AI for Business

Exotics Hunter AI Solution

1. BUSINESS & PROBLEM UNDERSTANDING

Select a Local Business: Exotics Hunter is a high-end automotive dealership in Boca Raton, Florida, specializing in luxury and exotic car sales, maintenance, and customization. With a growing customer base and a focus on customer service, they regularly receive inquiries about service histories, vehicle compatibility, maintenance schedules, and upgrade recommendations. Exotics Hunter is a specialized dealership dealing in complex and often rare automobiles like Ferraris and motorcycles, featuring special listings such as “1 of 50 ever made,” “Low Delivery mileage,” or “$50k in options.”

Identify a Problem: These vehicles require a high level of nuance and detail to market and sell properly. Staff are overwhelmed with repetitive customer questions, many of which could be answered automatically. This slows down service time, reduces lead conversion rates, and burdens skilled employees with low-value tasks. In addition, slowed-down employees lead to fewer overall car sales.

Project Objective: The primary objective is to implement an AI-powered chatbot that can effectively handle common customer queries about vehicle service history, recommended maintenance schedules, and upgrade options. This chatbot will significantly improve online customer interactions by reducing the staff's workload and speeding up response time. It will not only improve the overall customer experience but also increase customer satisfaction, a key factor in Exotics Hunter's success.

What Can’t The AI Substitute For: Artificial Intelligence, while serving as a helpful tool within the front-end of Exotics Hunter user interface, also has limitations. As Professor Nosrati mentioned in class, we should focus on what cannot be compromised by AI and what limitations this software has. While providing a helpful chatbot to customers, we have to point out that the human touch is crucial in various ways, primarily when delivering the cars, giving tutorials on how to operate these complex machines, arranging transportation, modifying the vehicles, etc. At the same time, integrating Artificial Intelligence is a beneficial tactic for companies scaling their

operations and delegating their tasks/workloads. However, it's important to remember that this technology is still brand new and not without its risks, such as making mistakes, forming biases within the AI, and not learning from its mistakes, rather than through algorithms, especially throughout the Language Learning Models (LLMs).

Another contributing factor to what the AI cannot manage also comes from the complexity of the technology. At the same time, Exotics Hunter has access to resources due to the size of the dealer and the years of experience in the sector. Smaller dealerships and other competitors could find maintaining this software costly and inefficient towards long-term growth, as it limits their capital and resources moving forward. One factor we did not mention throughout the presentation however we believe also is a very crucial detail which cannot be overlooked with AI unless the resources are there to maintain this technology would be the loan-approval process, Exotics Hunter have their back-end to determine if a potential client can qualify for a loan with the bank before sending out their application to their contacts in the financial sector. As previously discussed in class, we would oftentimes refer to the loan-approval process within banks and talk about different methods and strategies for banks to mitigate risk with this software and make sure that their resources are being used appropriately and are not forming bias' within the algorithm in particular within key words, specific attributes or other factors which can determine if an individual(s) is qualified for a loan on a vehicle.

2. DATA STRATEGY

Data Sources: Our AI project will draw data from various sources, each serving a specific purpose. The CRM logs will provide client information, vehicle ownership history, and customer satisfaction metrics. Vehicle service records will offer a detailed maintenance and repair history, including service dates, service type, parts replaced or serviced, warranty plans, inspection reports, and cost information. The OEM (manufacturer) vehicle maintenance manuals will furnish us with manufacturer specifications and recommendations for maintenance, repair procedures, part specifications and compatibility, and troubleshooting guides. The FAQs and service

descriptions will explain the common issues and the service procedures related to those common issues. Chat logs will provide insights into customer service interactions. To collect all this data, we will extract the information from the CRM database, PDF praising from the OEM manuals, export customer service interactions, and API from existing service management platforms.

Data Requirements & Quality: For data type and formats, we need text data, time-series data, and structured data. Text data such as service descriptions, customer comments, FAQs, and OEM manuals. Time-series data such as service history, vehicle performance metrics, and part replacement cycles. Structured data such as vehicle information, for example: Make, model, year, VIN, mileage. Customer data, such as contact information, vehicle ownership, etc. Parts inventory, for example, stock keeping units, costs, availability, and compatibility.

The challenges with data quality we found are inconsistent vehicle naming, incomplete service records, temporal alignment issues, and issues with personally identifiable information. Our solution for inconsistent vehicle naming is implementing a standardized vehicle identification using VIN as the primary identifier with information on make, model, and year. For incomplete service records, we implement a process to capture any missing history during customer intakes. Temporal alignment issues can be solved through a standardized timestamp. A method will be implemented for the personally identifiable information to detect PII and mask all data sources.

A proposed data workflow we will implement is exporting all the data from CRMs and websites. Then, the data from the CRMs and websites will be standardized and normalized as structured data. We will quality-check the data for completeness and consistency, scan for outliers, and duplicate records. We will store all the structured data in relational databases and store the documents for manuals and references in files. Finally, access control should be ensured, and the results should be regularly updated and monitored as new data entities are added.

