Integrated AI Voice Assistant News Website for Enhancing User Experience – AI-ReadSmart

Mohammed Mohi Uddin
Institute of Computer Science and Digital Innovation, UCSI University, Cheras, 56000 Kuala Lumpur, Malaysia

Ghassan Saleh ALDharhani
Institute of Computer Science and Digital Innovation, UCSI University, Cheras, 56000 Kuala Lumpur, Malaysia

Kay Hooi Keoy
Center for Business Informatics and Industrial Management, UCSI Graduate Business School, UCSI University, Cheras, 56000 Kuala Lumpur, Malaysia

Chit Su Mon
School of Mathematical and Computer Sciences, Heriot-Watt University Malaysia, 62200 Putrajaya, Malaysia

Kasthuri Subaramaniam
Department of Decision Science, Faculty of Business and Economics, University of Malaya, 50603 Kuala Lumpur, Malaysia

Email: 1001957099@ucsiuniversity.edu.my, ghassan@ucsiuniversity.edu.my, alankeoy@gmail.com, c.mon@hw.ac.uk, s_kasthuri@um,edu.my

Abstract

The offline newspaper sector has been declining for years, and following the epidemic there were further decreases. To Assist Users With the complexity issue of the current online news sector, this study aims to develop a website that is beneficial to both users and the news sector. To ensure a seamless transition to online reading, research was conducted on the existing state of the online news sector. The survey used in this study allowed the researcher to understand how individuals feel about the state of the current online news sector as well as how they feel about voice integration on news websites.

Keywords: Covid-19, Online news, Voice assistant, Artificial intelligence

1. Introduction

In today's world internet has become one of the basic needs for everyone. Internet has transformed people's life in a positive way. An innovative approach to print media was influenced and created by the development of the internet. This encouraged the publication of online content by newspapers and other media. The news industry viewed this as an opportunity to increase revenue since it was the internet era, but there was a percentage of people that preferred to read on paper and did not switch to the online format until COVID-19 came into existence [2]. The use of newspapers was already on the verge of declining, and with the added impact of the COVID-19 outbreak, almost one-fourth of newspaper companies have faded [3].

Machine learning, which has been ingrained in our daily lives without our knowledge, must rank among the greatest technological advancements in recent years. supporting us in doing daily tasks and more [7]. People utilize machine learning and other artificial intelligence technology in one form or another, e.g., image recognition, speech recognition, advancements in healthcare, banking, and many more. Although machine learning has been around since the 1950s, its actual potential has just recently become known due to the tremendous growth in the amount of information that is currently available. Applications and services that are available today in the market are trying to improve their services through artificial intelligence and machine learning. The goal of this project is to support the digital news industry by incorporating a voice assistant into news websites to simplify navigation and improve the user experience as more people switch from traditional paper to digital media.

2. Literature Review

2.1. *The Evolution of Newspapers from Paper to Digital*

Today, technology has become a crucial component of human society. Before the invention of the internet, reporters were required to call in their reports or type them in the newsroom. Later, reporters sent it to their editors, after which the news was released. However,

© The 2025 International Conference on Artificial Life and Robotics (ICAROB2025), Feb.13-16, J:COM HorutoHall, Oita, Japan

modern technology enables such reporters to address stories from any location using a laptop or a smartphone [4]. enabling businesses to post breaking news on websites minutes after the incident had taken place. Compared to newspapers, which require the incident to be reported first and then printed on paper, this results in delaying the news to be published till the next day.

Digital content is persistent on the web. It cannot be removed from the web [5] [6] [8]. On the other hand, in a situation where the newspaper is lost or torn will require a new purchase of another newspaper. Digital information is far superior in this situation since readers can access news from any given date they pick. Digital content can also be accessed instantly anywhere in the world [7].

2.2. *Importance of News Companies*

The news industry, which is regarded as the go-to source for informing people of daily updates regarding the events taking place all around them, is one of a nation's most important services. An established and well-respected news agency serves as a domestic and international news source. It facilitates the distribution of information, including official alerts. Social awareness and any kind of threat can be simply communicated through a news article. One Article can rally support for causes that are financially out of reach for the average person. It is extremely essential because it briefly covers a variety of topics regarding international affairs [1] [12].

2.3. *What are Voice Assistants*

A voice assistant is a type of virtual assistant that may do tasks or offer services on someone else's behalf. Voice Assistants can help you with a wide range of tasks, from having a nice two-way conversation to guiding you through more challenging tasks like placing an online order for goods.

Voice assistants have been created by several companies, including Amazon Alexa, Google Assistant, and Microsoft Cortana. The true ability of an assistant comes from its potential to offer support, respond swiftly and accurately to a variety of inquiries, grasp context, speak many languages, communicate, and even manage other programs [8].

