


Chapter 4

IoT Driven by Machine Learning (MLIoT) for the Retail Apparel Sector

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ABSTRACT

Despite the challenges faced, the future of the apparel retail industry looks promising, with endless opportunities for growth and development. Automated body measurements and size suggestions for customers is a game-changer in the world of online shopping. It offers convenience, accuracy, inclusivity, and sustainability, benefiting both customers and retailers. With the constant advancements in technology, it is safe to say that this system will continue to evolve and improve, making the online shopping experience even more seamless and personalized in the future. MLIoT is transforming the retail apparel sector by providing retailers with real-time insights, automation, and personalization.

INTRODUCTION

The apparel retail industry is a dynamic and ever-evolving sector that caters to the growing demand for clothing, accessories, and footwear. This industry plays a significant role in the global economy, with the revenue generated by retail sales reaching a staggering \$2 trillion in 2019. The sector includes a broad spectrum of companies, from independent small businesses to major global conglomerates. all of which contribute to the diverse landscape of the apparel retail market by Vahida(2023), K Kutubuddin(2023).

The apparel retail industry is constantly adapting to changing consumer preferences and trends, making it a highly competitive and complex market. One of the key drivers of this industry is the rise of fast fashion, where retailers produce and sell inexpensive clothing that follows the latest fashion trends. This has led to an increase in demand for affordable clothing, resulting in a high volume of sales and significant revenue for retailers K S(2022).

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The growing influence of technology has also had a significant impact on the apparel retail industry. Online shopping has become increasingly popular, with consumers now having the option to purchase clothing from the comfort of their own homes. This has forced traditional brick-and-mortar retailers to adapt and create an online presence to stay relevant in the market. Social media platforms have additionally developed into an essential tool over merchants to market their goods and connect with their target market.

In recent years, sustainability has become a major concern for consumers, and this has also affected the apparel retail industry. With increased awareness about the environmental impact of fast fashion, consumers are now looking for more sustainable and ethical alternatives. This has led to the rise of eco-friendly and ethical fashion brands that focus on utilising eco-friendly materials, cutting waste, and encouraging ethical hiring procedures by Sherin(2021).

The retail apparel industry additionally remains highly fragmented, with a large number of small and medium-sized enterprises participating in the market. Due to the fierce competition that has resulted, retailers must constantly innovate and provide new goods and services in order to stay one step ahead of their rivals. This has also resulted in a diverse range of options for consumers, catering to different tastes and preferences.

The COVID-19 pandemic's effects are one of the main issues facing the retail clothing business. The closure of physical retail stores and disruptions in the supply chain have severely affected the industry, resulting in a decline in sales and revenue. However, the pandemic has also accelerated the shift to online shopping, with retailers investing in e-commerce and digital marketing to reach their customers.

To stay competitive in the market, retailers are constantly investing in technology and data analytics to better understand consumer behavior and preferences. This has led to the use of artificial intelligence-AI and ML-machine learning in areas such as inventory management, supply chain optimization, and personalized marketing by K Kutubuddin(2022).

Convenience as well as effectiveness are the primary elements that propel our daily lives in the fast-paced world of today. With the rise of e-commerce, shopping has become more accessible and convenient than ever before. However, one challenge that many customers face when shopping online is finding the right size and fit for their bodies. This is where the concept of an automatic customer's body measurements and size recommendation system comes into play.

Gone are the days when customers had to rely solely on size charts and their own estimation to determine the right size for their clothing. This traditional method often leads to inaccurate size selection and ultimately, dissatisfaction with the product. Thanks to technological advancements, retailers can now provide their customers with a more precise and customised sizing experience by utilising an automated system that takes customers' body measurements and recommends a size.

So, how does this system work? The process typically involves the use of a body scanning technology. Customers can either visit a physical store where the technology is available or use a virtual body scanning tool on the retailer's website. The body scanning technology captures the customer's body measurements in a matter of seconds, providing accurate data on their height, weight, body shape, and other relevant measurements.

Once the customer's body measurements are captured, the data is then used by the size recommendation system to suggest the most suitable size for the customer. The system takes into account the brand's specific size chart and compares it with the customer's body measurements to provide personalized size recommendations. This not only saves the customer time and effort but also eliminates the frustration of purchasing the wrong size.

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