3. AI METHODS & MODEL APPROACH

AI Technique Chosen: We selected a rule-based decision tree with keyword intent classification as the AI model for the chatbot. This approach uses a structured flow of decision rules based on predefined keywords and user intents, paired with static responses linked to a known FAQ or service database.

Technical Justification: Unlike machine learning models that require data training, labeling, and validation, rule-based systems are deterministic and operate through simple conditional logic (“if keyword A is mentioned, show response X”). This makes them more transparent, predictable, and maintainable for small businesses. Since our business goal is to automate responses to frequently asked questions and streamline customer interactions, this model provides sufficient functionality without unnecessary complexity or cost.

Business Constraints and Fit: The current constraints are the lack of skills and limited IT workers. A rule-based decision tree allows for low maintenance, is quick to deploy, and is a low-cost AI solution that fixes these issues. A decision tree doesn’t require historical data; it stores structured input that is known. This reduces the risk of unexpected outputs from AI.

Training and Practical Use: The decision tree doesn’t require traditional training. The AI will be defined from user intent, such as scheduling an appointment or asking about price, and map them to static responses, creating a decision path. Trigger words are manually listed and updated. The system wouldn’t require much learning, which increases control and compliance with privacy.

Practical Insights for the Business: Though not an adaptive model, the chatbot can log keyword frequency and most accessed information. This usage data can help identify the most common customer questions, the service gaps, and opportunities for staff training or FAQ improvement. These insights generated by the chatbot can help improve overall service and reduce manual workload for employees over time.

Tooling & Feasibility

Recommended Platform: We recommend using Google Dialogflow (Free Tier).

Justification for Tool Choice: Dialogflow provides a visual UI for building rule-based or intent-driven bots, it allows for keyword-based matching and decision tree flows without requiring coding, it integrates easily with websites, mobile apps, and messaging platforms, and the free tier is sufficient for small businesses and supports up to thousands of interactions per month.

Why This Works for a Small Business: Given that the business does not have the resources for complex machine learning pipelines or cloud compute services like AWS SageMaker or Azure ML, Dialogflow offers a much simpler and more practical approach. It provides professional-grade tools while remaining accessible to non-technical users. If Dialogflow is not an option, simpler tools such as Tidio, Landbot, or even an Excel-based decision tree with prefilled responses can be used—although these offer less scalability and integration options.

4. RESOURCE REQUIREMENTS & IMPLEMENTATION PLAN

IMPLEMENTATION PLAN: Implement an AI-powered chatbot capable of addressing common customer questions about vehicle service history, recommended maintenance schedules, and upgrade options. The chatbot will reduce staff workload, speed up response time, and improve online customer interactions. When implementing these strategies, we have to take into account a variety of factors as follows:

Training Current Employees to Implement This Nuanced Technology: EH already has an IT Staff onboard, which regularly updates and manages their user interface/back end. Implementing the knowledge of this software and allocating their budget & resources towards AI integration as well as periodically monitoring and refreshing the AI daily, would initially cost them $50 a month to develop this software. After a three month trial-run it would cost $200. The initial startup costs for the pilot

would also cost $60, which in total would cost Exotics Hunter $310 to implement this new technology and to maintain it as well, as part of this software. Regular maintenance and further development of this technology allow for the opportunity for the team over at EH to delegate more tasks to artificial intelligence without worrying about privacy concerns or data breaches throughout the technology.

Usually, when integrating this technology, we would have to hire a full-stack developer, a Database Specialist, and a UI/UX Designer, depending on the size of the model and the cost-based analysis, which would correlate as well. In this case, EH already has an Information Technology Officer who specializes in organizing the Data Pipe; therefore, he could be taught how to integrate this technology or if they need to hire someone else to assist him. They would bring in an intern to help delegate tasks to who can help manage the workload and depending on their role in the position, as well as the growth aspect throughout the business. EH could most likely that individual(s) as well to work with them in the future.

Managing the AWS Cloud Infrastructure and FireBase would often cost, on average, between $5,000 and $6,000 a month, depending on the level of data used. However, as previously mentioned, this software would only cost $150 total on a three-month trial run basis.

Our Timeline is split in four phases, starting with phase one, which will be for planning and data collection. We expect this to take one week for us to collect all the necessary data, identify all common questions, build a comprehensive keyword map, and do a review and finalize the database. Phase two is implementation, which will take two to three weeks. By the end of first week we want to be subscribed to the selected chatbot platform, set up the decision tree with all the data we collected for any questions, and create response templates for those questions. The following week, we will connect the chatbot to the website, set up logic for handling inquiries, and create paths for complex questions. Phase three is testing and launching, which we expect to take one week. We will do an internal test first with the staff members, make changes

based on their feedback, select a few clients to test it out to fully launch it on the website. Phase four is monitoring and optimization, our team will do a weekly review of the chatbot analytics and find any gaps, make updates based on the feedback and gaps, and perform performance evaluation with the stakeholders. We will do phase four for two to three months to see how the chatbot is performing and if the company would like to continue with it.

