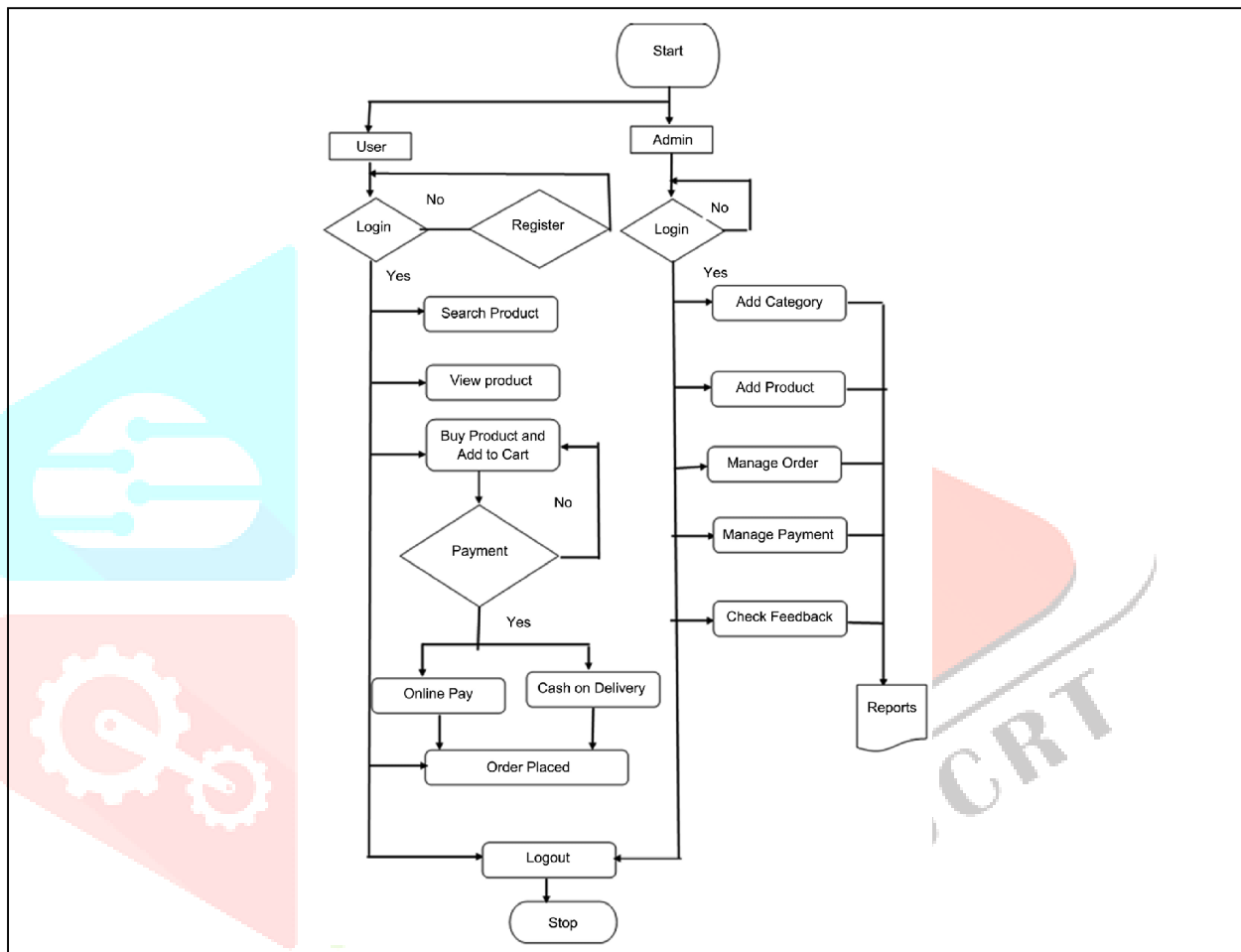
### III. EXISTING SYSTEM:

The existing system of the e-commerce furniture website is a sophisticated technological infrastructure focused on delivering a seamless and secure online shopping experience. It has been designed to adapt to changing market demands, emphasizing continuous improvements and updates. This system likely incorporates features such as product listings, detailed descriptions, high-quality images, secure payment gateways, and efficient order processing. The platform's success hinges on its ability to stay current with technological advancements, user preferences, and market trends, ensuring it remains competitive and

appealing to customers. Regular updates and adaptations are crucial to sustaining its effectiveness and enhancing user satisfaction in the ever-evolving e-commerce landscape.

