Deliverable D25.7

User Manual

Part I - Session management

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Version 1
Delivery date: **18.01.2019**

CONTENTS

1 Overview

About this manual

This manual describes how to use the **CLARC framework**.

Usage

This manual describes the protocol that allows an user to manage the CLARC framework.

Who should read this manual?

This manual is intended for those users in charge of managing the CLARC framework as a tool for automatizing the Comprehensive Geriatric Assessment (CGA) tests.

Prerequisites

- The reader should have basic skills on managing a personal computer
- The CLARC framework has had to be previously deployed (see User's Manual - Part III)

Organization of chapters

The manual is organized in the following chapters:

Chapter	Title	Contents
1	Introduction	Contains basic information about the CLARC framework, and explanations of the terms and concepts needed for understanding the rest of the document.
2	Turning on	Instructions for turning on the CLARC framework
3	Launching a CGA test	Performing a Barthel or Get Up & Go test
4	Shutting down	Instructions for shutting down the robot
5	Charging the robot	The process for charging the robot

2 General information

2.1 Terms and concepts

CLARC is a complete framework for robotizing two specific tests that are typically part of a Comprehensive Geriatric Assessment (CGA) procedure: the Barthel test and the Get Up & Go test. CLARC consists of two major elements: **CLARA**, a social robot able to interact with the patients, and capture and analyze the obtained data; and the **CGAmed**, a local server able to store a database with all captured data and to provide the physicians with the tools for online monitoring and offline editing and supervision. CLARC provides all hardware items and do not require any specific constraint to be deployed.

2.1.1 Hardware concepts

Overview

This section introduces the hardware in the CLARC framework.

Additional information

The hardware in the CLARC framework is also described in the deliveries

User's Manual - Part III - System deployment

CLARC - Functional prototype

Standard hardware

The table below describes the standard hardware in an CLARC framework

Hardware	Explanation
CLARA robot	The robot is based on a differential driven platform by MetraLabs.
Charging station	The robot has a charging station to be able to charge autonomously.

Remote Control	Portable device connected to the robot that allows the user to interact with the system using large buttons.
Router	CLARC works in a **local network**, in which all the components are connected to the wifi provided by this router.
CGAmed embedded PC	This PC stores all the information about users, sessions, etc.

2.1.2 The CGAmed server

Overview

This section introduces the webs in the CGAmed station

Additional information

The use of the CGAmed web for reviewing the results is described with details in

User's Manual - Part II - Results review

Webs in the CGAmed

The table below describes the webs in an CGAmed station

Web	Explanation
Administration 192.168.0.70	The administration web is used to configure • The positions where the robot is going to perform the tests • The list of patients • The IP address of the camera for online supervision mounted on CLARA robot (Section 1.1.1 - The CLARA robot)
CGAmed 192.168.0.70/cgamed	The CGAMed is used to: • Add new patients. • Add new sessions. • Start/Stop a session. • Pause/Resume a session. • Move the robot to a position (from a list of predefined ones). • See and compare the results of the tests.

2.2 User Access

The table below provides the default user/password data needed to access to the modules in the system.

Module	Access
Linux based PC (CLARA)	Password: scitos
Windows based PC (CLARA)	Accessible from the Linux based PC using the Remmina remote desktop app
CGAmed embedded PC	User / password: isis / grupoisis
CGAmed	URL (CGAmed) 192.168.0.70/cgamed user / password: adminWeb / adminSecure URL (Administration) 192.168.0.70 user / password: admin / adminRobot

Note: All CGAmed stations share currently the same IP Address. Contact us if you need to change this address, as this change implies internal updates on the software modules on CLARA robot.

3 Turning on the CLARC framework

3.1 The CLARA robot

3.1.1 Turning on the robot

Overview

This section explains how to turn on the robot.

The video Starting.mp4 explains how to turn on the robot. As the video shows, when you turn on the robot using the key, the two internal PCs are automatically turned on.

Note: Once the PC's are on, you must connect the Linux based PC to the local wifi network provided by the router (See Section 3.1).