2.4. *Evolution of Voice Assistants over the Last Decade*

In 2011 Siri was launched as a mobile application, which Apple later purchases. An artificial voice assistant called Siri first appeared as an iPhone app. In 2010, Apple purchased the company and Siri after recognizing its potential. Since the iPhone 4S, Apple has included Siri as its voice assistant in all voice-capable products, including its current ecosystem of smart speakers and wearable devices. As a result of how quickly it spread via the iPhone, Siri was for many people the first voice assistant, and it went on to set standards for how voice assistants should operate [9].

Google Voice Search was introduced to the website in 2012. Although Google began experimenting with voice search on websites in the 2000s, it wasn't until 2012 that Google included a tiny microphone button for voice searches. Use of speech recognition technology by the powerful Google search engine marked a significant advancement for the sector. Although only Chrome browser supported voice search, a significant market suddenly had the chance to experiment with voice-based internet interaction [9].

2014 marked the debut of Microsoft's Cortana voice assistant. Microsoft's entry into the voice assistant business had a very promising start in 2014. In addition to Windows, Xbox, and other innovations from Microsoft, Cortana would also be included in devices created by other companies. However, Microsoft plans to stop offering Cortana's consumption services by the end of the decade and completely redesign it for use in enterprise-level projects [9].

Amazon's efforts to create consumer technology were overshadowed by its dominance in e-commerce and cloud computing until the company revealed a smart speaker with its voice assistant named after the Library of Alexandria. Alexa has surpassed Siri and Cortana in popularity since its debut in 2014, to the point where it is now widely used as a standard for voice assistants.

Google used all it had discovered from its voice app research to develop Google Assistant in 2016, which competes with Alexa for supremacy as a voice assistant option. In addition to offering many of the same features as Amazon's innovations, Google Assistant also has the added benefit of being linked with Google's larger digital environment, which includes Android phones [10] [11].

2.5. *Read Smart can help Address the Current Efficiency of the News Website*

Interactivity issues

With the use of the voice assistant and speech recognition, content can be accessed within seconds through the users' interaction with the voice assistant. The present systems are based on the users needing to navigate through each section of the complicated web page to find their desired content.

Multitasking

Because users spend too much time on the content, it prevents them from multitasking. In contrast, ReadSmart enables multitasking while working on other tasks. It will

also benefit those who have poor vision, such as those who need glasses to read (Table 1).

Table 1. Problems and Solutions provided for the current system

Problems (Existing)	Solutions (Proposed)
Complicated UI.	Simple and clean UI.
Hard to navigate directly to a category of news.	Can easily navigate to a category using Voice Assistant.
News is congested and spread all over the page	News Can be Searched According to Terms, Categories, or latest news, making it simple and less congested.
Cannot Multitask while navigating.	Can Multitask as the Voice Assistant will help read the headlines.

3. Methodology

This project employed a quantitative survey methodology so that data could be utilised to understand the users on their perception about the current websites and a user acceptance test along with a questionnaire is carried out to confirm that the Prototype is in a standard level for use.

As the project's primary requirements are set, ReadSmart will utilize the iterative model (Fig. 1) of the System Development Life Cycle (SDLC).

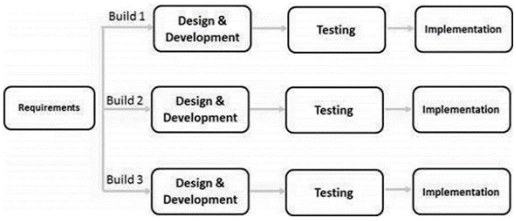

Fig. 1. Iterative model

3.1. *Implementation*

The implementation phase comes once the Design Phase is decided. The developers will need to pick a suitable programming language with adequate documentation, instructional videos, and a suitable community during this step. This will guarantee that the community will be there to support or resolve issues if the developer runs into any coding-related concerns.

At this stage of the project, the system's real construction starts. The analysis and design that were produced during the design stage will serve as the stage's guidelines. In this phase, every requirement, tactic, and design plan have been implemented and coded. The chosen design will be implemented by the developer using accepted coding and measurement standards. At this stage, the prototype will go through iterations to become a fully functional system. Depending on the project, the difficulty of the task and the length of time needed for this iteration will change.

For the Implementation Stage, the following deliverables shall be created.

- Website
- Source Code for Frontend and Backend

4. Results and Discussion

Since the development of e-reading, online reading has grown in popularity. All generations find reading articles, novels, or journals to be highly interesting. Even though people used to read before the rise of the internet, the findings indicate that most users preferred the new navigation system(prototype) over the previous one. The complexity was decreased, and the user interface was friendlier in the new proposed solution. When compared to current models on the market, it had proper functionalities and a cleaner appearance. Due to the large number of voice assistants on the market, firms ensure to offer adequate security, which itself is maintained for this project.