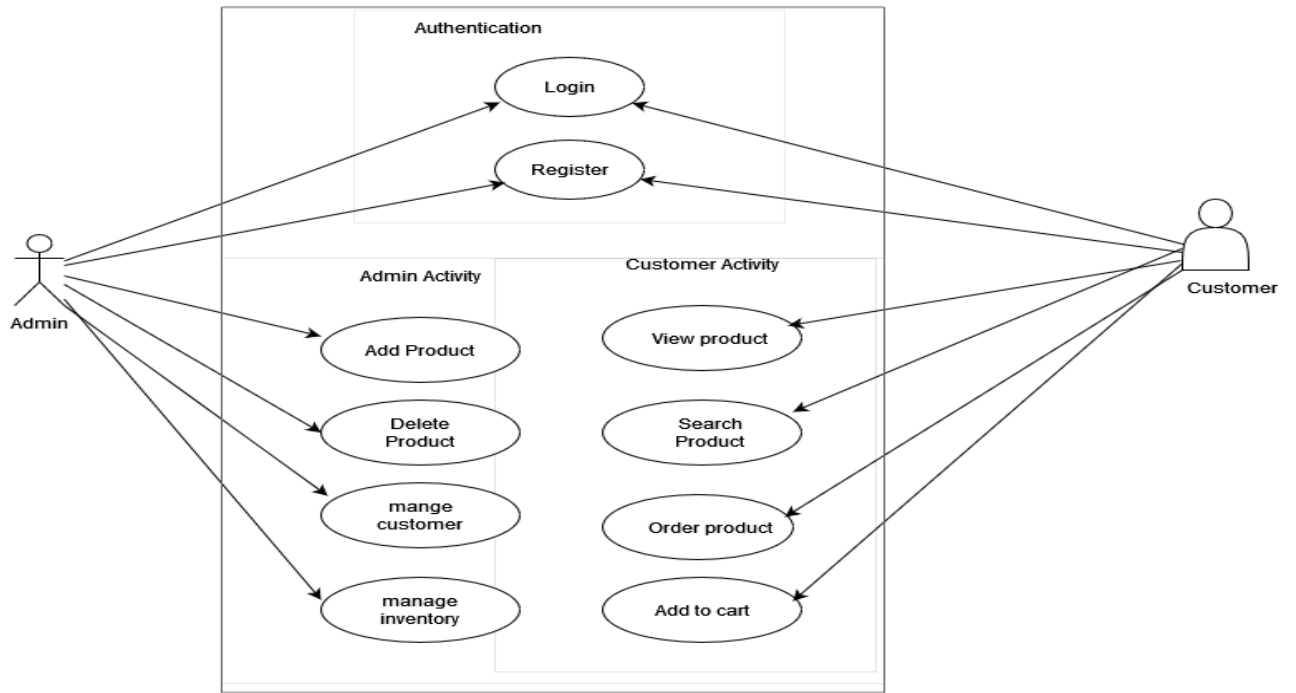
#### IV. PROPOSED SYSTEM:

The proposed system is an e-commerce furniture website, an online platform dedicated to buying and selling furniture and home decor products. This digital marketplace aims to streamline the process of purchasing furniture items such as sofas, chairs, tables, cabinets, and more. Users can browse through an extensive catalog of products, access detailed information, view images, and make secure online transactions. The website provides a user-friendly interface, enabling customers to easily search, compare, and select furniture items according to their preferences. By offering a diverse range of products and ensuring a seamless shopping experience, the proposed e-commerce furniture website aims to cater to the needs of consumers looking to furnish their homes conveniently and efficiently.



