

Application for Communication between Volunteers and Seniors

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Abstract

The Moudrá Síť web app aims to increase the digital literacy of seniors. Thanks to this web service, seniors will get individual help from digital assistants (voluntary IT specialists) on how to use digital and information technologies correctly and safely. The application provides an interface for asking questions about digital technologies. One of the assistants will then arrange a face-to-face or online meeting with the senior to solve the problem. More advanced users can ask a chatbot about their problems. Chatbot provides easy-to-understand solutions to frequently asked questions. The app is developed with technologies tailored to the situation described - a simple GUI in WordPress for administrators, a user-accessible customer relationship management database in Tabidoo for digital assistants, a form for submitting queries, and user accounts in Next.js that provide server-less functionality for interacting with the database. It is also an interesting comparison between two chatbot solutions - the first based on its knowledge base and the second using the ChatGPT neural network.

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1. Introduction

Download WhatsApp, update a mobile app, or install an operating system? While for the younger generation, the use of digital technology and social networking daily is a very natural part of life, there is a large group of people in our society for whom this is not quite the case. This group is seniors.

The Moudrá Síť app aims to increase the digital literacy of seniors and to reduce the feeling of loneliness that could come from their struggles to participate in the digital world. The app connects seniors and digital assistants through a web application form where seniors can share a technical problem with their smart devices. The form is presented in Figure 2. A digital assistant near the senior's home takes the request and solves the problem online or by arranging a face-to-face meeting. In addition, more advanced users can get help from a built-in chatbot[1] to answer frequently occurring issues.

2. Implementation

The web application is based on two main parts. A static part, presented in Figure 1, was created in WordPress using Divi framework running on Wedos

web hosting. The second part is created in Next.js full-stack framework running on Vercel[2] cloud service. The advantage of this solution is a simpler interface and management in WordPress by regular non-IT administrators, including writing blog articles or drag-and-drop editing of individual parts of the website. On the other hand, the part developed in Next.js allows better management of user accounts, authentication, API communication, or serverless functions. The database model is built in the customer relationship management system Tabidoo[3] presented in Figure 3. It is a so-called Low-Code/No-Code platform that offers a special environment with its own GUI for development without the need for code-level programming. Vercel allows automatic deployments on every branch pushed on GitHub. It is also possible to easily get back to previous version very quickly. This provides significant flexibility, in addition to excellent scalability and minimal downtime.

For seniors, web accessibility is important, especially in terms of the graphical user interface of the website emphasis is placed on adjustable font and button sizes, higher colour contrasts, images with alt text and some other recommendations from WCAG standart[4].

3. Chatbots

Two chatbots were implemented for a project. For the first solution, Google's Dialogflow[5] tool was used. The chatbot was trained on 100 queries to which it provides simple instructions to solve the problem. In Figure 4 is presented a GUI of the chatbot which allows the user to choose between buttons with options and technologies that can be answered. The answers provided are correctly described but it has a limited knowledge base. As the second solution presented in Figure 5, I used the ChatGPT[6] neural network from OpenAI to solve a problem given by a senior. It provides complex answers and possibly can answer every question. On the other hand, it can create non-correct and fictional replies. This could be a problem because the trust of seniors in all digital technologies is very fragile. OpenAI offers a free trial license with only 5\$ dollars for using neural network. This was a limitation and also motivation to make my chatbot using DialogFlow which has offer a 300\$ license for free.

4. Conclusions

Currently, the work is in the process of testing chatbots, seniors are asking the first questions and user accounts for seniors and digital assistants are being developed. This work is helping the non-profit organization Moudrá Síť, which launched the project as part of the Česko.Digital[7] platform and started pilot testing in Prague in March 2023. This year, the organization plans to recruit 50 digital assistants, volunteers mainly from among high school students, and ensure the functionality of the service in selected areas in the Czech Republic. The goal in 2030 is to have 6,000 assistants helping across the country and handling up to 500,000 queries from seniors. Moudrá Síť wants to provide every senior citizen with a digital assistant at their place of residence, who helps them humanely and patiently with their digital devices. Currently, about 10 seniors have used the service and more requests are coming in every week.

References

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