3.2 CGAmed web

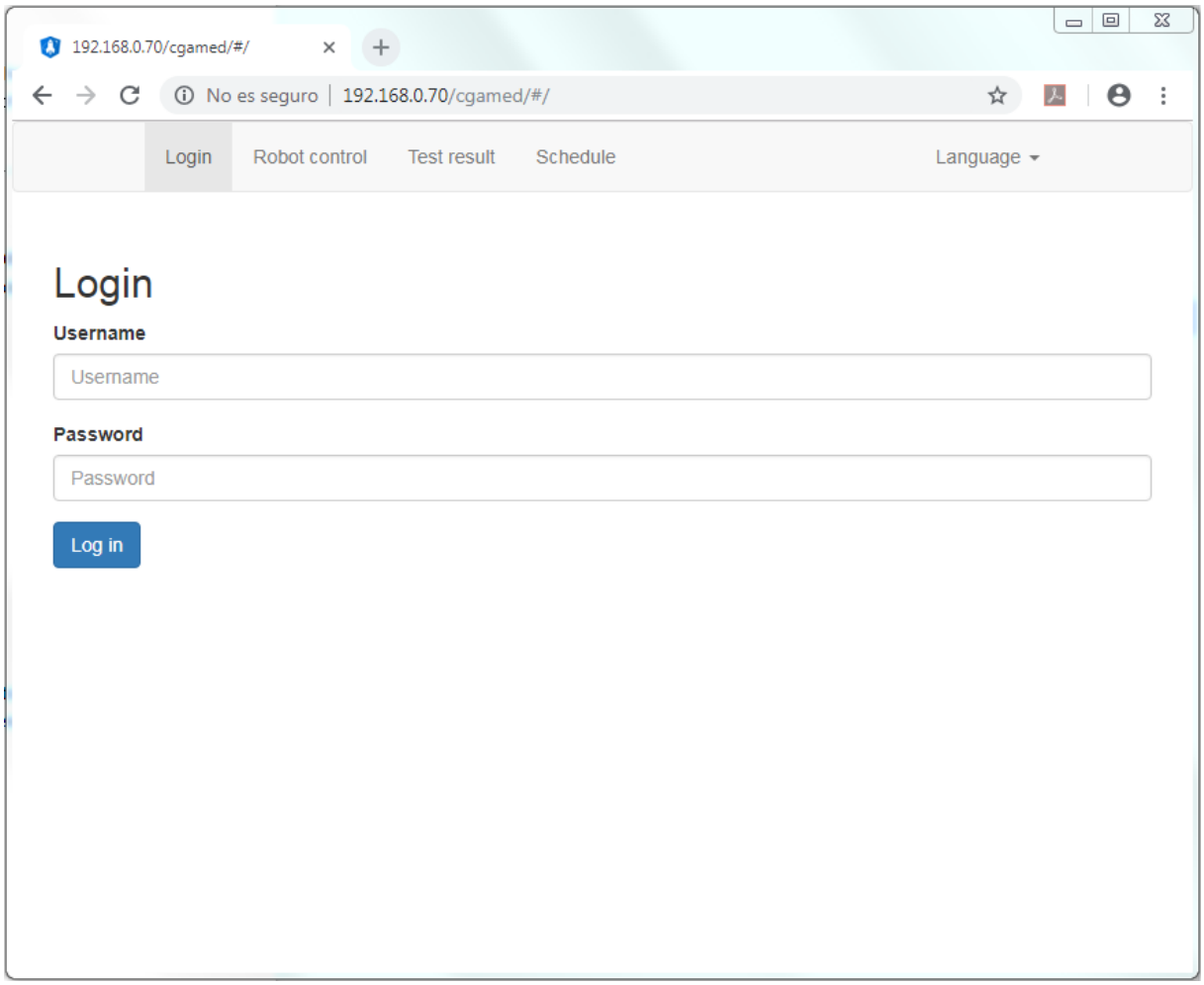
3.2.1 Login in the CGAmed web

Overview

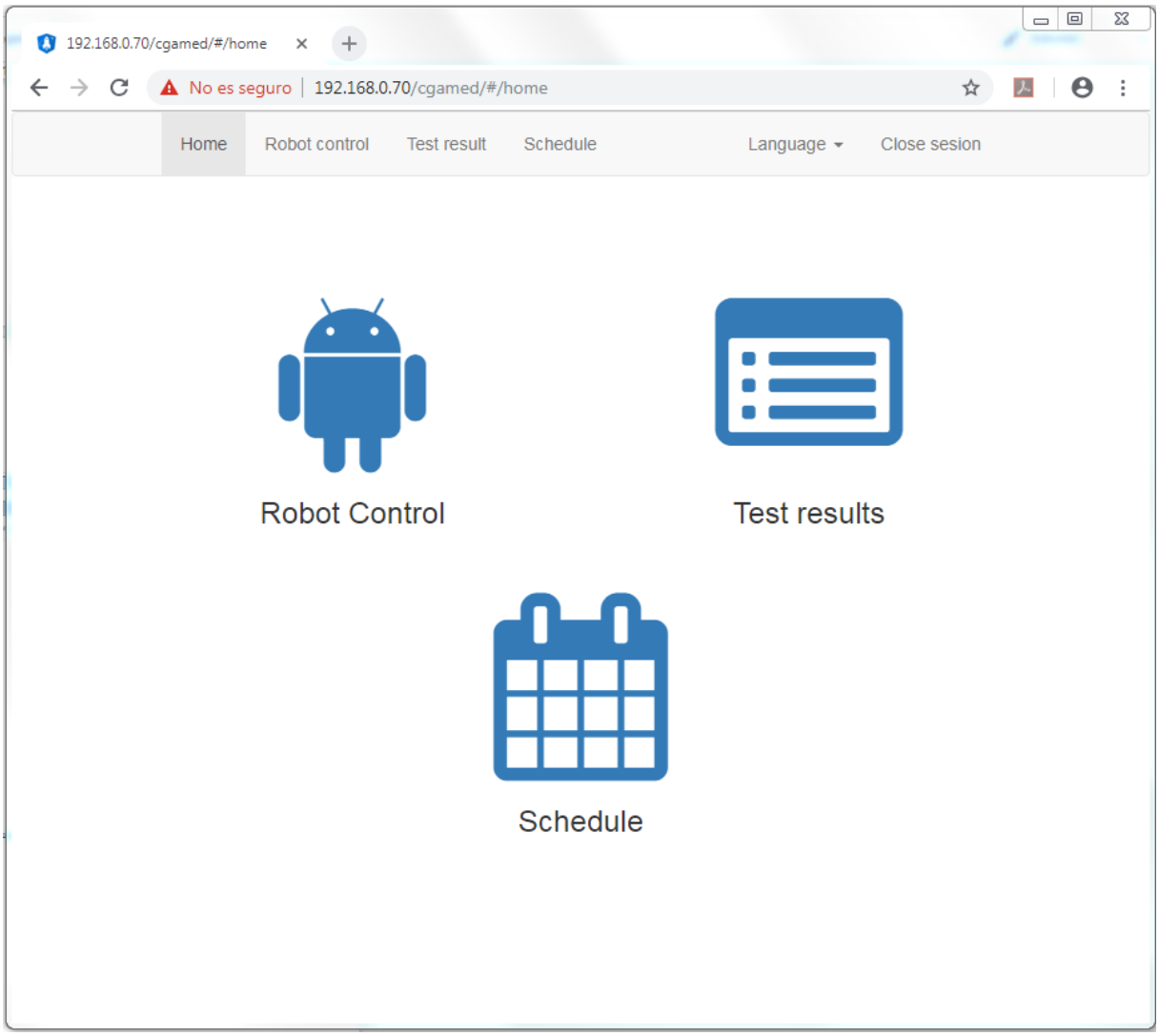
This Section describes the procedure for entering within the CGAmed web. This web provides the tools for (a) scheduling the agenda of a CLARA robot, or (b) manually launching a CGA session.