5. Conclusion

Finally, it can be said that the system was maintained throughout the project's developmental phases, which led to its effective development and execution of the project's main goals. The major goal was to research existing online news websites on the market before developing an AI-based news website to address issues with the current system. Studying current systems and literatures is a minor step toward overcoming a gap in the development of AI-based news websites. Both on the website and the phone, the prototype was successfully constructed and functions flawlessly. A superior outcome would also come from a more thorough analysis of the variables. The assistant can be into a wide range of additional applications in diverse types of fields. This study provides a framework for future academics to consider in the event of a comparable pandemic scenario affecting not only the newspaper sector but also other industries.

References

1. R. Mishra and P. Koundal, "Print and Online Newspapers: An Analysis of the News Content and Consumption Patterns of Readers," June 2020. [Online].
2. Preißner, S., Raasch, C., & Schweisfurth, T. (2024). When necessity is the mother of disruption: Users versus producers as sources of disruptive innovation. Journal of Product Innovation Management, 41(1), 62-85.
3. Hill, J. (2016). Newspapers in Decline. In The British Newspaper Industry: The Future of the Regional Press (pp. 69-79). London: Palgrave Macmillan UK.

4. Weber, M. S., & Mathews, N. (2024). Explicating local: An audience-based framing of local community and local news. Digital Journalism, 12(1), 28-47.
5. Tan, Y. R., Subaramaniam, K., & Kolandaisamy, R. (2023, July). Developing Interface Designs with Personality Types: Self-management Application–Luvlife. In International Conference on Human-Computer Interaction (pp. 74-89). Cham: Springer Nature Switzerland.
6. Chan, M., Lee, F. L., & Chen, H. T. (2024). Avoid or authenticate? A multilevel cross-country analysis of the roles of fake news concern and news fatigue on news avoidance and authentication. Digital Journalism, 12(3), 356-375.
7. Subaramaniam, K., Ern-Rong, J. L., & Palaniappan, S. (2021). Interface designs with personality types: an effective e-learning experience. EVERGREEN – Joint Journal of Novel Carbon Resources Sciences & Green Asia Strategy. Vol. 08, Issue 03, pp. 618-627.
8. Faruk, L. I. D., Babakerkhell, M. D., Mongkolnam, P., Chongsuphajaisiddhi, V., Funilkul, S., & Pal, D. (2024). A review of subjective scales measuring the user experience of voice assistants. IEEE Access.
9. Murad, C., Munteanu, C., Cowan, B. R., & Clark, L. (2019). Revolution or evolution? Speech interaction and HCI design guidelines. IEEE Pervasive Computing, 18(2), 33-45.
10. Rashid, A. B., & Kausik, A. K. (2024). AI revolutionizing industries worldwide: A comprehensive overview of its diverse applications. Hybrid Advances, 100277.
11. Jalil, A., Kolandaisamy, R., Subaramaniam, K., Kolandaisamy, I., & Khang, J. Q. G. (2020). Designing a mobile application to improve user's productivity on computer-based productivity software. Journal Of Advanced Research In Dynamical And Control Systems.
12. Sheresheva, M., Skakovskaya, L., Bryzgalova, E., Antonov-Ovseenko, A., & Shitikova, H. (2021). The print media convergence: overall trends and the COVID-19 pandemic impact. Journal of Risk and Financial Management, 14(8), 364.

Authors Introduction

Mr. Mohammed Mohi Uddin

He is currently an undergraduate student, pursuing his study in Bachelor of Science (Hons) in Computing from Institute of Computer Science and Digital Innovation (ICSDI) at UCSI University, Malaysia.

Dr. Ghassan Saleh ALDharhani

He is an assistant professor who is currently teaching at UCSI University. His research interests include cybersecurity, ethical hacking and machine learning. He is also the Head of Digital Innovation Department, a TTT Certified HRDF Trainer and Cyber Security Instructor,

Dr. Kay Hooi Keoy

He is an Associate Professor at UCSI Graduate Business School, UCSI University. He is holding the post of Deputy Dean and Centre for Business Informatics and Industrial Management at Graduate Business School. His extensive expertise encompasses a broad spectrum within the realms of business and management, with a specific focus on operations management, knowledge management, entrepreneurship, and sustainability..

Dr. Chit Su Mon

She is an Assistant Professor at the School of Mathematical and Computer Sciences and Programme Director of Studies at Heriot-Watt University Malaysia. She holds a PhD in Computing from Sunway University, completed in 2022. Her research interests include Human-Computer Interaction (HCI), Haptics, Assistive Technology, and Data Analytics.

Dr. Kasthuri Subaramaniam

She received her Bachelor's and Master's degrees in Computer Science from University of Malaya. She earned her Ph.D. in Informatics from Malaysia University of Science & Technology. Her research interests include human-computer interaction, human personality types, augmented reality, e-learning, mobile commerce and e-commerce.