

Smart Furniture Application

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Abstract — The Smart Furniture Application allows users to check for various furniture available at the online store and purchase online. The project consists of list of furniture products displayed in various models and designs. The user may browse these products as per categories. If the user likes a product he may add it to his shopping cart. Once user wishes to checkout he must register on the site first. He can then login using same id password next time. Here, we use flutter framework to make the entire frontend. The middle tier or code behind model is designed in firebase and sql serves as a backend to store furniture lists and inventory data. Thus, the Smart Furniture Application project brings an entire furniture shop online and makes it easy for both buyer and seller to make furniture deals. The application provides a user-friendly interface facilitating product browsing, purchase and secure monetary transactions. A key feature enables customers to personalize available furniture items directly within the web application. Through intuitive customization options, users can tailor products to their preferences before placing orders. The integration of smooth transaction capabilities ensures a convenient shopping experience while maintaining financial security.

KEYWORDS – Furniture Purchasing Software, Firebase Management, Security And Privacy, Customization of Products.

I INTRODUCTION

In a world where technology keeps changing how we live, our Smart Furniture Application is a game-changer for home living. It's not just about buying furniture; it's about transforming the way you experience it. With easy-to-use interfaces and tons of customization options, users get to explore a carefully curated collection of smart furniture that goes beyond just looking good – it's designed to make your life better. But our vision goes even further. We're not just about making things convenient or stylish, we're all about furniture being a part of your well-being and caring for the environment. Our Smart Furniture Application is more than just a fancy platform; it's proof that innovation can make our lives richer. So, as we invite you to join us on this journey, we're ready to change how you see home living, one smart furniture piece at a time. Our app makes furniture shopping a

breeze with a simple interface, easy navigation, and personalized recommendations. And we've got cool features, like using augmented reality to see how a piece would fit into your home before you buy it. It's about making your furniture shopping experience as smooth as possible.

II LITERATURE REVIEW

This research presents the design and production process of furniture prototypes with the use of reconstituted wood sheets and emphasis on application of sustainability concepts in product development.[1] The materials used for the production of furniture were MDF boards 18mm of thickness with melamine covering.

In the machining process of the boards was used a CNC router. The results presented are of similar projects researched, guidelines for sustainable product development, design development process, production steps for prototypes production in the laboratory and analyzes performed afterwards the entire process.

Eco design-related environmental practices are generically defined in the literature. As a result, those practices sometimes do not apply to specific product projects and industrial processes. Brazilian furniture producers could minimize the environmental impact introducing practices focused on the eco-efficient products and process. Such an approach is in line with eco design. This study aims to propose guidelines for a regional furniture industry in order to improve the application of eco design.[2] The companies studied, after a survey, were sorted into four clusters based on the level of application of eco design. The guidelines were organised according to the characteristics of the companies from each cluster. Companies with established environmental management systems were found in the highest performing cluster. Low-cost competitors not considering the adoption of eco design-related practices were found in the lowest performance cluster. The application of eco design could benefit these companies by integrating economic gains and environmental gains.

Furniture, as a design element is an important part of design theory as well as design history. It has acted both as a part of the architectural context and individually in history. It reflects the context of the time, lifestyles, choice and behavior. The manifestation of modernism at the beginning of the 20 th century can be indicated as a milestone regarding the whole history of furniture. However, when the history of furniture in Turkey during this time is analyzed, it is observed that one can only come across limited literature. Departing from this lack of historic writing and rewriting, a scientific research project, "DATUMM: Documenting and Archiving Turkish Modern Furniture", was initiated

based on exhibiting, documenting and archiving the history of modern furniture design in Turkey. The aim of this project is to highlight the modern furniture designed and produced in Turkey in the modern periods that can be defined as 1930's "Cubism" or "Functional Architecture Period", and the period of "International Style" in 1950s, 1960s and the 1970s.[3] The sense of a comprehensive experience was needed to tell this story, and that is why it is composed of a variety of methods and related outcomes. With the array of outcomes planned to take its place in memory, the aim is to enable a remembered and developing process filled with significant moments to not only put together a collection, but to provide an inclusive impression.

This chapter is intended to present the main criteria of the systematized method to solve TRIZ inventive problems, as a tool that can be used when conceptualizing furniture for environmentally low impact homes with a design that can be disassembled.[4] Detailed study of the TRIZ principle applicability facilitates identifying knowledge organization to solve technical problems of great difficulty, as well as creative strategical processes to answer questioning about shape, materials, interfaces, technical viability, and understanding of furniture functions. In order to strengthen the design's creative process, application of the 4 properties to determine easiness of disassembling are considered, as proposed by Johansson and Björkman, which are 1. identification easiness; 2. accessibility; 3. separation easiness; and 4. handling easiness; likewise, contextual and conceptual analysis is considered for the beginning, development and conclusion of the project.