Login in the CGAmed web

When you connect to the URL of the CGAmed web (http://192.168.0.70/cgamed), you need to add user and password for entering on the web. This data is provided in Section 1.2 (page 7).



Once logged into the web, the main page allows you to access to three different services. It is also possible to choose the Language or to Close the session.



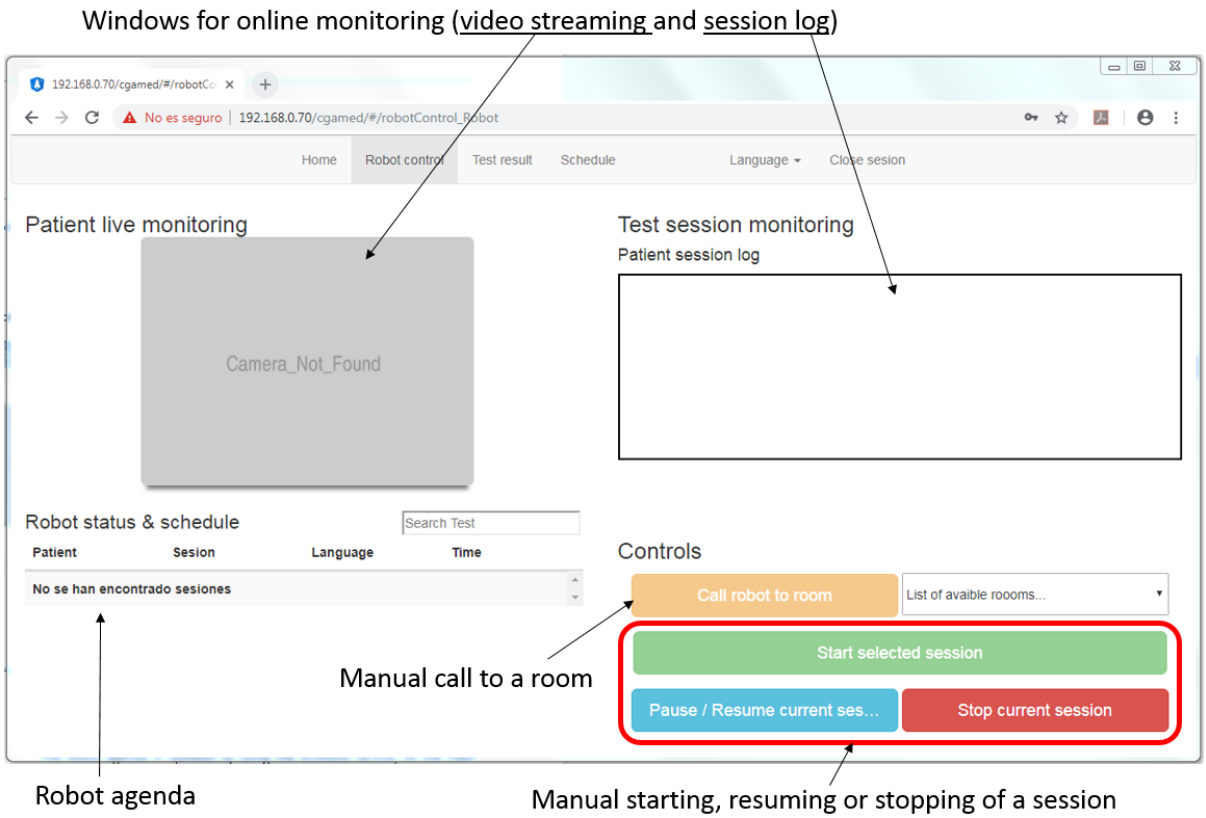
3.2.1 The Robot Control service on the CGAmed

Overview

The Robot Control interface provides the user with the tools for (a) visualizing the agenda of the CLARA robot, (b) manual launching or stopping of a CGA test, and (c) online supervising the session.

The Robot Control interface

Just clicking on the Robot Control icon in the main page of the CGAmed you access to the interface shown below.