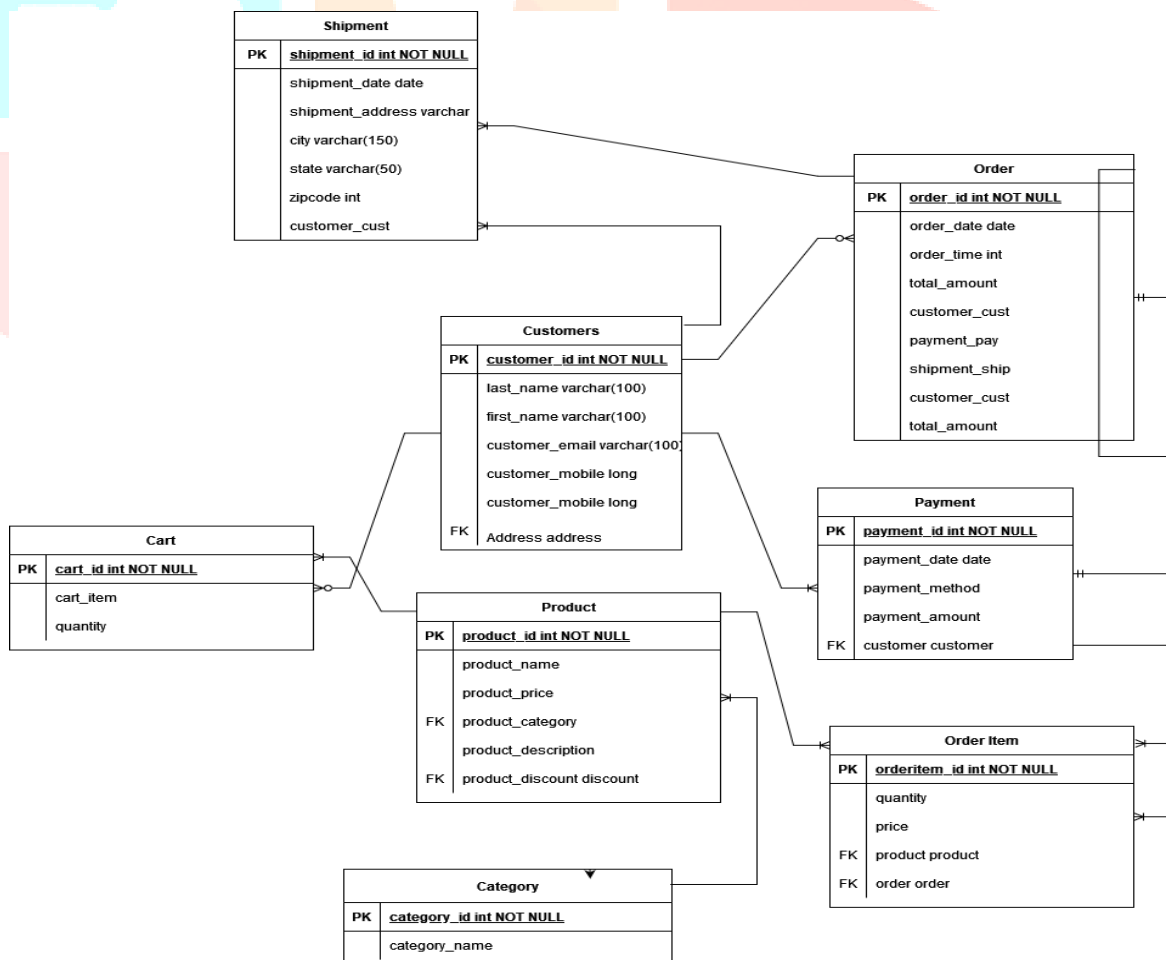
Flow Chart Diagram.

Use case Diagram for E-commerce furniture website is as given:



Use Case For E-Commerce Furniture

Class Diagram for E-commerce furniture website is as given:



Class Diagram

## V.METHODOLOGY:

### Development Environment Setup:

Explain how the development environment was set up for both the backend (Spring Boot) and frontend (Angular) development Discuss:

- **Development Tools:** Mention the IDEs (Integrated Development Environments) used for coding version control systems (like Git), and collaboration tools (such as GitHub, GitLab).
- **Dependency Management:** Describe how dependencies for the project were managed. For example, in Java, tools like Maven or Gradle are commonly used for dependency management.
- **Project Structure:** Discuss the folder structure of the project, organizing backend and frontend code, configuration files, and assets.

### Backend Development (Spring Boot):

Discuss the backend development process in detail:

- **Architecture:** Explain the architecture pattern used (e.g., MVC - Model-View-Controller) and justify the choice. Describe how different components interact with each other.
- **API Design:** Discuss the design of RESTful API endpoints. Describe each endpoint's purpose, the HTTP methods used, and the expected request and response formats.
- **Data Management:** Explain the data model used for storing furniture products and user information. Discuss the choice of database technology (e.g., MySQL, PostgreSQL) and justify it based on project requirements.
- **Security Measures:** Describe the security features implemented, such as user authentication (JWT tokens, OAuth) and authorization mechanisms. Explain how user data and transactions are secured.

