

Approaches to an Information Gathering System Specified to Automobiles' Specifications

Behrad Farzadi ¹

¹Department of Knowledge and Information Science, Shahid Beheshti University, Tehran, Iran
behrawd@protonmail.com

Abstract

Having to deal with huge amounts of data and information nowadays, has been kind of an issue for some people. This problem becomes more bothering when one would have to handle it while trying to use different types of services. Buying an automobile is one of the eras that has provided us with so much information that often making the right decision, would take us hours because of the gigantic amount of information we have to manage and analyze only to choose one vehicle. New methods of solving such problems require us to pay attention to similar systems that solve similar issues in different fields. To solve the car choosing problem, we can learn from the information gathering and retrieval systems, recommender systems and information representation systems in libraries. By having given certain requirements to (budget-wise), and having certain types of information, the system would be able to help us find the most suitable car to purchase faster, and more efficiently. This paper does a review on approaches to such a system for car specifications. Even though the discussed system might not seem necessary for both the buyers and the dealers, proposing an acceptable design for the system would make a big change in the process of choosing and buying vehicles.

Keywords: *Information, Information Gathering, Information Retrieval, Automobile Specification.*

1 Introduction

Transportation has always been one of the most important aspects of life in every culture and every society. This has not changed in the communication era. Different ways of transport and methods of moving (air travel, road travel, sea travel and below the surface travel) have led to the development of organizations that provide transportation services. However, people still tend to choose private vehicles if possible.

Among all different ways of transportation, automobiles are the most popular; Also, they are the cheapest when it comes to owning a private one. The process of choosing

the right automobile requires enough information to compare models and base the decision on a logical conclusion. This information often cannot be accessed easily, therefore, buyers may not be sure and confident enough about their choice. To solve this problem, there should be an information gathering system, working on automobile specifications; brand and country popularity for example. A country name (e.g., Japanese name) produces positive value to brands originating from particular countries. Long-term popularity positively influences brands' short-term market shares and marketing effectiveness [2]. This research will tend to review approaches to such a system.

2 Automobiles and Information-Related Systems In Libraries

Automobile (car) is a four or more wheels transportation that have many benefits for humanity, one of which can carry passengers and stuffs [3]. An information Gathering system is a system by which the user can search or browse different types of information about a specific subject. Such a system is used in different institutions and companies. Also, libraries use this type of system in a more specific way. The data collected for management information purposes by libraries can form the basis for a strategic information system [4]. Some libraries can fulfill information needs of their users by working with such systems a lot. In the information era that we are living in, librarians should be able to answer and fulfill information needs of the users and people who use library systems. Reference librarians apply critical-thinking skills, emotional intelligence, teaching ability, and question analysis to connect the user with appropriate resources [5]. More importantly a "Reference Librarian" has to be an expert in answering information needs and questions nowadays. To be able to do their job faster and more efficient, librarians use Information Gathering Systems¹ alongside Information Retrieval Systems² and Information Management Systems³. Using all of the above and sometimes by developing a recommendation system, librarians will be able to answer almost any question and fulfill almost any information need of the user. Same approach can be used for information gathering of automobiles and cars. We can develop information retrieval systems and recommendation systems to retrieve automobile related information faster and more beneficially.

3 Information

Information exists in and is actually necessary for almost all professions, sciences, and cultures. With the accelerated development and increased impact of modern science and technology on society, the functions or effects of information on science and technology,

¹IGS

²IRS

³IMS

as well as society as a whole, is strengthening greatly. Therefore, information has been seen as an important and powerful force [6].

The word “information” has two main uses:

- a) Shannon’s use [7] refers to a syntactic measure of communicable signals that ignores what the signals refer to, and
- b) The everyday use [8] refers to semantic content that is about something that actually exists or could exist.

Information has become a very popular word since the 1950s. It is widely used in people’s daily life. It refers to messages, news, data, knowledge, documents, literature, intelligence, symbols, signs, hints, tips, and what is gathered by some special agencies [6]. To define the word information, we can have different approaches and there have been different definitions from different experts. However, in a simple explained way information is created when you add value to data. In any field of study, data is gathered and is cleansed; then it is managed and then one would retrieve different types of several data based on what they need. Then they review their data and would really think about it. Finally, they discover relations between different parts of the data. One would add this relational value to their data which will help understanding unknown aspects of the data they gathered. By knowing those aspects, they have created information. By thinking about this approach, we come to realize that information is not something to discover; yet it is something to create. Therefore, in an information gathering system or in an information retrieval system about vehicles, we don’t need to gather data; we need to gather information. and we are working with information not data that needs to be cleansed, needs to be worked on and managed to get the information out of.