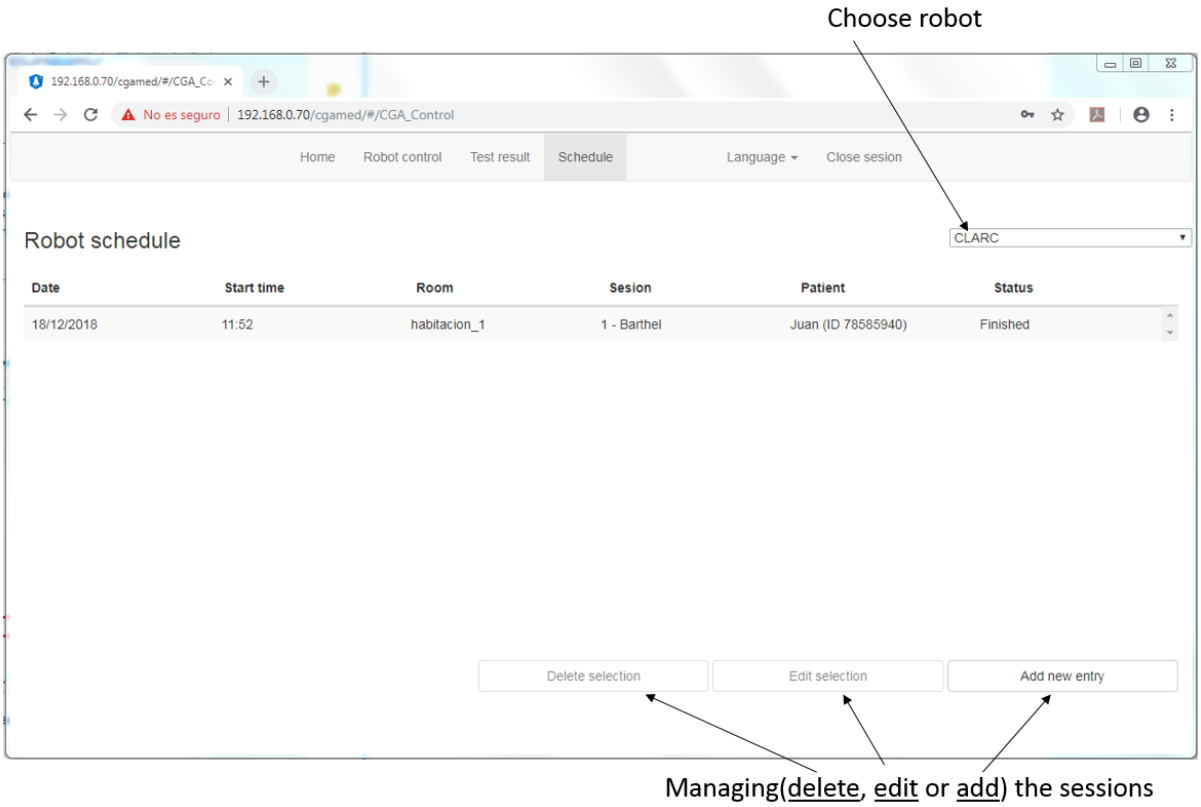
The Robot agenda is updated by using the Schedule service, on the main page (see Section 2.2.3, page 12).

3.2.2 The Schedule service on the CGAmed

Overview

The Schedule interface provides the user with the tools for managing the agenda of the CLARA robot. It allows to add patients and sessions to the agenda of the robot. This data can be visualized in the Robot Control interface.