### Frontend Development (Angular):

Discuss the frontend development process in detail:

- **Application Structure:** Explain the structure of the Angular application, including components, services, modules, and routing configurations. Discuss how the application is organized for modularity and reusability.
- **API Integration:** Describe how the frontend communicates with the backend through API calls. Explain how data received from API endpoints is displayed to users.
- **User Interface Design:** Discuss the user interface design principles applied, including navigation menus, product listing, search functionality, and checkout process. Mention any UI frameworks or libraries used (e.g., Bootstrap, Material Design) for a consistent and responsive UI.
- **User Experience (UX) Considerations:** Explain how user experience was prioritized, including responsive design for various devices (desktops, tablets, mobiles) and considerations for accessibility.

### Testing:

Discuss the testing methodologies used for both backend and frontend components:

- **Unit Testing:** Explain how individual components, functions, and methods were tested in isolation to ensure they work as intended.
- **Integration Testing:** Describe how different components were tested together to identify issues arising from their interactions.
- **End-to-End Testing:** Discuss the testing of complete user workflows, such as product search, adding items to the cart, and checkout processes, to ensure the entire system functions seamlessly.

### Performance Evaluation:

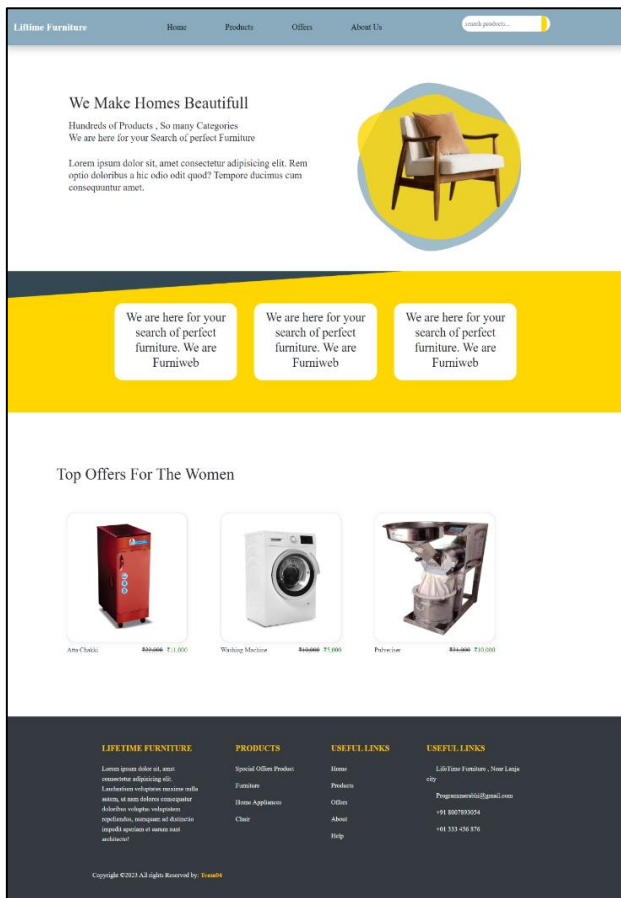
Discuss how the performance of the website was evaluated and optimized:

- **Performance Metrics:** Explain the performance metrics monitored, such as response time, loading speed, and server resource utilization.
- **Optimization Techniques:** Describe any optimization techniques implemented, such as caching mechanisms, lazy loading of assets, and code splitting to enhance the website's speed and responsiveness.

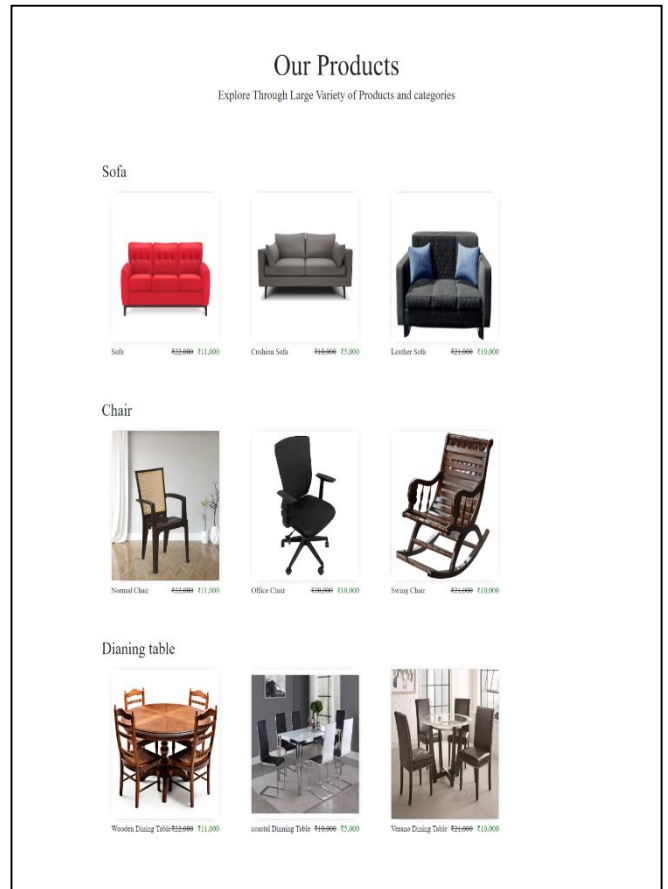
### VI. SYSTEM IMPLEMENTATION:

