



Introduction

With the rise of online shopping and the impact of COVID-19 on in-store retail shopping, this project focused on designing and developing an in-store technology system using RFID technology to provide fashion recommendations and encourage in-store shopping.

User testing was conducted to gather feedback and compare the results with the literature review and in order to identify future development.

Aim & Objectives

The aim of this project was to design and produce a usable system to encourage customers of fashion retailers to shop in-store by providing fashion recommendations.

The objectives set to complete the aim were as follows:

1. Explore the literature on in-store systems and devices available to customers in the fashion industry.
2. Research and investigate suitable technology to produce a product and allow customers to use the product.
3. Design and develop a system that allows customers in-store to scan items and receive recommendations for different items of clothing.
4. Test the product with relevant users, gain feedback and analyse the results to gauge success.

Research overview

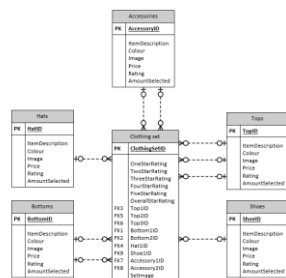
Current in-store technologies

- Uniqlo augmented reality
- Nike digital boot comparison
- JD virtual catalogue
- H&M mobile app
- Zara self-checkout
- Adidas immersive fitting rooms

Radiofrequency Identification (RFID) technology

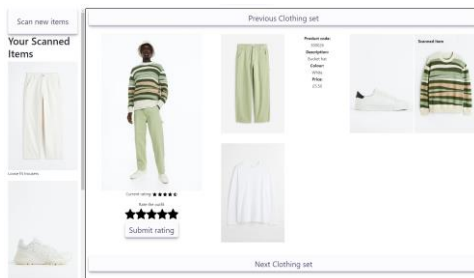
- Many of the in-store technology uses RFID
- Does not need line of sight
- Can read multiple tags at once
- RFID tags contain an antenna to receive and send signals and a chip that stores the data such as the tags ID

Design & Implementation



A star schema was used for the database design. All items of clothing are connected to one table, making it easier to create and display outfits. The central table enables the creation of different clothing sets.

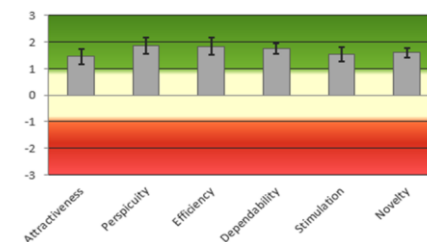
An RFID reader was connected to a Raspberry Pi allows users to scan RFID tags which sends IDs of clothing items to a web application.



A page to display the items the customer has scanned and outfit recommendations along with information about each item in the outfit. The customers can rate the outfits providing feedback to the shop.

Results

A User Experience Questionnaire (UEQ) along with extra open-ended questions were handed to participants of user testing. All the mean scores were positive and the variance on was low, displaying that overall, the system was well received by the users.



82% of participants would use the system if it was in a retail environment. 50% of those said that they would enjoy using an in-store technology and 32% said they would like the help creating an outfit.

Conclusion

The project was successful as the aim and all objectives were met and results show that it would be useful if implemented as an in-store technology.

Future development

This system could be implemented in changing rooms. The items could be scanned as the customer walks in and see their recommendations on the screen. Implementation of AI could affect the order the outfits are displayed or change items in the outfits themselves.