2.2.3a The Schedule interface

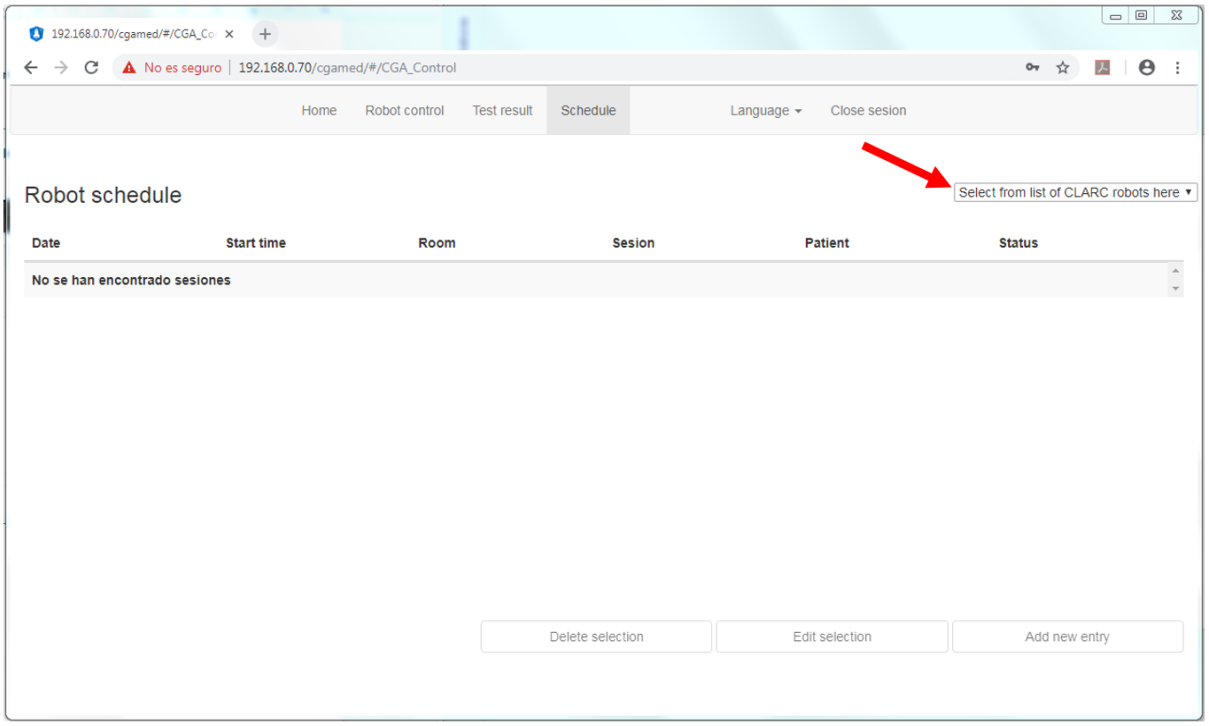


2.2.3b Adding a new patient

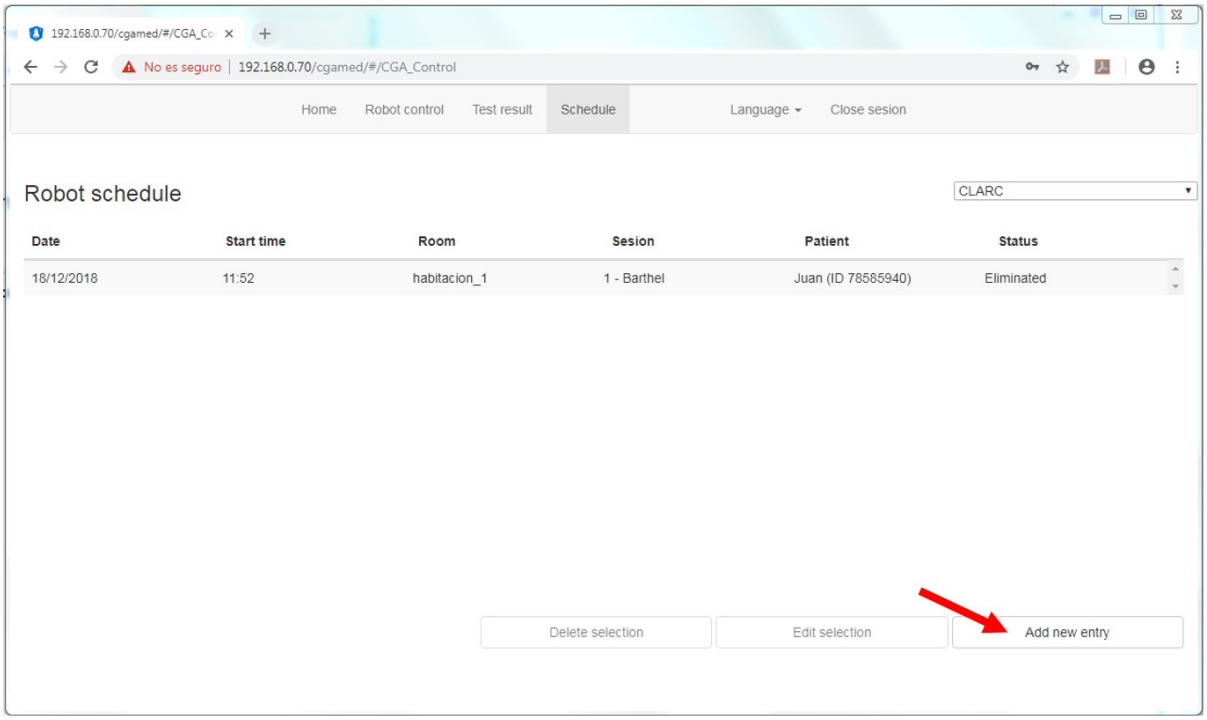
The process to add a new patient is explained in the **SetUp.avi** video (from 2:37).

The procedure for adding a new patient consists of the following steps:

