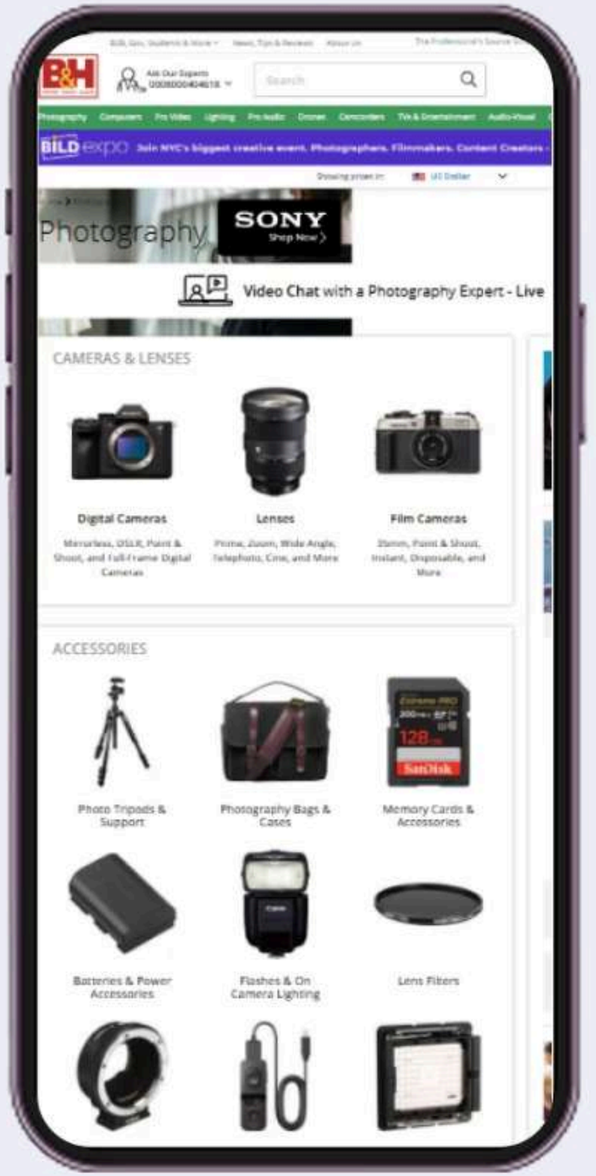
Autviz Solutions

Photography Lenses Data Management System

E-commerce & Retail

Data Management | Data Standardization | Lens Tracking System | Data Collection



PROJECT OVERVIEW

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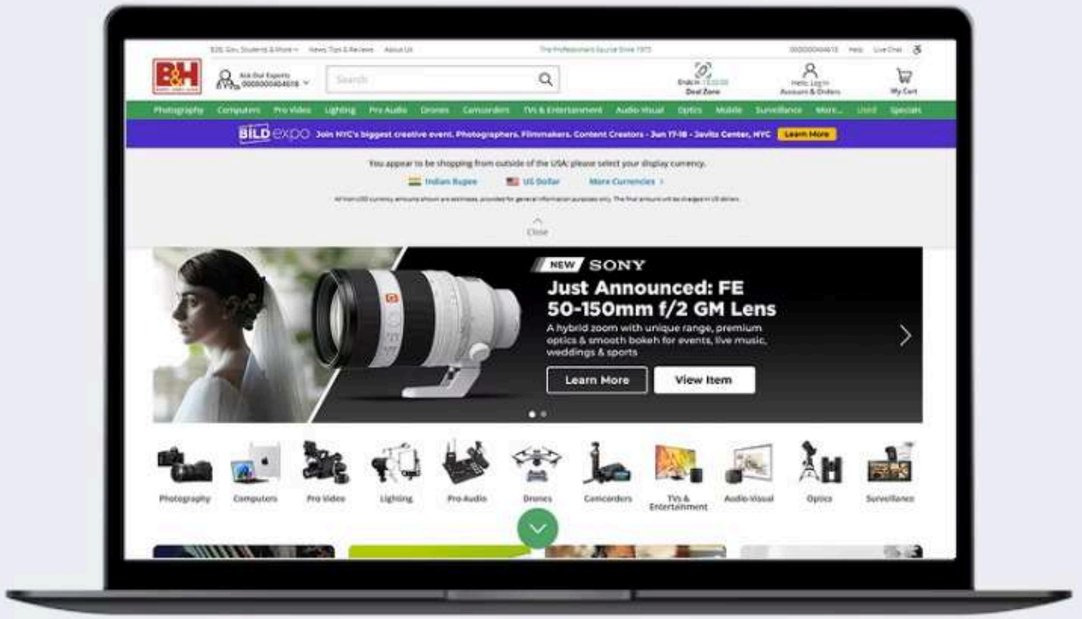
Developed an automated data management platform for **B&H Photo Video** to optimize the acquisition, processing, and structuring of **photography and cinema lens product data**. The solution ensures accurate specifications, unified reference identifiers, media asset handling, and smooth MongoDB integration for consistent, reliable data across collections.