Staff in the Product Design subject area at the University of Brighton have worked closely with industry over a number of years. One project has required collaboration with business and environment colleagues to look at the role of environmental benchmarking in the furniture industry. The two year project was sponsored by the British Furniture Manufacturers Association and the UK government's Department of Trade and Industry (subsequently the Technology Strategy Board) and involved working with a number of leading UK furniture companies. The project objectives were to undertake an environmental assessment of a range of furniture products, one each for five companies, and to subsequently redesign each item with a view to reducing its energy emissions. The aim was to demonstrate to these, and other companies within the

British Furniture Manufacturers Association (BFMA), the purpose and issues in applying environmental benchmarking in their design work. The outcomes were contained in a Brighton project report (Morris et al. in Innovating Domestic and Office Furniture through the application of Environmental Benchmarking. 2009, [5]) and released in a summary dissemination document by the BFMA (Zero Emissions from Office, Contract and Kitchen Furniture. 2009, [6]) which showed that; Significant reductions in emissions could be achieved, that the areas of high environmental impact are however, not always obvious.[5]

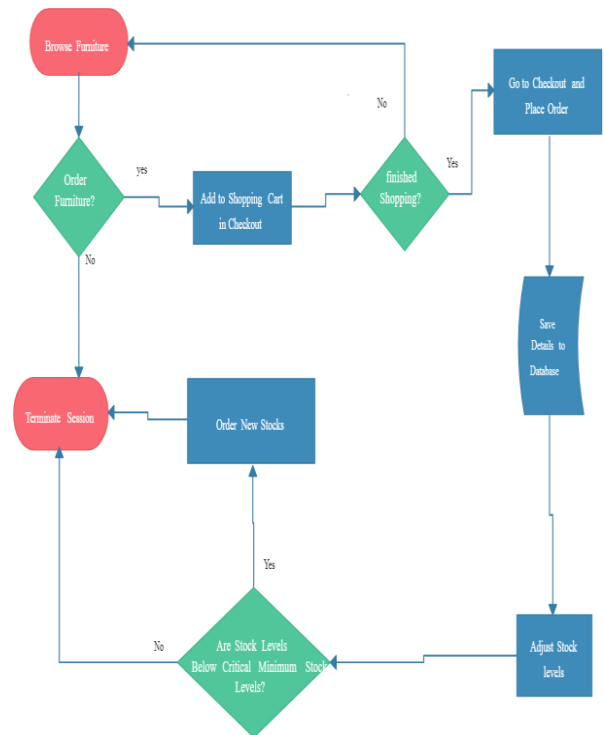
III EXISTING SYSTEM

Most furniture apps out there don't let you personalize your furniture much, which means you can't really make it match your style and preferences the way you'd like. Some of these apps are just plain confusing. It's like they make it hard on purpose! Navigating, searching, and checking out the furniture is a real hassle because the apps aren't user- friendly. A lot of these apps don't care much about being green. They don't offer a good variety of furniture that's good for the environment, which is a bummer for those who want to be more eco- conscious. You can end up feeling lost when you're shopping on these apps. They don't give you enough info about the furniture – what it's made of, how big it is, or how to take care of it. That can leave you uncertain and disappointed with what you get.

IV PROPOSED SYSTEM

This cool furniture app combines online shopping tech with a special feature that lets you customize your furniture. You can check out a huge catalog, pick out furniture, and make it your own. The app has a team of experts and skilled folks who are all about making your custom designs a reality. This personal touch makes sure every piece is just the way you like it, giving you a top-notch customer experience.

METHODOLOGY



A. Hardware and Software Requirements:

This Application requires a minimum specification of:

Version	Android 5.1 or later
Processor	Quad-core 1.5GHz
RAM	2 GB or more
Hard Disk	16GB or more
Operating System	Windows 10 Front End
	Flutter
Back End	Firestore
Database	PostgreSQL

B. Software:

Flutter, developed by Google, stands as a cutting-edge open- source UI toolkit for building natively compiled applications for mobile, web, and desktop from a single codebase. With a strong emphasis on expressive and flexible user interfaces, Flutter allows developers to create visually appealing applications that run seamlessly on various platforms. At its core, Flutter employs the Dart programming language, offering a rich set of pre-designed widgets, extensive libraries, and a reactive framework that enables the creation of visually stunning and

performant applications. Flutter enables developers to write code once and deploy it on different platforms such as iOS, Android, and the web, reducing development time and efforts. Flutter stands out for its ability to enable developers to write code once and deploy it across different platforms, ensuring efficiency and consistency in application development. A game-changer for developers, Flutter's Hot Reload feature allows real-time visualization of code changes, significantly speeding up the development process and encouraging iterative refinement. Flutter boasts an extensive library of customizable widgets, ranging from foundational elements to the complex complex UI components, empowering developers to craft intricate and visually appealing user interfaces. The framework facilitates the creation of expressive user interfaces with smooth animations and transitions, providing a delightful user experience that matches or surpasses native applications. Flutter's compilation to native ARM code ensures exceptional performance, minimizing runtime overhead and delivering applications with native-like speed and responsiveness. Being open-source, Flutter benefits from a vibrant and active community of developers who contribute to its growth, share resources, and collectively address challenges, fostering an environment of continuous improvement. Dart, the language underpinning Flutter, is designed for ease of use and performance. Its features include strong typing, just-in-time compilation, and a modern syntax that enhances developer productivity. Flutter seamlessly integrates with platform-specific features and APIs, allowing developers to access native functionalities and services, ensuring a smooth and integrated user experience.