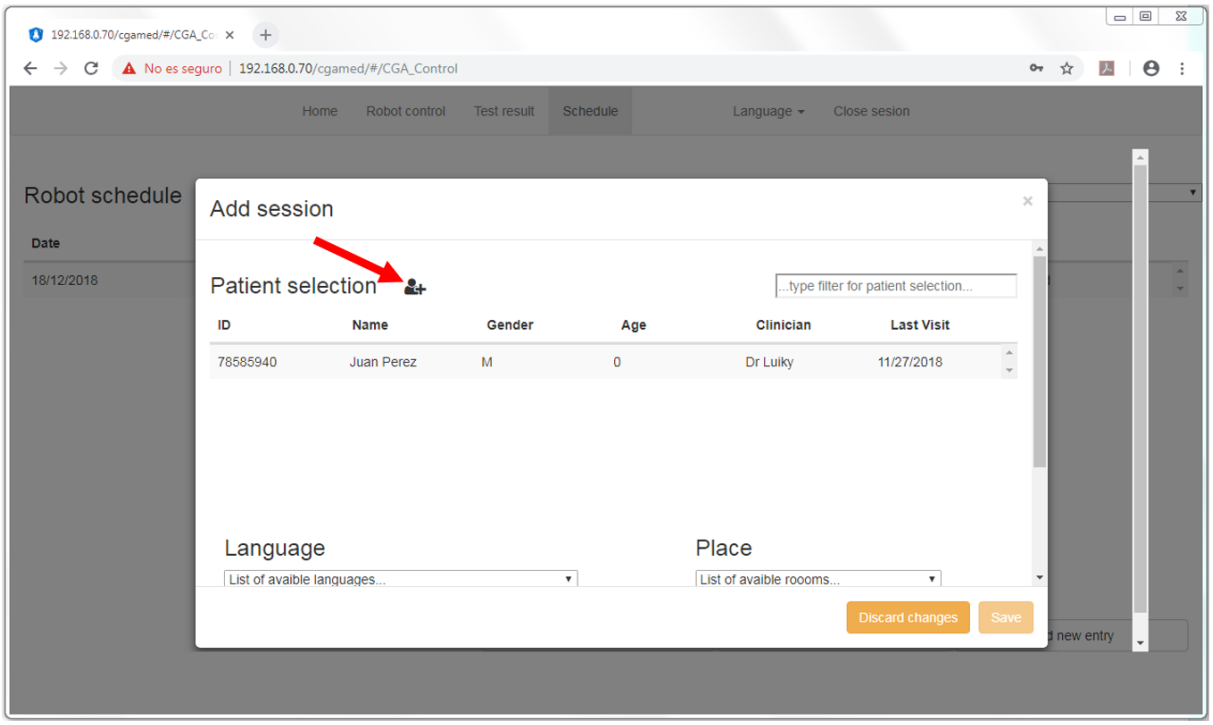
1. Choosing a robot



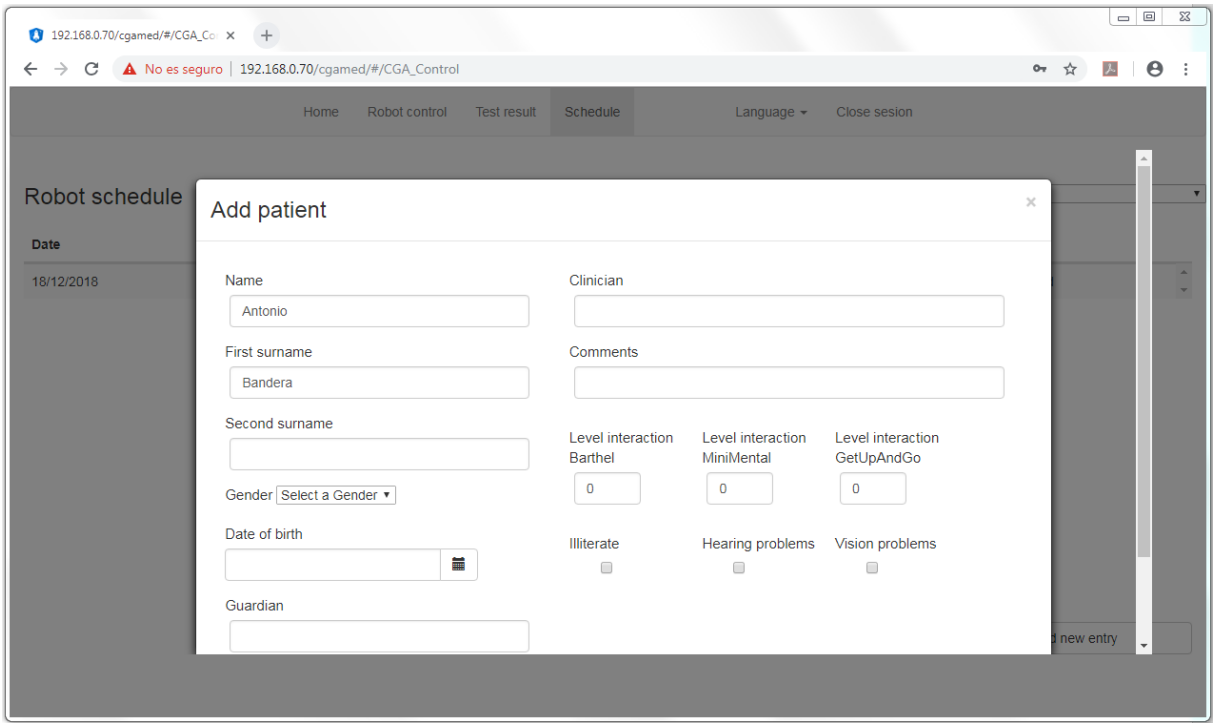
2. Add a new entry



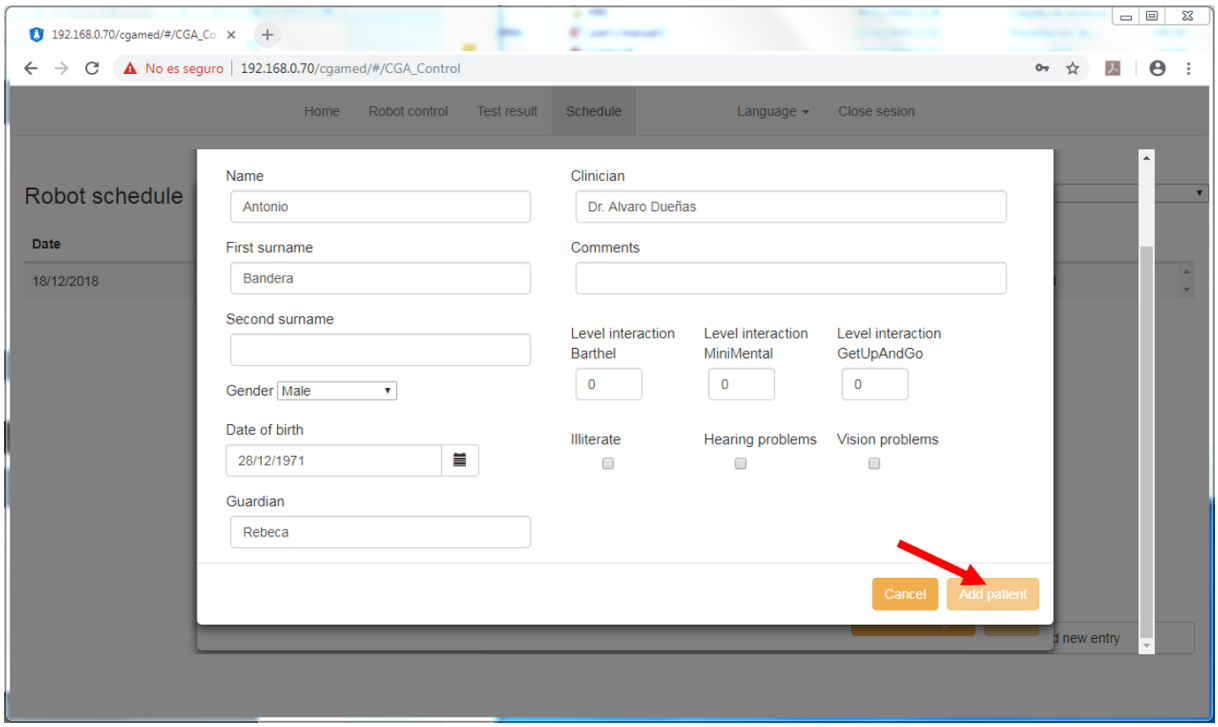
3. Click on the icon for adding a new patient