CLIENT PROFILE

USA

500+ Employees

B&H Photo Video is a leading retailer specializing in photography and videography equipment. Managing an extensive catalogue of photography and cinema lenses, the company faced challenges in standardizing product data, ensuring accuracy, and automating manual processes. They sought a scalable data management solution to maintain consistency across their catalogue and improve operational efficiency.



REQUEST BACKGROUND

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The client struggled with a highly manual and time-consuming process for collecting and managing product data. The existing system lacked standardization, resulting in inconsistencies in product specifications, reference IDs, and file management.

Inconsistent Product Data

Lack of uniformity in specifications, naming conventions, and product categorization

Manual Processing Overload

Dependence on human intervention for data entry, increasing errors and inefficiencies

Inefficient File Management

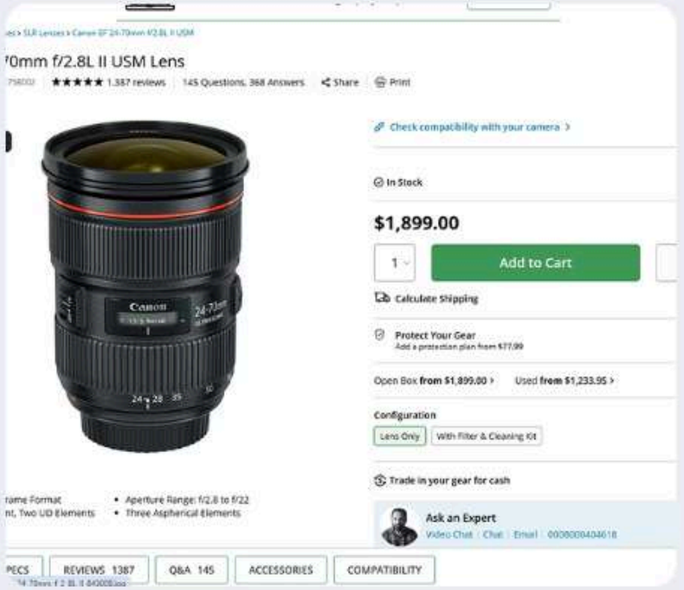
Unstructured handling of images and product documentation

Database Fragmentation

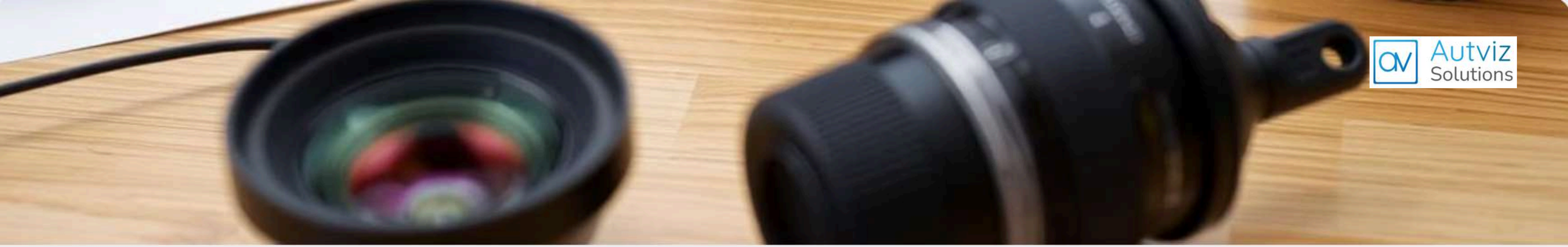
Poorly structured data storage, making it difficult to retrieve and update product details

Lack of Automation

No systematic approach for reference ID generation, data validation, or reporting



To overcome these inefficiencies, the client needed an automated data management system capable of handling large-scale product information, ensuring standardization, and integrating seamlessly with MongoDB.



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CHALLENGES

There are many challenges affecting businesses in the E-Commerce and retail Industry.

