Master Theses

Implementation of a Natural Language Processing Interface in the role of a Customer Support System and Agent

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The goal of the thesis was to implement a prototype dialog system that is used as an information retrieval and customer support system for the company smaXtec. The prototype is used to determine if it is possible to create a dialog system that could integrate into the existing customer support communication channel and aid customers with their daily tasks. These tasks include finding answers to specific questions or retrieving relevant information from the systems knowledge base while reducing the workload of employees. Besides finding out if the Chat Agent System can replace the old smaXtec system, it was important to find out if the users would like to continue to use the new Chat Agent System. Determining how the users felt and which emotions did they experience while using the Chat Agent System was an important aspect of the thesis. The implemented prototype system can receive user input via a chat user interface, interpreter the user request, which is in English natural language and provides an answer to the user query. The interpretation of the user request is done twofold. At first, the user request is analyzed using natural language analysis and the result of the analysis is used to retrieve information. Then this information is formatted and presented to the user.

To evaluate the Chat Agent System it was necessary to design and conduct a user survey. The user survey was conducted in the headquarters of the company smaXtec with fifteen participants of whom ten were employees of the company and five were students from the Graz University of Technology. At the beginning of the study the participants were introduced to Dialog Systems and the purpose of the new Chat Agent System, afterward they were given five tasks to execute with the use of the old smaXtec system and the new Chat Agent System. These tasks included tasks in the area of information search, information retrieval and tasks related to frequently asked questions. After the execution of the tasks, the system was evaluated using standard scales like the Computer Emotion Scale (CES) and the System Usability Scale (SUS). The results of the CES showed that the participants felt the emotion of Happiness during the usage of the Chat Agent System. On average the result of the System Usability Scale (SUS) produced a value of 78.66 points. While using the Chat Agent System the participants interacted on average 11.06 times with the chatbot to find information on preselected tasks. The user feedback on the prototype system had positive sentiment, with users stating that they would like to continue to use the Chat Agent System.