

Figure 8. Rainforest learning model [8]

It doesn't matter which service to choose for summarization. But one of the most convenient services — ReText.AI. ReText.AI's summarization feature can help shorten text content while preserving its meaning. It can create shorter descriptions or summaries, simplify complex information for easier comprehension, and adapt the text to social networks, saving authors time and increasing productivity.

### III. PROPOSED APPROACH

The purpose of the work is to expand the functionality, increase the possibilities, ways of using the meeting protocol, find the best solution and optimize the process of finding errors and inaccuracies of the result. One of the options for achieving the goals mentioned above is integration with OSTIS Technology. This way the meeting is presented in the knowledge base, its specification necessarily includes information about the participants, the start and end time of the meeting, the topic of the meeting, as well as an audio recording of the meeting is stored in the form of an ostis-system file.

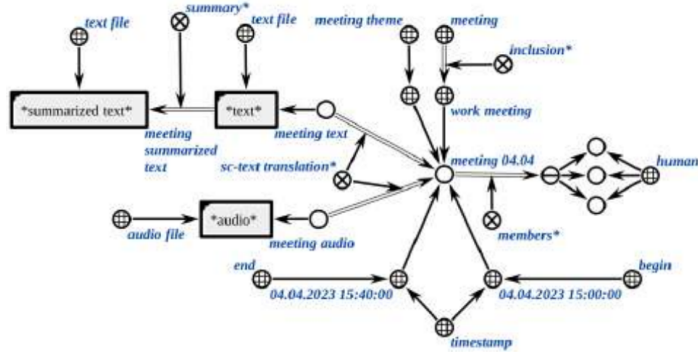


Figure 9. Text format of the meeting recording in SCg

To solve the problem under consideration, the OSTIS-system problem solver applied a strategy for decomposing the problem into subtasks. Further, problem solver analyzed that for summarization it is necessary to obtain a natural-language representation of the meeting in a text format and then use a summarization agent for it. Therefore, the speech-to-text translation agent is called.

