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Enhancing Handbag Design Through Anti-Counterfeit Technology

Kylie R. Carroll

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Virginia Commonwealth University Honors

Introduction

In recent years, the presence of counterfeit goods has amassed a $600 billion global industry, encompassing markets ranging from designer luxury goods to pharmaceuticals. This increased counterfeit presence is a major threat to the high-end handbag market. In response to this increased threat, numerous designer brands have begun to adopt anti-counterfeit technologies with both track-and-trace and authentication agendas, to enhance the security of their products against counterfeit manufacturers. Product authentication anti-counterfeit solutions exist in the categories of overt and covert technologies.

- Extrinsic anti-counterfeit technologies, such as holograms, serve the purpose of authenticating a designer handbag through unique imagery when overtly applied to the product.
- Intrinsic anti-counterfeit technologies, such as microscopy solutions, are covert and non-invasive in nature, working in conjunction with a handheld detection device to determine the authenticity of the designer good.
- Track-and-trace solutions exist as an additional means of product authentication by tracking the product along the supply chain to verify its authenticity as it moves between manufacturer, distributer, and retailer.

Objective

To examine the efficacy of anti-counterfeit technology solutions for application in the high-end handbag market —including holograms, digital watermarks, and Radio Frequency Identification solutions— in order to propose a handbag design that uses anticounterfeit technology to enhance the design aesthetic.

Methods

- Complete a survey of different anti-counterfeit technologies.
- Assess the anti-counterfeit technologies available for use in the modern market for effectiveness based on security and authentication capabilities.
- Determine the most effective anti-counterfeit technology of those surveyed.
- Propose a design that incorporates that anti-counterfeit technology in a manner that advances both security and design agendas for a high-end leather handbag.

Analysis & Design Proposal

Increased Counterfeit Quality

Because of an exponential increase in quality of materials and production, many counterfeit high-end handbags are now nearly indiscernible from the authentic goods which they are replicating, resulting in the deception of consumers and damage to the original brand's goodwill.

- Julie Zerbo defines a brand's goodwill as "the abstract notion of luxury" that is associated with the brand.

Overt & Covert Anti-Counterfeit Technologies

Because of their visible nature and incorporation of imagery, overt anti-counterfeit methods hold the promise of serving both a security purpose and an aesthetically enhancing purpose. while covert methods do not.

- Ling Li identifies overt technologies as:
  - Holograms
  - Watermarks
- Ashlesh Sharma et al. identify microscopy as a covert technology
  - Microscopy uses microscopic images of the handbag's material composition to determine its authenticity

Radio Frequency Identification

Because of the ability to easily tamper with a Radio Frequency Identification (RFID) device, RFID track-and-trace technologies are not a highly secure method of protection against counterfeiting when applied as the soul anti-counterfeit solution to a designer handbag.

- S.H. Choi and C.H. Poon state that RFID devices are subject to tampering and virus attacks

Two-Part Authentication Solutions

Because of the incorporation of not one, but two different technologies, two-part authentication anti-counterfeit solutions, such as holograms and digital watermarks or RFID and watermarking technology, are the most secure. Such two-part authentication technologies significantly reduce the threat of the anti-counterfeit device being removed from the authentic handbag to be deceitfully incorporated in the counterfeit one.

- Sal D'Amato et al.'s invention embeds the covert technology of a digital watermark into the overt technology of a hologram
- S.L. Ting and Albert H. C. Tsang's invention authenticates a product by matching the information stored in a RFID chip to the information stored in a digital watermark

Hologram
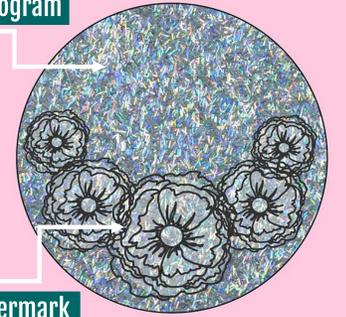
Digital Watermark

Using Anti-Counterfeit Technology to Enhance Design Aesthetic

Because of the emerging trend of incorporating both form and function into handbag design, a handbag that incorporates the security and authentication purpose of anti-counterfeit technology in a manner that visually enhances the design would be both appealing to the modern consumer and appropriate in combating the rising counterfeit industry.

- The 3 proposed designs employ D'Amato et al.'s digital watermark and hologram combination technology
  - The hologram is printed on a holographic foil which is adhered to the leather of the handbag
  - The digital watermark is embedded in the hologram as an image and stores authentication data that is read with a camera and detection software.

Design 1 **Design 2** **Design 3**

Conclusion

Because of increased security and authentication properties, two-part authentication anti-counterfeit solutions are the most effective in a high-end handbag application, in comparison to individually applied overt, covert, and Radio Frequency Identification technologies.

Further, a two-part authentication anti-counterfeit solution, such as the hologram and digital watermark combination proposed by D'Amato et al., is ideal for visually enhancing the design aesthetic of the handbag. Design that favors functionality has recently gained traction in the fashion industry and incorporating anti-counterfeit technology into handbag design in a visually enhancing manner is the ultimate method of furthering both form and function in a technologically advanced world.

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Acknowledgements

VCU
Honors College

Contact Information

Kylie Carroll
carrollkr@vcu.edu