4 Customer Problems

The problem of car buyers while trying to decide for the best choice is that there are lots of different parameters that should be considered before deciding. Most of the times, buyers have to choose only one car because of financial situations or different aspects that don’t let them decide freely and choose several vehicles. Also, because of the fact that different vehicles offer different options and features, different ranges of capacity and different types of services, it is really hard to choose only one automobile. You should keep in mind that different companies and car manufacturers represent different sorts of services and different classes of vehicles. As a matter of fact, to choose a specific vehicle, one has to know the amount of money they want to spend, what service they want to have, and also, they have to know which car manufacturers provide that type of service. It is important to note the fact that car manufacturers themselves will help you and provide you with important information that will help you to choose better what you want to purchase. Nevertheless, having an information gathering system that gathers car specifications will help you choose more efficiently and more precisely. We

should not forget the fact that cars are mostly daily used and people often spend a lot of time in it, therefore, it is really important to be precise while purchasing one.

5 Design of an IGS

Usually, information is acquired in a format that is only of restricted use [9]. Several factors are kept in mind while designing an information Gathering system; such as the energy required to retrieve the information that is needed, the time that should be spent to retrieve the information and the precision and relevance of the information that is retrieved. There are two main goals in designing such a system; one would be the gathering of information related to cars and vehicles' specifications and the other one would be to retrieve and represent the needed information for each individual buyer who is using the system. For the system to operate there might be a librarian or an information representing expert needed, otherwise the system can be designed in such a way that individual users can use them without any help of an expert; although there should be some manuals required for the user to learn how to use the system. The user should have three different information points ready before using the system:

- a) the budget
- b) the type of vehicle and
- c) the services that are required.

All different types of cars and models should be categorized in different ways so that the user can browse the specific category needed for them. Automobiles should be categorized in used and brand-new cars; they should be categorized by the manufacturer; they also should be categorized by their class and segment and platform. The system should be able to combine different categories into each other based on users' requests. For instance the system should be able to create a specific category for a user who needs a pickup truck and doesn't have enough money to buy a brand new one; therefore, the system should show a category of the segment of pickup trucks combined with the category of used cars; and based on the budget of the buyer different types of services in different manufacturers should be combined to the other two categories, and as a result there would be a used pickup truck manufactured by Ford or Chevrolet from 1990s category specifically for this individual user. He can also browse in different cars that have all those requirements in that category and see the best one based on the specific patent as provided by the system itself.

6 Information Provided by the System

In an ideal scenario the information provided by the system should include different aspects of vehicles and different types of specifications of different cars, categorized

in several ways that has been described. Plus, all the information should be reliable which means they should either be provided by the manufacturers themselves or there should be experts on the subject who are focused to deny any unrelated or unreliable information. Information for each individual vehicle should include at least:

- Brand (manufacturer)
- Model
- Production date
- Platform type
- Segment
- Engine specification
 - Power
 - Torque
 - Highest rev count
 - Capacity
 - Air intake type (naturally aspirated, turbocharged, supercharged)
 - Cylinder count
- Feature specification
 - Luxury features (massagers, cold and heated seats...)
 - Safety features (abs braking systems, airbags count and positions...)
 - Performance features (traction control, launch control...)
- Price tag
- Modifications (if available)
- Drivetrain⁴

Using such information, the user will have a clearer view of the choices they have. Providing enough information might be easy but providing such information with considerable amounts of reliability is not as simple as it sounds; only true car manufacturers are able to provide the system with such reliable information. Otherwise, we need professional experts on each individual brand to provide us with that information and to reference all the information so that the buyer would realize that they are reliable enough to use. However, some of the details and specifications are so well known to everyone that they would be reliable because of this fact.