This paper represents the admin management system and user shopping website. It helps to manage products and analyzing the sales report. User can easily buy products from anywhere through this website.

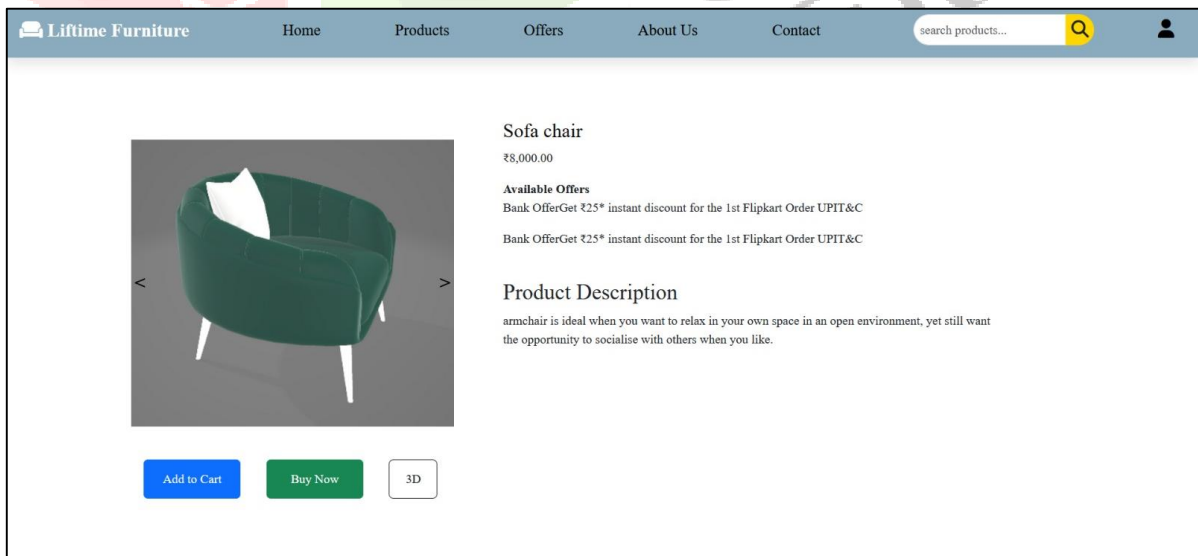
The following is a view of the proposed E-commerce Furniture website owned by Life Time Furniture.



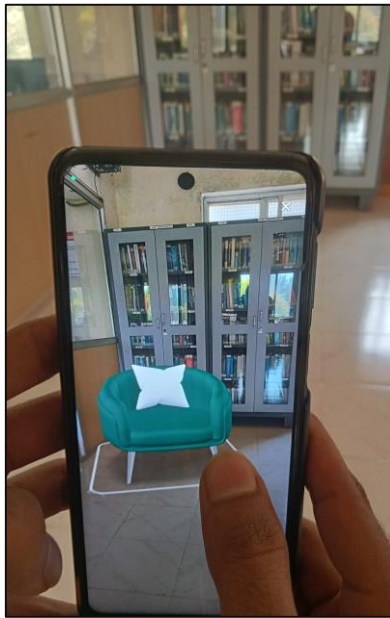
Home page



All Products page



Product Details Page



3D View of Products Using AR

Admin Username

New Product

Product List

New Category

### Add Product

Product name:  Product price:  Product Category:

Available Stock:  Description:

