Second Language Tutoring using Social Robots

Project No. 688014

L2TOR

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D3.2 L2TOR system for space domain

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Organisation name of lead contractor for this deliverable: **ALD**

Responsible Person: **Jean-Marc Montannier**   Revision: **1.0**

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Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Service)	

CO	Confidential, only for members of the consortium (including the Commission Service)	

Contents

Executive Summary

This deliverable is a "demonstrator". It consists of a prototype comprised of software and hardware, which was built to teach children mathematical concepts in a second language.

The functioning of the modules involved is described in the deliverable D3.1. We will here briefly present the modifications done since D3.1. The main goal for these modifications was to add the functionalities needed by the new sessions of the space domain. On top of these main modifications, multiple bug fixes and minor modifications have been made in most modules. In total, 254 commits have been made on the modules concerned since July 2017.

Since the D3.1 the modules "Underworlds" and "Interaction Manager" are now grouped together to allow a fast communication without passing by the communication manager. Figures 1.a) and 1.b) show this modification. This modification has been decided because the interaction manager and the underworlds modules are communicating together at a high frequency, thus overloading the ConnectionManager. Moreover, it has been decided to move both, the underworlds module and the interaction manager, together in the tablet, which eliminates the need for a network connection.
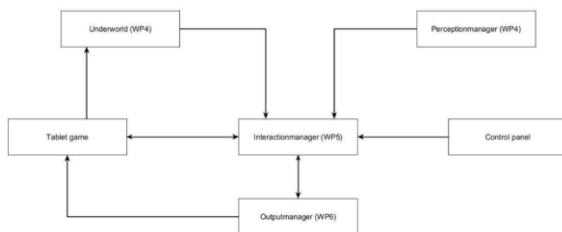
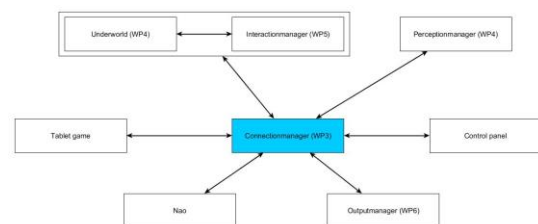

Figure 1.a: D3.1 communication   Figure1.b: current communication

Tablet Game: The game displayed on the tablet has been enhanced with new graphic elements. We asked a professional company to design these graphic elements in order to ensure the graphical coherence. Minor modifications have been made to handle new elements to be displayed in the spatial domain lessons.

PerceptionManager: No modifications.

Underworlds: The communication scheme has been modified to allow a direct communication with the interaction manager. Nevertheless, a network communication is still present to exchange information with the TabletGame. New relations have been added and debugged to compute the spatial relations needed by the lessons of the spatial domain.

Interaction Manager: This module has been modified to manage a direct communication with the Underworlds module. The new scenes and new functionalities (such as animation) necessary for the new lessons have also been designed. Finally, new

functionalities needed for every lessons have been designed such as: giving helps to a kid on difficult parts of the lesson, exiting all modules at once, saving the interactions from one session.

OutputManager: New objects and relations necessary for the new lessons are now handled by the OutputManager. Moreover, the robot can give an order to move objects on the tablet. Finally, this module now handles the recap lessons.

ControlPanel: The following features have been implemented: pause, stop, and step forward. Graphically, the *ControlPanel* has been updated to provide an easier interaction. The method used to verify if the *Underworlds* module is running has also been updated. Finally, the management of the memory of the interactions between the child and the robot has been enhanced with the following functions: loading/unloading, creating and deleting.

CommunicationManager: A minor modification has been made to this module to allow a communication through the ethernet cabler rather than through wifi for debugging purpose.

To ensure the coordination of these new developments the slack chat room and git server have been continuously used. Additionally, an on-line code camp has been organised where most of the participants remained in their home university but dedicated three full days to the l2tor project.

Results

A video showing the latest stage of development can be found at the following URL: https://protolab.aldebaran.com/l2tor_downloads/demo_l2tor-space_21_02_2018.mp4. The video showcases a test of the space domain with English as the L1 and German as the L2. The demonstrator has to manipulate the animals as instructed by NAO.

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Revision History

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