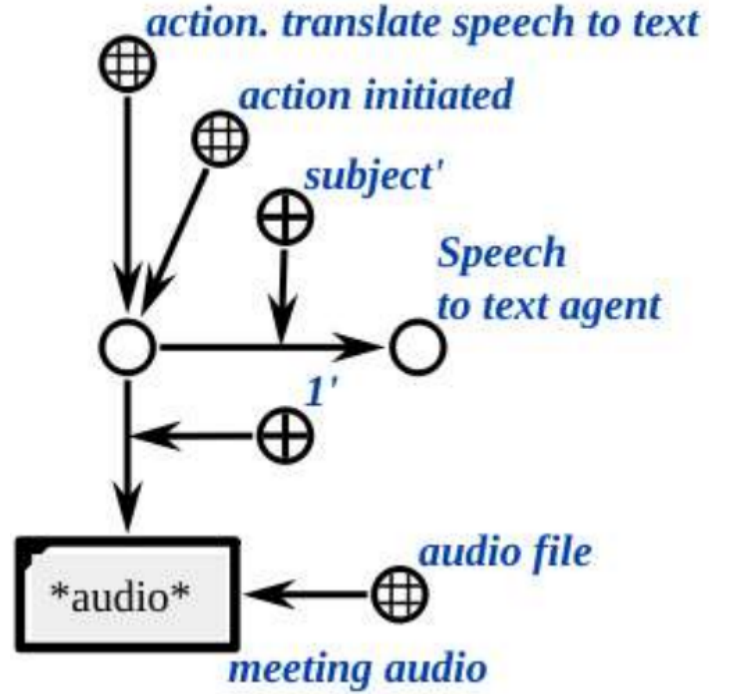


Figure 10. Speech-to-text translation agent input

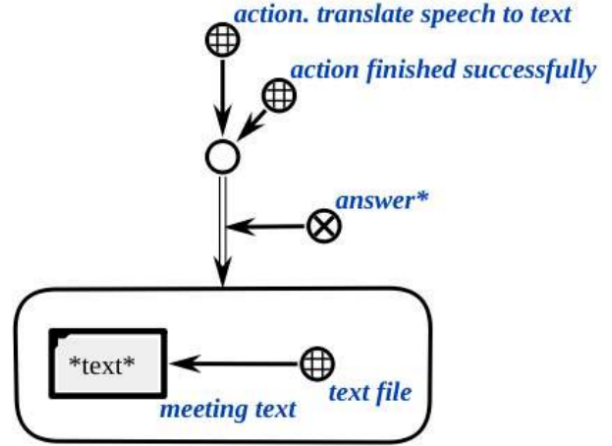


Figure 11. Speech-to-text translation agent output

The audio recording of the meeting is transcribed into a text format using the Whisper service. Next, a structure is formed in the knowledge base that connects the same meeting sign with its different external representations, that is, audio and text. Thus, from the audio format at the input, a text format at the output is obtained. Thus, the task of transcription is solved. Further, to obtain the minutes of meetings, it is necessary to solve the summarization problem. To do this, the summarization agent is called. Summarization agent is the code that accesses the service and immerses its response into the knowledge base of the OSTIS system. The input for the service is also taken from the knowledge base, that is, the input is the result of solving the task of transcribing using the Whisper service and translating the audio recording of the meeting into the text format.

The text received from the audio recording is fed to the

input of the summarization agent. And the result of the agent's work is a text reduced to the specified number of words. Which, at the same time, retains its meaning.

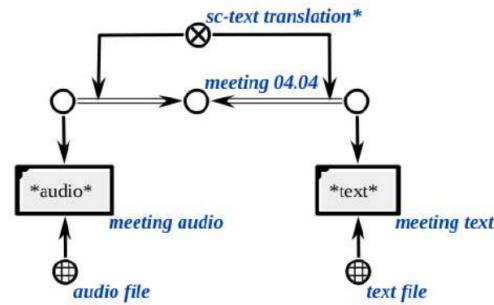


Figure 12. Speech-to-text translation agent

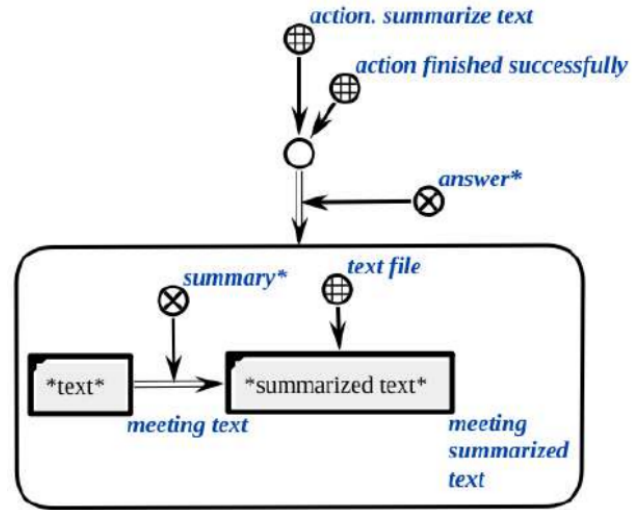


Figure 14. Summarization agent output

overall user experience by allowing humans to interact with technology in a more natural way. NLP agents typically involve a combination of several components, including speech recognition, natural language understanding, natural language generation, and dialogue management. These components work together to enable the agent to understand and respond to human language input in a meaningful way. Everything that is developed using OSTIS technology should be presented, first of all, in the form of knowledge base constructions, that is, described in SC-code. Including the meaning of the text and sound. And only then, in order to display the already processed information to the user, a natural language interface is used, that is, NLP. The text-to-speech translation agent is a classic NLP task, as is text-to-speech translation.