Data Collection Challenges

- Automating the extraction of product specifications, images, and documentation from the client's website
- Handling dynamic content, pagination, and network failures
- Bypassing website security measures, including CAPTCHA challenges and bot detection

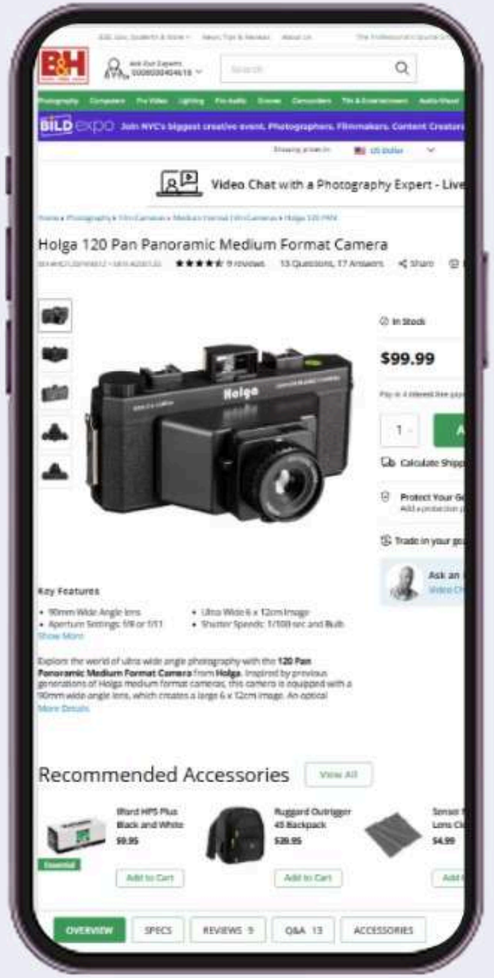
Technical Challenges

- Managing large volumes of product data efficiently
- Standardizing specifications and eliminating inconsistencies
- Generating unique, non-duplicated reference IDs
- Ensuring real-time database updates without performance bottlenecks

Business Challenges

- Meeting specific formatting and organizational requirements
- Ensuring accuracy and consistency in product sheets
- Maintaining data integrity across collections
- Enhancing searchability and accessibility of product information

GOALS



1. Automate data collection from the B&H Photo Video website
2. Implement a unique reference ID generation system
3. Standardize and structure product specifications
4. Organize and manage product images and documentation efficiently
5. Maintain data integrity across multiple MongoDB collections
6. Generate structured CSV reports for business intelligence
7. Develop a scalable system that accommodates future growth

SOLUTION

Automated Data Management System for Photography and Cinema Lenses

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Technology Stack

python

MongoDB.

TensorFlow

Selenium WebDriver

amazon S3

Duration & Resources

Time Taken: 4 months

Resources: 3 specialists

Key Implementations:

Automated Data Collection System

We developed an automated web scraping system utilizing Selenium WebDriver. This system efficiently handles dynamic content, pagination, and CAPTCHA challenges while ensuring seamless data extraction from the B&H website.

Reference ID Generation & Data Standardization

A structured reference ID system was implemented to uniquely identify photography and cinema lenses. The IDs follow a specific format: I-I-pl_XXXXX for photography lenses and I-I-cl_XXXXX for cinema lenses. This ensures consistency and prevents duplication.

Database Management & Batch Processing

The system integrates with MongoDB, enabling structured data storage across multiple collections. Batch processing was introduced, handling up to 1999 records per batch to optimize performance and reduce processing time.

Image & Document Processing

To manage product images efficiently, we integrated AWS S3 storage with automated downloading, verification, and format standardization. For document management, we implemented PDF processing capabilities, including file size optimization, format verification, and metadata extraction.

CSV Report Generation & Business Intelligence

The system generates structured CSV reports, including product specification sheets, image inventory reports, and document tracking sheets. The batch processing mechanism ensures timely and efficient report generation.

OUTCOMES

The Impressive Results of Data Management System

100%

Accuracy in reference ID generation, enabling Zero duplicate entries across collections.

95%

Reduction in manual intervention for data entry and management, because of Standardized specifications for thousands of products.

90%

Reduction in data processing time, as Automated error handling and data validation ensuring consistency.

CLIENT FEEDBACK

> *"Working with Autviz Solutions has been a game-changer for us. The new system has completely streamlined the way we handle product data. From automated processing to standardized reference IDs and a much more organized structure—it's made our workflow faster and more reliable. Their team really understood our needs and delivered exactly what we were looking for."*