4. Add information about the patient



5. Close and save the patient profile.

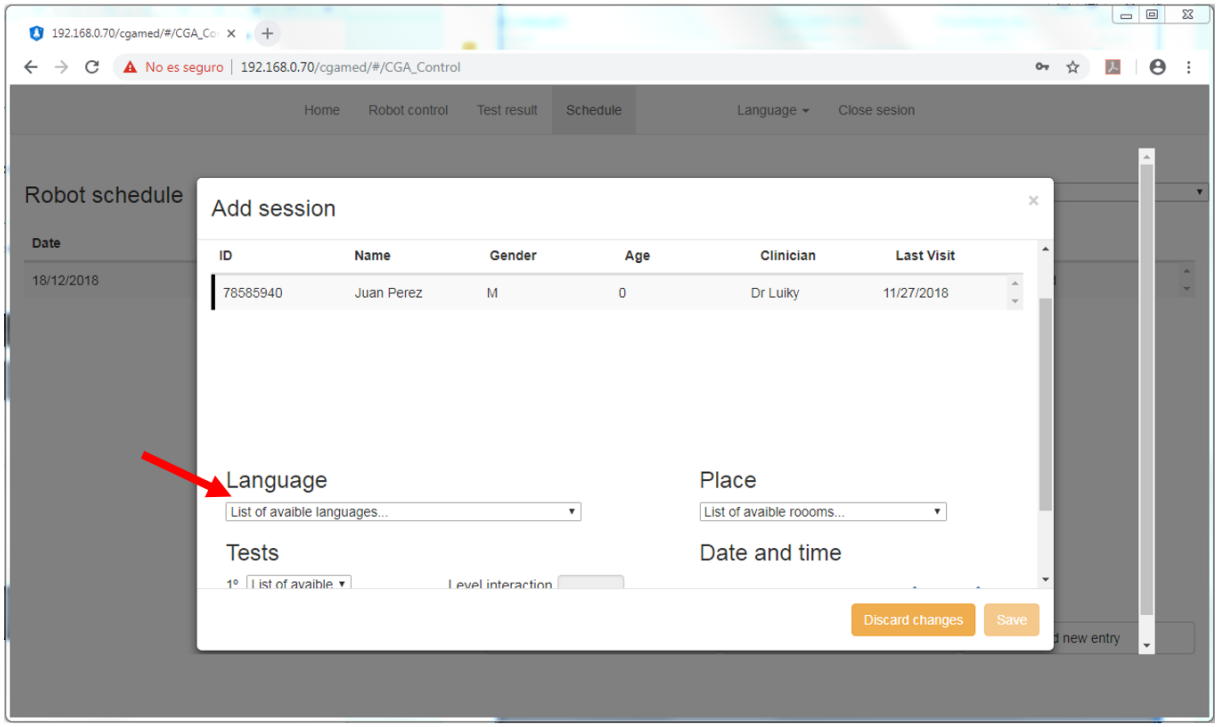


2.2.3c Adding a new session

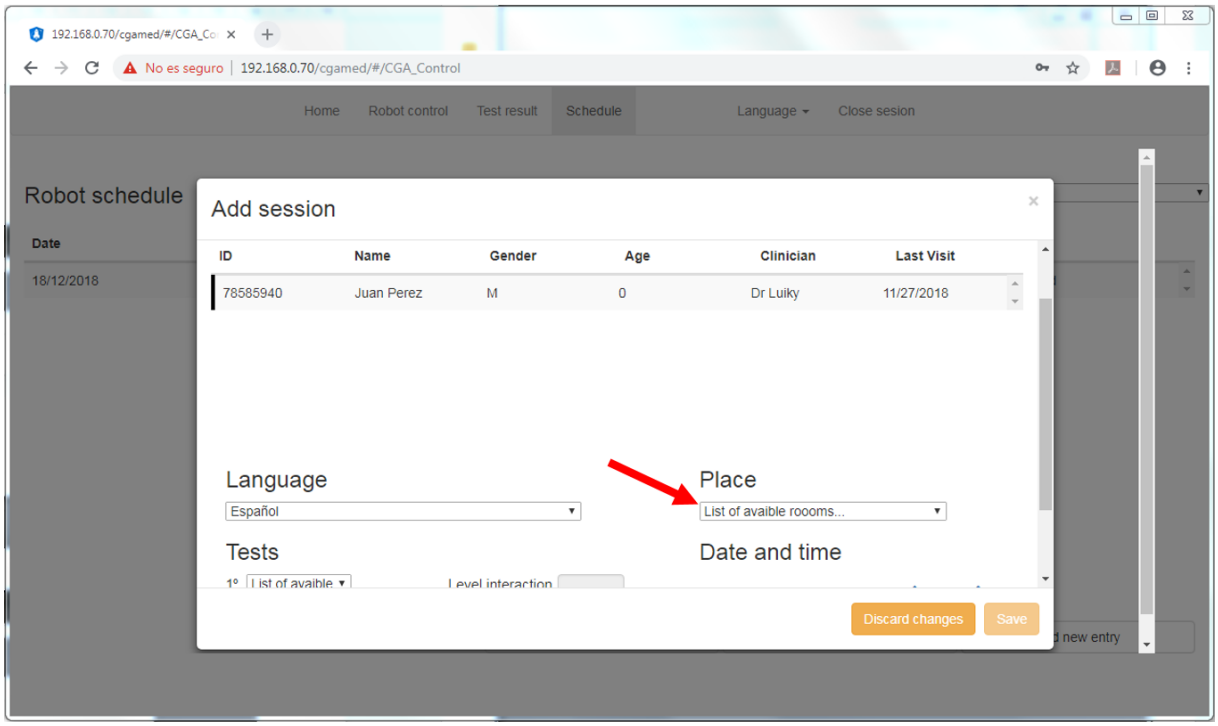
The process to add a new session is explained in the **SetUp.avi** video (from 3:35).

