

CHATBOT PROTOTYPE TRAINING USING DEEP LEARNING METHODS FOR TOURISM IN NORTH SUMATRA

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Abstract. Tourism is one of the foreign exchange industry that has significant potential for expansion. One notable province is North Sumatra, which boasts a plethora of captivating tourism destinations. Advertising and insufficient management systems for tourism information are hindering the expansion of the tourism business. The younger generation lacks a significant comprehension of artificial intelligence and its utilization in *Chatbots* and support services. A *Chatbot* is a program designed to engage in conversations on your behalf. Consequently, the design and deployment of deep-learning *Chatbots* necessitate teaching. This non-profit initiative aimed to tackle the issue by providing direction, examples, and practical training on tourist *Chatbot* prototypes specifically from North Sumatra. The PKM curriculum offers teaching in marketing methods, specifically focusing on tourist information management systems. 2) Education on the core concepts of artificial intelligence, specifically focusing on *Chatbots*. 3) Training in deep learning for constructing *Chatbots*; 4) Training in using the *Chatbot* application. The purpose of this activity is to increase public knowledge and usage of *Chatbot* applications for obtaining information about tourism destinations in the province of North Sumatra, in order to raise awareness among tourists.

Keywords: PKM, *Chatbots*, Tourism.

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1. Introduction

According to Augustiningrum and Rahmawati (2019), Tourism is an industry that produces revenue from foreign currency and has significant potential for expansion. Tourism is an integral part of modern society (Abidjulu, 2015). Tourism growth is influenced by several variables, such as the presence of tourist destinations, their scenic attractiveness, and the unique cultures and traditions of the local population. Nonetheless, the expansion of tourism in the region is significantly reliant on human resources, management systems, and expertise. Effective management, skilled personnel, and easily accessible and reliable tourist information are key factors in enhancing the growth of tourism potential. The outcomes have a positive impact on the economic development and social welfare of the region.

Tourism growth is influenced by several elements, such as population density, natural beauty, and the unique habits and cultures of the residents. Nevertheless, the progress of tourism in a particular area is greatly contingent upon the availability and quality of human resources, the effectiveness of management strategies, and the accessibility of information. Quality human resources, good management, and freely accessible tourism information are essential for the optimal development of tourism potentials. The results will have a positive impact on increasing local revenue and societal well-being.

Inadequate information management and advertising are hindering the expansion of the tourism

industry. Consequently, the place of interest remains rather obscure and has not yet gained popularity as a tourist destination. The rapid expansion of the computer information technology industry has caused significant changes in various aspects of human life. Artificial intelligence is a recent technological innovation. *Chatbots* exemplify how artificial intelligence empowers computers to perform specific tasks traditionally done by people (Syahputra, 2019). Computer chat software enables users to engage in conversations while simultaneously editing.

Artificial intelligence (AI) Chatbots are employed to enable direct communication between individuals and other technologies, eliminating the need for human intervention. A *Chatbot* is a software application designed for the purpose of communication, distinct from a physical robot. *Chatbots* are akin to answering machines. However, the chat does not support phone calls; instead, it only allows text communication. As stated by Suryani and Amalia (2017), *Chatbots* have the ability to engage in conversations and fulfill requests from individuals.

The service team plans to develop a North Sumatra tourist application by analyzing the structure and functionality of the existing North Sumatra tourist service website. The younger generation lacks sufficient knowledge and competence regarding the utilization of artificial intelligence in *Chatbots* as a consultation service. Consequently, it is imperative to initiate the implementation of *Chatbots* that utilize deep learning techniques and conduct training exercises. This service program aims to execute information technology standards for tourist sites in North Sumatra Province with precision and effectiveness. Its primary goal is to foster the expansion of knowledge and awareness about tourism technology.

The objective of the service is to develop an application that may be used as a support service, based on the given specifications. Program users can effortlessly engage in human-like conversations while the system provides automatic responses. The intended result of this guidance and instruction is to enable high school students, specifically, to effectively utilize Chatbots that provide responses to inquiries regarding tourism in North Sumatra. This will offer visitors a wider range of choices for acquiring information about potential tourist destinations within the province of North Sumatra.