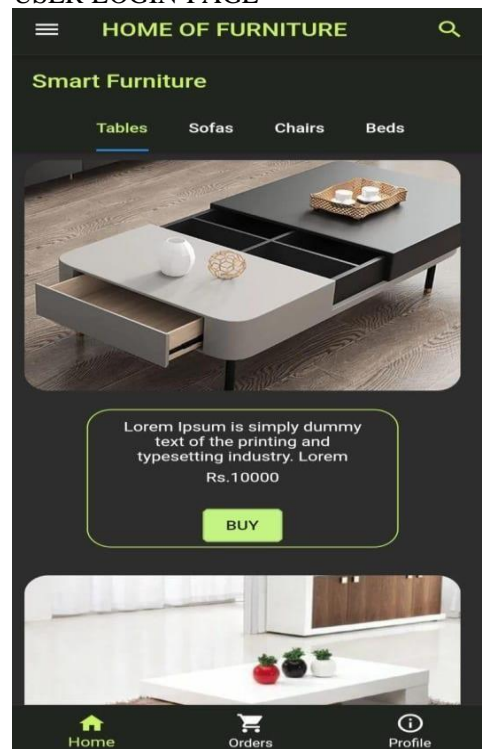
V EXPERIMENTAL AND RESULT

A) Test Case 1:

The Proposed System was tested by logging in by entering the email and password of the user's. The page communicates with the server and authenticates the user. Finally, the user was move to the Home screen.



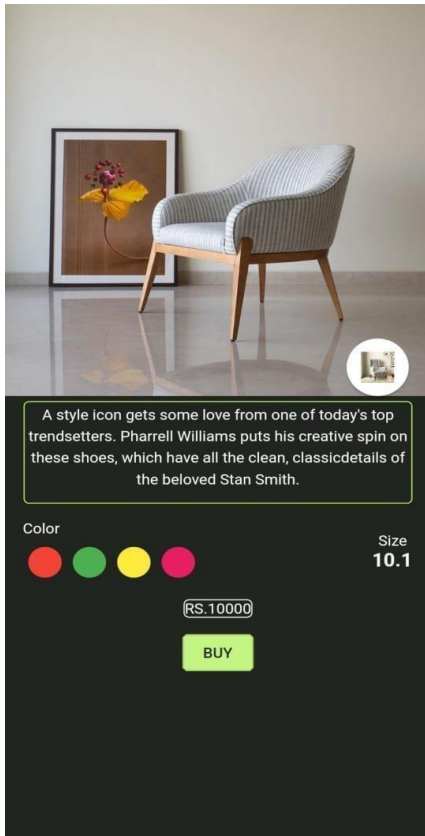
USER LOGIN PAGE



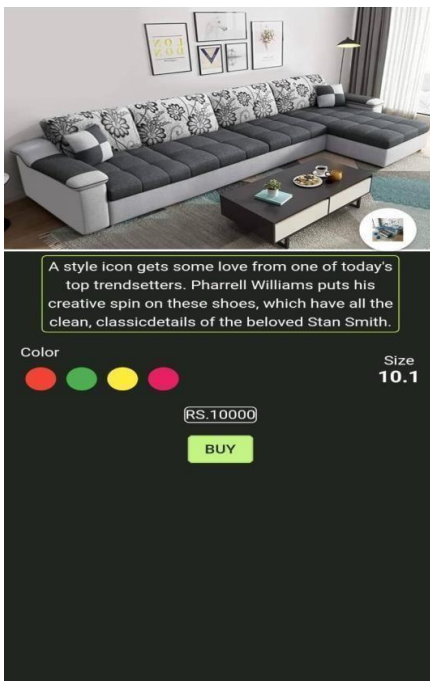
HOME SCREEN

B) Test Case 2:

The Customer can Search the products as their wish and place the order as well. The orders were added to the cart and the data are stored in the database.



PRODUCT VIEW PAGE



PRODUCT ORDER PAGE

VI CONCLUSION

To sum it up, when furniture apps blend e-commerce tech with options to customize products, it's a big win for consumers. This combo opens up a whole new world of furniture choices online, letting users easily check out styles and designs without leaving home. And the cool part? You can personalize your furniture to match exactly what you want and need. Plus, having skilled folks on board makes sure the customization process is smooth and dependable. It's like having your dream furniture made just for you, all thanks to the power of online shopping.

VII FUTURE WORK

To develop an admin profile for accessing the product updation and maintaining the whole application controls. Connecting the User interface with the firebase and database. Amount transaction and refund progression page and need to be developed.

VIII

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