5. KPI's & EVALUATION

In order to support the longevity of this software and the potential for scalability, EH would have to re-evaluate their KPIs and metrics to focus on long-term value proposition rather than the short term gain. After reviewing how much this technology would cost to integrate for EH, we were able to determine that it would cost around $30 a month and overtime the cost would go up depending on the scalability of the product and the data required to store and maintain this technology, after a 3 month trial run and upfront pilot cost. EH would have only spent $150 total towards a technology which they could use to delegate off their tasks and could potentially help them make tens of thousands, if not hundreds of thousands, in Annual Recurring Revenue (ARR).

Chatbot Answer Accuracy: We previously discussed how EH transacts in complex vehicles with certain features, oftentimes in their listings, you would see them coin the phrase " 1 of 50 ever made" "Delivery mileage" "$50k in options" etc. By ensuring Chatbot Answer Accuracy, we are mitigating risk and allocating their resources towards not just the technology itself, however the innovation of the Chatbot by having it learn more it's mistakes and further develop itself for a more tailored and personalized user experience therefore also providing that experience of buying a car from Exotics Hunter however through the Chat Bot therefore the staff would win as they would get to allocate their time & resources towards matters requiring the human touch and the customer would get all their questions answered through the use of the AI integration.

Handle At Least 65% Of Inquiries Without Human Intervention: The AI ChatBot could potentially handle at 65% of Inquiries from customers without Human Intervention. At the same time, EH values their customer experience and wants to tailor the approach to focus on more substantial tasks that they are unable to delegate off to the AI. Oftentimes, they do receive questions from customers such as “Could you tell me more about the car?” “What is the fair market value for the car” and “how do I know if the service records are valid?” The AI Chatbot could solve all of those issues without customers having to overwhelm the staff with a variety of different questions that they could ask the ChatBot for assistance with.

6. RISK ANALYSIS & ETHICAL CONSIDERATIONS

Potential Pitfalls: A few risks come with making this chatbot, the first being keyword misses. We planned on mitigating this issue with regular updates and adding fallback options. Another big pitfall is customer confusion, and we could minimize this by clearly stating that it's a basic support assistant. The next pitfall is staff resistance, and we could mitigate this by presenting data showing a reduced workload. The final pitfall that we would have to address is limited accuracy, and we could address this by limiting to informational responses, not complex diagnostics. We plan to address these issues more in-depth later in the report.

ETHICAL CONSIDERATIONS: The AI chatbot will follow important safety rules, like the Florida Information Protection Act (FIPA), to make sure people’s information stays private and protected. This means it will not ask for or collect any sensitive personal details, like your social security number, health information, or credit card number. Even if someone tries to type in private information, the chatbot won’t save it. It’s built to forget that kind of information immediately,so it can’t be misused or shared by mistake.

Also, the chatbot will always be honest with people. It will tell users they are talking to an AI assistant, not a real person. This way, everyone knows what to expect when they use it. The chatbot is made to be helpful, friendly, and respectful of your

privacy at all times. Following these rules and being clear with users, the chatbot keeps conversations safe, private, and easy to understand, even for kids.

Keyword Misses: As Ben emphasised throughout the presentation, when dealing with very nuanced and complex vehicles. The risk of the AI misspelling or making dramatic mistakes is relatively high, as these automobiles and motorcycles are often focused on their details rather than a broad and more general approach. When going through Exotics Hunter front-end and reviewing their listings, they often emphasize certain attributes of a majority of their cars. “ 1 of 50 ever made” “Delivery mileage” “$50k in options”, the AI may not be able to understand these factors and if a customer is interacting with the Chat Bot and the Chatbot is unable to understand the complexity of these details, it holds them back rather than push them forward towards further innovation.

Staff Resistance: The problem we identified within EH was that the staff overtime, became overwhelmed with repeated requests from customers they felt that they could delegate over to the ChatBot, these questions from customers have shown to slow down service time, reduces conversation rates on leads, and burdens skilled employees with low value tasks. While it’s crucial to serve the customers and provide the best service possible, the team over at EH feels that it would be more beneficial to allocate their focus elsewhere towards more complex matters which, as we previously mentioned, cannot be handled by the AI. Whether that be delivering a car, searching for new inventory, or focusing on the loan-approval process for their customers.

7. REFLECTION & NEXT STEPS

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transportation, modifying the vehicles etc. At the same time, integrating Artificial Intelligence is a beneficial tactic for companies to scale their operations and delegate their tasks/workloads. It's important to remember that this technology is still brand new therefore, it run's the risk of making mistakes, being temperamental, forming bias within the AI, and not learning from its mistakes, rather than through algorithms, especially throughout the Language Learning Models (LLMs).

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