⁴where the drive axels are located

7 Ethical Facts

Keeping in mind the fact that the system is specifically designed for car buyers to choose and decide the best automobile possible for their situation -in which they want to buy a vehicle- it is understandable that reliable information is pretty much necessary, for if misinformation or disinformation is provided to the user, they would buy a car using their whole budget and there would be other better options for them, which is not ethically or professionally correct.

Speaking of ethics, we should keep in mind the fact that not all car manufacturers are happy to give out the information to the public and to such systems to provide the users; for sometimes those companies charge individuals for that type of information or they want to have the executive right to guide buyers on deciding on what vehicle they want to purchase. So before adding any information to our system, we have to make sure that the provider of that information or the creator of that specific car, is happy with us sharing that information with our users; otherwise, we should get in touch with the company or the manufacturer and come to an agreement on either paying them for that information or not using their information at all. However, car manufacturers should keep in mind that information being spread out to the buyers all around the world who are using our information gathering system is actually a positive point for them; because they will be able to get well known to different customers who might not be familiar with their car models and our system provides those customers with such information. So, the company will be known in that area. In other words, by using this information gathering system and by providing it with the information that is needed, some car manufacturers might be expanding the areas where they sell automobiles in. Wang and others believe: “Satisfaction with popular cars, which is often lower than that for unpopular cars, declines at a faster (slower) rate than satisfaction with unpopular cars when they are higher-priced (lower-priced). Therefore, both price and popularity have important moderating effects on the relationship between satisfaction and customer experience level” [10].

To design information gathering systems for the specific subject of cars' specifications to help our customers choose the most suitable car, faster and more efficient, we can get help from the methods used in recommendation systems of libraries and information retrieval systems in those places. we can also be guided from reference librarians or information representation experts. Designing such a system requires the help of computer programmers and people who are familiar with the retrieval algorithms and also experts in managing information and data fields. Different perspectives of such systems should be under consideration of different experts.

8 Conclusion

Considering the fact that a lot of new car manufacturers have been in the game in the past few years alongside the old ones, there are thousands of car models that each

individual can purchase. Depending on the needs and the requirements of the customer, several different individual specific cars can be suggested to them. To choose in a faster and more efficient way between all these models an information gathering system which is focused on cars specifications could be really helpful to the customer. Although this might not look necessary but it is really beneficial to have a system that can figure out the most suitable car for you based on requirements and specifications you gave it. Since not so many people and not so many users will use the system, it has not been in the center of attention for the past decades so proposing a new system and the definition of its design would really help this subject and this group of individuals who seek such a platform.

References

- [1] A. Emadi, "Transportation 2.0," IEEE Power and Energy Magazine, 9(4), pp.18-29.
- [2] C. Koo Kim, "Brand popularity and country image in global competition: managerial implications" in Journal of Product & Brand Management, 4(5), pp.21-33.
- [3] G. Prabowol, M. Nasrun, R.A. Nugrahaeni, "Recommendations for car selection system using item-based collaborative filtering (CF).," IEEE International Conference on Signals and Systems (ICSigSys), Bandung, Indonesia, 2019, pp. 116-119.
- [4] R. Adams, "Strategic information systems and libraries.," Library Management, 16(1), pp.11-17.
- [5] D. Zabel, J. Wolfe, T. naylor, and J. Drueke, "The role of the academic reference librarian in the learning commons," in Reference & User Services Quarterly, 50(2), pp.108-113.
- [6] Z. Yuexiao, "Definitions and sciences of information.," Information Processing & Management, 24(4), pp.479-491.
- [7] C. Shannon, "A mathematical theory of communication.," Bell System Technical Journal. 27, 379-423 and 623-656.
- [8] A. Sloman, "What's information, for an organism or intelligent machine? How can a machine or organism mean?," in: Dodig-Crnkovic, G., Burgin, M. (Eds.), Information and Computation. World Scientific Publishing Co.
- [9] J. Chappell, ZP. Demery, V. Arriola-Rios, and A. Sloman, "How to build an information gathering and processing system: Lessons from naturally and artificially intelligent systems.," Behavioral Processes, vol. 89, no. 2, pp. 179-186.
- [10] J. Wang, J. Du, Y. Chiu, and J. Li, "Dynamic effects of customer experience levels on durable product satisfaction: Price and popularity moderation.," Electronic Commerce Research and Applications, 28, pp.16-29.

