Chat2Doc: From Chats to How-to Instructions, FAQ, and Reports

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Motivation

• existing messaging apps well-suited for communicating and sharing content on-the-go
• difficult to find and retrieve content
• limited screen sizes and potentially many comments
• questions unanswered/important information forgotten
• not possible to mark important elements or answers to questions directly in the chat
Motivation

• knowledge is generated while chatting over time
• difficult to extract most relevant content from a chat and organize it for future use like How-to instructions, FAQ, or printable reports from existing collections of group knowledge
• collect, store, and extract procedural knowledge from messaging interactions
Approach - Chat2Doc

collaborative and automatic **generation** of navigable **multimedia documents** that organize procedural knowledge extracted **from routine multimedia chat** data from small task-oriented groups

• helpful tool for smaller task oriented groups
  • solving problems
  • repeated issues
  • discussions about topics lead to solution for the future
  • hard to find information at a later time in chat
  • it can be helpful to extract the generated knowledge for future use as problems and tasks may reappear
Challenges

• knowledge and content stays (rather) unconnected

• allow easy organization and reuse of existing knowledge in How-to instructions, FAQs, or printable reports

• use of multimedia is key

• knowledge needs to be rearranged, edited, and extended

• generate documents to target different user groups, such as beginners vs. experts or patients vs. doctors, creating even more complex hypermedia structures
Research Questions

• Extended chat:
  • Which features can help small task-oriented groups?
  • How can chats be structured to avoid a mix of topics?

• Document generation:
  • How can knowledge that was collected in group chat be transformed into a multimedia document?
  • How can users be supported in extending captured media?
  • How can media existing in the WWW be integrated?
  • How can a multimedia document be extended for different user groups/scenarios?

• Presentation engine with viewer:
  • What contents should be displayed in the resulting playback for a certain user?
  • How much user interaction is desired/necessary?
System Overview
Extended Multimedia Chat Application

Features
• Questions start thread-like structure
• Notes
• To-Dos/Tasks appear in to-do list
• Message to future
• Time- and location-based reminder
• Group calendar
• Mark messages important/“liked”
• Search for word or media in chat

GUI Elements
• dialog may open, where user can input additional information
• created element
  • marked in chat
  • shown on extended start/overview screen
• element can be sent to
  • whole group
  • a part of the group
  • a single group member
Extended Chat - Interfaces
System Overview
Document Generator

- additional annotation level for chat by special elements
- annotations hint on importance
- transform information from chat into more readable form:
  - User-guided:
    - select chat elements with selection tool
    - rearrange, edit, and merge elements; add new elements from local file system or Web
    - apply formatting; export document
  - Semi-automated:
    - make suggestions which may then be altered by user
    - automatic text cleaning and merging of messages
    - suggestions for more materials from Web
  - Automated:
    - learns from both other modes
System Overview
Multimedia Document Presentation Engine

• display all types of media
• viewer adapts to playback device and user characteristics
• filtering and adaptation
• elements for navigation
  • skip parts
  • select parts with more or less information
• allow users to extend multimedia document missing/wrong information
• enable passive viewers to become collaborating authors
• peer reviewing and voting of content to ensure good quality of newly added information
Conclusions

• combine easy-to-use interface of chat app with knowledge extraction system to create multimedia documents
• store and edit content as How-To Instructions, FAQs, or reports
• collect, store, and automatically extract knowledge
• extended chat interface and additional functions
• hypermedia documents compose information and provide adaptation capabilities using the underlying hyperlink structure

• work in progress
  • user tests and the usage of the system
  • which features are used, how, and for what
  • collecting enough knowledge for training automated mode
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