

S4Game

TRAINING OF SOFT SKILLS FOR SURGICAL TEAMS USING AN IMMERSIVE SERIOUS GAME

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S4GAME SERIOUS GAME

The second main commitment of the S4Game project was to develop a serious game for improving soft skills. Using virtual reality (VR) technology, the consortium has created a serious game based on decision trees that enables the development of soft skills in a modern, immersive environment.



Snapshot of the S4Game serious game

The game presents five of the case studies described in the handbook. The serious game helps to develop the decision making, leadership, situation awareness, communication and interaction and teamwork skills. In each case, one main and one or more secondary skills are practiced. The main target groups are health professionals working in the operating room (OR): surgeons, nurses (scrub nurse, circulating nurse) and anaesthetists.

Cases and skills trained follow:

- Inexperienced team member repeating mistakes (teamwork, communication and interaction)

- Clashes between different profiles (leadership, teamwork, communication and interaction)
- Missing instrument (decision making, teamwork, communication and interaction)
- Absence of correct stapler decision making, teamwork, leadership)
- Problem of spread attention (communication and interaction, teamwork)

Originally, the S4Game serious game was only going to be available for VR glasses, but the COVID-19 pandemic made very difficult to reach end users, so the consortium decided to develop a desktop version available for everybody. Both versions are available on the S4Game website (www.s4game.eu) free of charge. The game was designed for Oculus Quest VR glasses and also run on any desktop computer without installation using the following commands: left click – selection, right click (hold and drag) – camera movement. The game is now available in 5 languages, in English, Spanish, Portuguese, Czech and Hungarian.

The consortium faced several challenges during the improvement. The first challenge was the creation of the tool to offer the user the possibility of creating their own dialogs in a simple and intuitive way through a graph. For this purpose, the analysis of the use cases to be implemented was carried out. The team ended up categorising the types of network nodes into four types:

- Dialogue nodes: Each of them contains a sentence, its speaker, and its reference to the corresponding audio.
- Answer nodes: These nodes describe the information of each answer, the points which will be obtained, if it is an answer that closes the case, if it has feedback, etc.
- Question nodes: Very similar to dialogue nodes, they contain the question, its interlocutor, and the audio. There was the need to differentiate it from the dialogue nodes so that the script responsible for translating the network to the game adapts it correctly.
- Situation nodes: Within these, the situation is described. There will only be one per situation and the first of each case should always have the identifier S1. This will indicate that it is the first one and that the case should start-in it.

This differentiation was necessary so that the script responsible for structuring the cases within the game works correctly. To adapt all the use cases to this structure, some small modifications had to be made in some specific situations.

Additionally, for some particular actions of certain dialogues the script as a dictionary that was responsible for launching the events corresponding to these actions was developed. This had to be done in a separate script to distinct this function from the network functionality, because if in the future someone else wants to generate a new case, the option to add these events should not be available to the end user.

To include several languages in a network, until now the only alternative was to replicate the network by changing the texts of the different nodes. This work was very tedious and repetitive. Therefore, to avoid it, a system was developed by which a file can be added to the game. This should include the name of the corresponding case containing the texts with their respective references to the id of the node to which they correspond, so that the translation is automatic once you are playing.

#S4GAME MULTIPLIER EVENTS IN JUNE-JULY-AUGUST 2021.

7 multiplier events were organized to raise the awareness of the project and to address the potential target groups. The events were organised „in-person” or online in partner countries (Spain, Portugal, Czech Republic, Hungary), taking into account the current epidemiological rules.

Dates and places of each multiplier event:

- June 25th, 2021. Multiplier Event – S4Game: call for participants – Hungary (in person)
- June 30th, 2021. Multiplier Event – S4Game: call for participants – Czech Republic (in person)
- July 2nd, 2021. Multiplier Event – S4Game: call for participants – Portugal (in person and online)
- August 24th, 2021. Multiplier Event – Importance of soft skills training of surgical teams. Can be virtual reality and serious games used? – Czech Republic (in person)
- August 25th, 2021. Multiplier Event – S4Game – Hungary (in person)
- August 26th, 2021. Multiplier Event – S4Game: call for participants – Spain (in person)
- August 30th, 2021. Multiplier Event – S4Game closing workshop – Portugal (online)

After the presentation of the project and its objectives, the handbook and the developed serious game were presented at the multiplier events, together with the objectives to be achieved and the skills to be developed. After the presentation, the participants had the opportunity to try the S4Game serious game, in both desktop and VR glasses versions. More information about multiplier events is available on the project website.



S4game Multiplier Event in the Jesús Usón Minimally Invasive Surgery Centre, Cáceres, Spain

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