2. Method

This collaboration is carried out within the community using a diverse range of methods, including lectures, group discussions, and fieldwork. These tactics are used to tackle the issue because they are suitable considering the circumstances of the partnership. The process for conducting service activities related to tourism in North Sumatra involves utilizing the deep learning technique through training a *Chatbot* prototype.

1) Preparation Stage

Understanding the principles behind marketing campaigns and computerized tourism management systems, especially in relation to *Chatbots*, is the initial step in this phase. Discussions persisted following the conclusion of the show..

2) Implementation Stage

After that, instructions and guidelines for making *Chatbots* to help North Sumatra's tourist spots were given. A conversation followed the presentation. After that, you will receive guidance and materials to build *Chatbots* that can assist visitors to North Sumatra's tourist spots. Educate those in your network about the significance of staying abreast of technological and informational developments in the field of tourism computer-based information technology management, with a focus on high school students and younger generations. There was also a presentation on the basics of using Chatbot prototypes.

3) Evaluation Stage

The community service group keeps an eye on things and determines if the coding software still has any mistakes or incorrect results at this point. We take user reports of problems very seriously and update and maintain the implemented program often. In the penultimate step of the approach, which involves analyzing the execution of community service activities, the results of this evaluation can be used as a benchmark to compare.

3. Results and Discussion

This event took place in SMA Negeri 7 Binjai, Jl. Sawi Kelurahan No. 48, Paya Roba, Kec. Binjai Bar., The City of Binjai, North Sumatra 20718. The executive team is not the only one that shows up to this event. Here are the results of this task:

1) Preparation Stage

The preliminary stage for conducting *Chatbot* prototype training sessions has been finished by generating the content and application design. This phase include the establishment of service sites, the development of administrative and transportation arrangements, the formulation of manufacturing techniques, and the implementation of any required application features. At this stage, the coding process is also executed in alignment with the established design. Figure 1 depicts a coding interface.

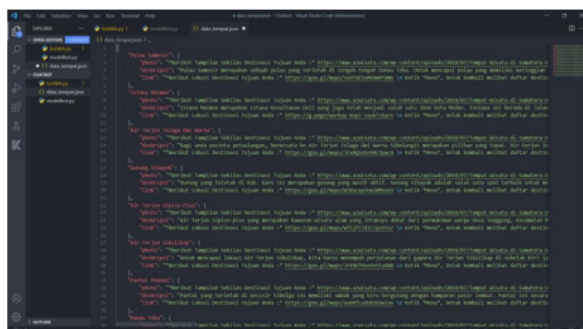


Fig. 1. Program code in the data_place.json file.

Upon initial entry into the BotFather chat, you will have the opportunity to commence by selecting "Start". Upon selecting the option, the bot will provide a detailed explanation of its functioning. Figure 2 depicts the interface of the BotFather conversation.

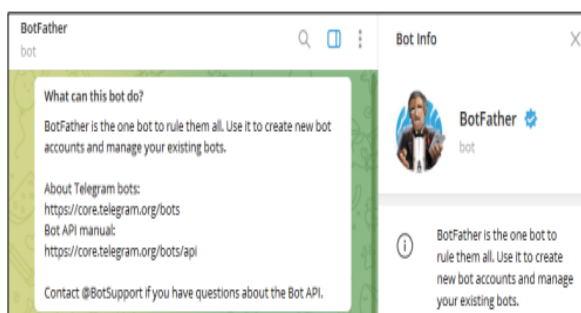


Fig. 2. Enter Chat BotFather.

2) Implementation Stage

At this level of implementation, responsibilities such as providing information regarding the development of *Chatbot* prototypes for tourist destinations and deploying these prototypes as help desks are being done.

The presentation of the *Chatbot* prototype concept and the objective of this community service were explained at the presentation of the *Chatbot* prototype idea. Specifically, in the context of *Chatbots*, provide partners with theoretical expertise regarding promotion tactics and computer-based management of information technology systems for the tourism business.