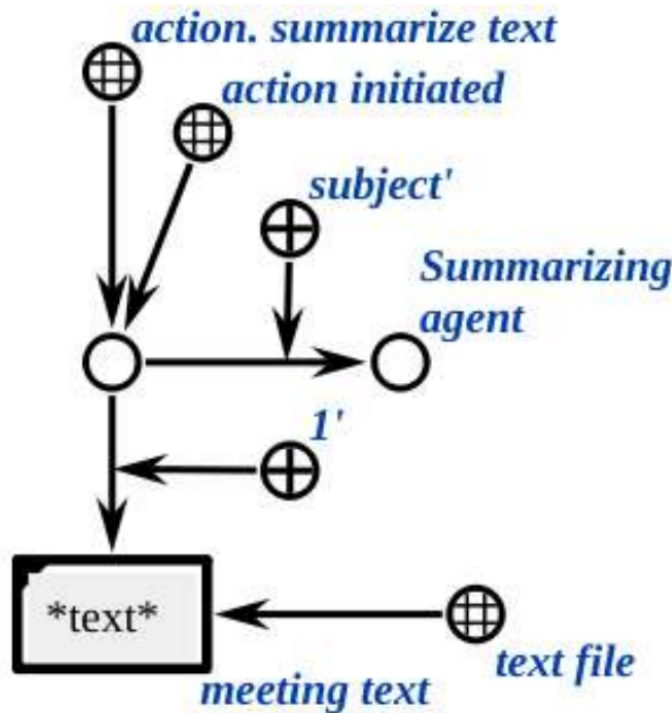


Figure 13. Summarization agent input

In fact, the above actions occur with knowledge base constructs, and text and sound are done only by NLP agents. NLP agents are natural language processing agents, computer programs that are designed to understand and respond to natural language input. These agents use a combination of techniques from computer science, linguistics, and artificial intelligence to analyze and interpret human language. NLP agents can be used in a wide range of applications, such as chatbots, virtual assistants, language translators, speech recognition systems, and sentiment analysis tools. These agents can help automate tasks, provide personalized recommendations, and improve the

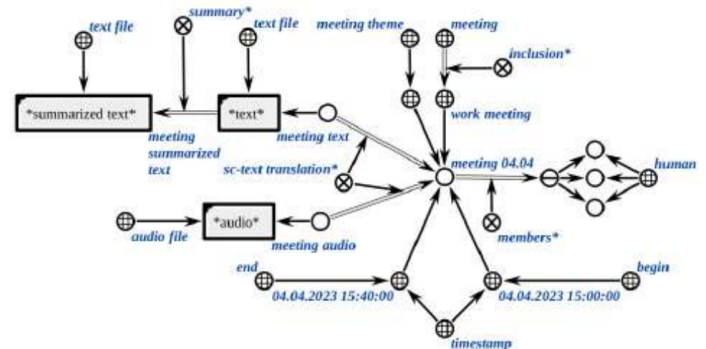


Figure 15. SCg-result of making a call protocol

OSTIS technology in the creation of a meeting protocol allows user to integrate various problem-solving models, achieve compatibility, effectively use knowledge bases to solve transcription and summarization tasks. OSTIS makes it possible not only to summarize the results of the meeting, but also to highlight the meaning of what was said during the meeting, process the context, analyze the content, identify problem areas and contradictions, and offer solutions to them [9].

This will bring the use of the developed meeting protocol

to a new level, because the data will be stored in a single OSTIS memory [10]. Thus, any OSTIS application will have access to them, will be able to use and explain. Such a system will be easy to integrate with other neural networks, expand the functionality by using and reusing existing developments.

#### IV. CONCLUSION

The paper proposes one of the solutions for keeping minutes of meetings based on solving the problems of transcription and summarization. The article describes the existing approaches to solving such problems, and also offers a solution for integrating existing approaches with OSTIS Technology, the advantages of such a solution are marked. The results obtained will allow not only to get a brief conclusion from the meeting, but also to create an intelligent system based on the knowledge base. The readymade system allows to highlight the meaning of what was said during the meeting, process the content, analyze the content, identify problem areas and contradictions, and offer solutions to them. After the project is implemented, OSTIS allows you to reuse the received solutions in other tasks and projects. And also, integrate the system with other applications. As a result, all applications developed on the basis of OSTIS technology have access to a common knowledge base.

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Интеграция Технологии OSTIS со сторонними NLP сервисами

Черкас Е. О., Купо А. Н.

Данная статья посвящена интеграции Технологии OSTIS со сторонними сервисами, работающими на базе нейронных сетей. В качестве примера интеграции рассматривается задача ведения протокола совещаний, решение которой основано на транскрибировании и суммаризации. Транскрибация осуществляется с помощью сервиса Whisper, суммаризация — retext.ai.

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