Maximizing Ecommerce Efficiency with AI/ML

Overview

An ecommerce platform that specializes in selling electronic and photonics components online. The company was seeking ways to streamline their operations and enhance the customer experience using artificial intelligence and machine learning.

CUSTOMER

A company that sits at the intersection of innovation and customer service. With technology that enables a complete transformation and a culture that empowers big ideas, our exceptional team provides customers end-to-end fiber connectivity so they can focus on what matters.

Country: USA

Industry: Private Sector

Customer Size: 500 - 1000

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Problem Statement

The company needed to automate several processes such as order processing, inventory management, delivery route optimization, and supply and demand forecasting. In addition, they needed to personalize customer interactions and optimize their pricing strategy. The company also wanted to create a document processing system to reduce the complexity of paperwork.

Technical Solution

Red Buffer proposed an AI/ML solution to address the company's challenges. For search analytics, data analytics were used to trend what customers were searching for and place orders for the most frequently ordered items. Personalized search, messaging, offers, and campaigns were created for each customer type based on past interaction data. Customer lifetime value (LTV) calculations were automated using purchasing history data to auto-populate customer LTV and link with finance systems. The dynamic pricing feature checked inventory and priced orders higher to cover faster manufacturing and delivery time. Conversely, customers who ordered much in advance received discounts.

For customer engagement, conversational chatbots were created to help customers with product and configuration questions, selection, clarification, and missing order components. For order processing and fulfillment, conversational chatbots were used to take orders, update clients about manufacturing start and end, ship out and estimated delivery dates. The visual order validation feature used computer vision to detect and validate order status and prevent wrong order intake. Upon order intake completion, the system presented a computer-generated visual image of configured kits to validate that the order was correct. The delivery route optimization feature was used to come up with the most efficient routes for truck rolls on any given day provided delivery locations and truck loads.

Results

The AI/ML solution provided by Red Buffer allowed to streamline their operations and enhance the customer experience. The personalized search, messaging, offers, and campaigns created for each customer type based on past interaction data improved customer engagement and increased customer retention. The dynamic pricing feature optimized the pricing strategy, resulting in more revenue. The conversational chatbots reduced the workload of the customer service team and improved the customer experience. The document processing automation system saved thousands of man-hours. The supply and demand forecasting feature reduced idle stock and linked with financial systems to create cost and cash flow forecasting inputs. Finally, the energy use optimization feature reduced energy costs. Overall, they (the company) were able to operate at optimal efficiency, resulting in lower costs for customers, lower overheads for the business, higher resource utilization, and faster speed of outputs.
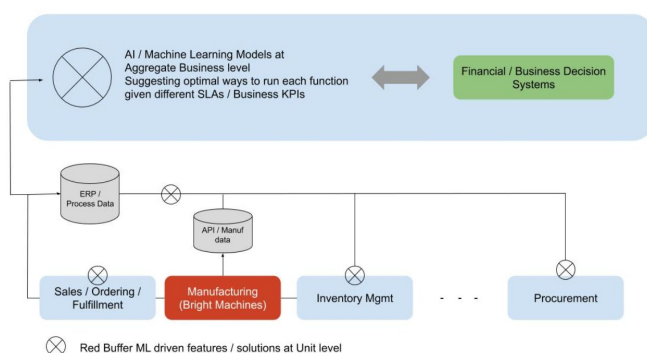
Technologies	Domain
Tabula, Python, CV, Regex	NLP, Text Extraction and Parsing