Admin Dashboard Page

Admin Username

New Product

Product List

New Category

### Product List

Product ID	Product	Price	Stock	Category	Description	Add Image	Update	Delele	
1	Sofa	10000	4		MRP Rs.29,386 (incl. tax) Seat cushions filled with high resilience foam and polyester fibre wadding give comfortable support for your body, and easily regain their shape when you get up. Back cushions filled with polyester fibres for soft comfort.	<input type="button" value="Add Image"/>	<input type="button" value="View"/>	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
2	Chair	7000	10		The timeless design of VEDBO makes it easy to place in various room settings and match with other furniture.	<input type="button" value="Add Image"/>	<input type="button" value="View"/>	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
3	Armchair, blue	12000	2	Armchair, blue		<input type="button" value="Add Image"/>	<input type="button" value="View"/>	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
4	Safa Set	10000	5		Seat cushions filled with high resilience foam and polyester fibre wadding give comfortable support for your body, and easily regain their shape when you get up.	<input type="button" value="Add Image"/>	<input type="button" value="View"/>	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
5	Sofa chair	8000	5		armchair is ideal when you want to relax in your own space in an open environment, yet still want the opportunity to socialise with others when you like.	<input type="button" value="Add Image"/>	<input type="button" value="View"/>	<input type="button" value="Update"/>	<input type="button" value="Delete"/>

Product Management Page

## VII. CONCLUSION:

E-commerce furniture websites integrating Augmented Reality (AR) have transformed online shopping into an immersive, lifelike experience. With AR, customers can visualize furniture in their own homes, facilitating confident purchase decisions. This virtual 'try before you buy' approach eliminates uncertainties, enhances spatial perception, and reduces the likelihood of returns. By bridging the gap between online and in-store shopping, AR technology significantly boosts customer satisfaction, making the entire shopping process more interactive, engaging, and ultimately, more enjoyable for consumers.

## VIII. ACKNOWLEDGMENT:

It is opportunity of immense pleasure for us to present the paper on project "E-commerce Furniture Website Using AR Technology" expressing our gratitude to all those who have generously offered their valuable suggestions towards the completion of the project.

We take the privilege to express our sincere thanks to Mrs. Gore M. G., our project guide, for providing the encouragement and much support throughout our work.

We are deeply indebted to Mrs. Hatiskar M. M. (Project coordinator), Mr. Naik L.S. (Head of Department) and Dr. Bhagwat M.M.(principal) and the entire team in Computer Department. They supported us with scientific guidance, advice and encouragement. They were always helpful and enthusiastic, and this inspired us in our work.

## IX. REFERENCES:

- [1] Mrs.Uma P."Online Furniture Shopping Management",IEEE publication,Mar(2023).
- [2] Md. Asif Rahman, M. A. Khan, and Md. Rabiul Islam, "Design and Implementation of a Web-based e-commerce system", EJETR publications,April(2023).
- [3] Jaka Abdul Jabar & Dian Anubhakti, "Website-Based E-Commerce System Design and Build to Increase Online Sales", IEEE publication, (2022).
- [4] Ahmadi, S., & Amiri, B. "How to Evaluate and Improve E-Commerce Implementation and Administration Success State? a New Approach for Managing Success-Relevant Activities". (2022).
- [5] Zaka, M., & Yunanto, R. "Web-based Online Sales". International Journal of Research and Applied Technology, (2021).
- [6] Krishnamoorthy, D., & Vigram, R. P. "A study on website quality and its impact on customer satisfaction with reference to ecommerce companies", Journal of Contemporary Issues in Business and Government, (2021).
- [7] Kisiwaa, L., Xungang, Z., Ansah, S., & Ankrah, E. "E-Commerce Adoption among Small and Medium Enterprises in Ghana". International Journal of Sciences: Basic and Applied Research (IJSBAR), (2021).
- [8] Aparicio, M., Costa, C. J., & Moises, R. "Gamification and reputation: key determinants of ecommerce usage and repurchase intention". Heliyon, (2021).
- [9] Tong Liu "Research on the Design of E-commerce Data Analysis Platform" IEEE publication, 2021.
- [10] Sudiana, Yakob Utama Chandra, Lydia Angela "Key Success Factors for a Better User Experience in E-Commerce Website" IEEE publication, 2021.
- [11] Yunus A, Masum M., "Design and Development of an E-Commerce system in a rapid organized way". International Journal of Science and Research, 2020.
- [12] Ahmad, D., Ariessanti, H. D., & Awaliyah, K. "Implementation of E-Commerce Website to Increase Online Sales of Case Study of Baby Wise BSD Tangerang". (2018).