Subsequently, the training participants actively engage in the development phase of the *Chatbot* prototype, tailored to their level of technical expertise and skill. Upon the initial use of the *Chatbot*, the primary screen design is displayed. This view contains a text box for user input, a send button, a program description, and a text area for displaying talks between the user and the *Chatbot*. Figure 4 illustrates the Bot prototype that is being created.

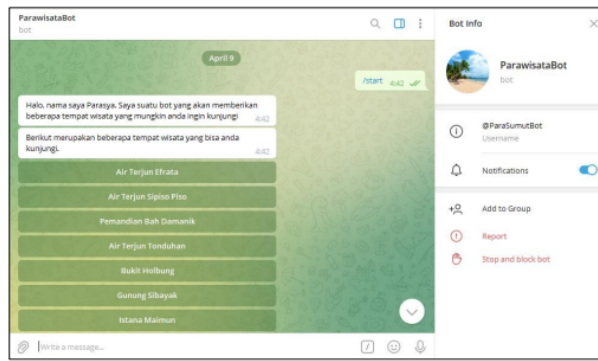


Fig. 3. View of the Bot that has been created.

This is the result screen that shows up when you press the send button. This display now includes both question and response fields for the user. Viewers can return to the tour options by selecting the "Back to Menu" or "Sipiso Piso Waterfall" buttons, as seen in Figures 4 and 5, respectively.

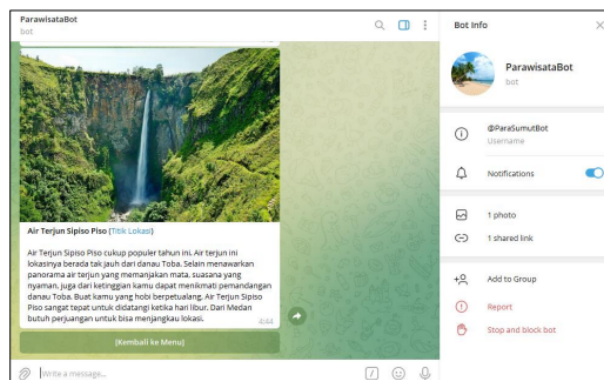


Fig. 4. Display of the "Sipiso Piso Waterfall" option.

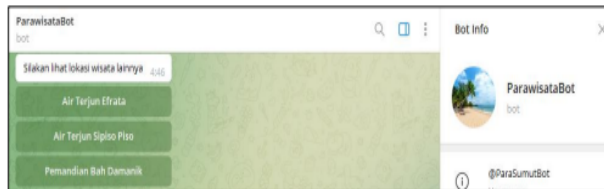


Fig. 5. Display of the "Return to Menu" Option.

3) Evaluation Stage

The results of the evaluation are utilized in order to determine how effectively the *Chatbot* program that has been built is functioning. During this step of the review process, members of the team also conducted visits to check on the application's capability to run and to make certain that it does so in an appropriate manner and in accordance with the specific role that it was designed to play. This is a description of the outcomes that were achieved through the service program: 1. The persons who are participating in this training are demonstrating an increasing level of comprehension and enthusiasm regarding promotional patterns and tourism systems for information management. This is especially true with regard to the principles of *Chatbot* artificial intelligence, as indicated by the interactive participants in this training. 2. In the process of developing *Chatbots* using a deep learning approach, the amount of expertise and technological talent that is required continues to increase. 3. The amount of knowledge and technological expertise that is necessary to operate the *Chatbot* program is demonstrated by the simplicity with which users are able to use it. 4. The fact that the *Chatbot* program is still being used today demonstrates how useful it has been as a resource for gaining knowledge about tourism destinations in the province of North Sumatra.

4. Conclusion

The activities conducted suggest that partners, especially the younger generation, find it highly beneficial. They not only learn about advertisement patterns and computer program management of information technology systems for tourism, but also find it useful to implement and integrate *Chatbots* that can answer questions about tourism in North Sumatra. This provides tourists with more options to access information.

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