Once a patient has been chosen (for adding a new one, see Section 2.2.3b, page 13), the procedure for adding a new session consists of the following steps:

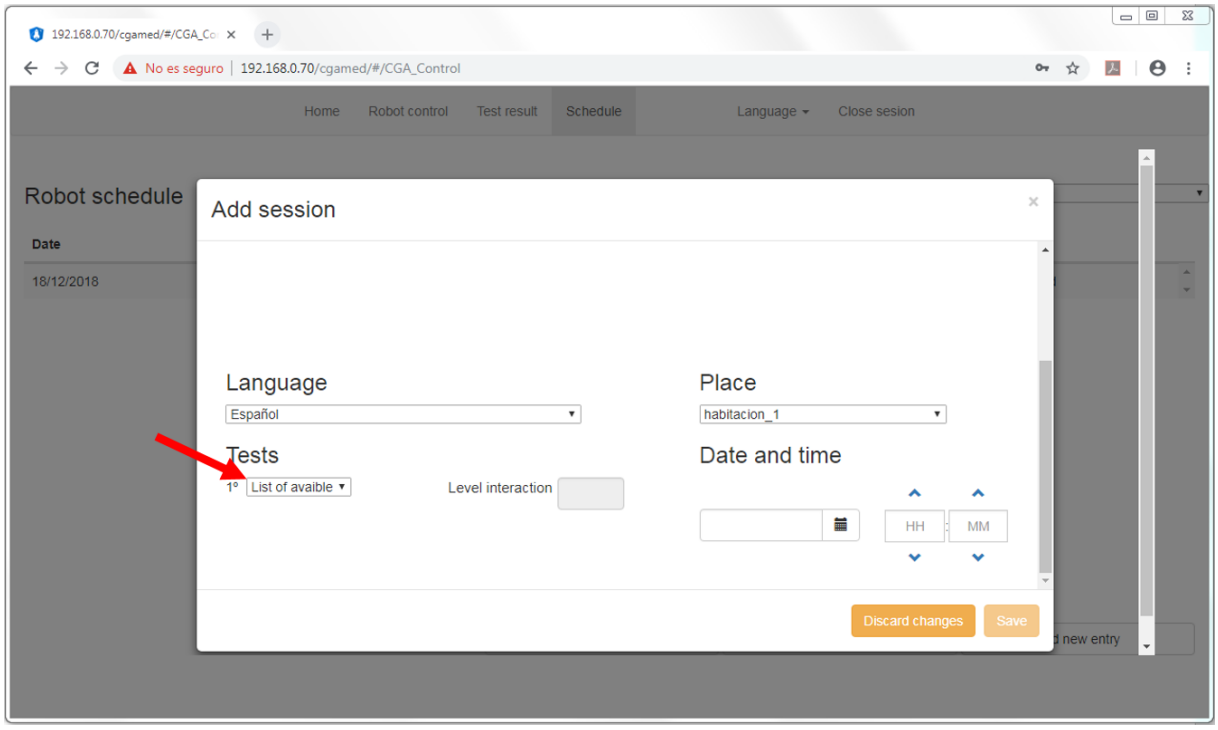
1. Choosing the Language for the test



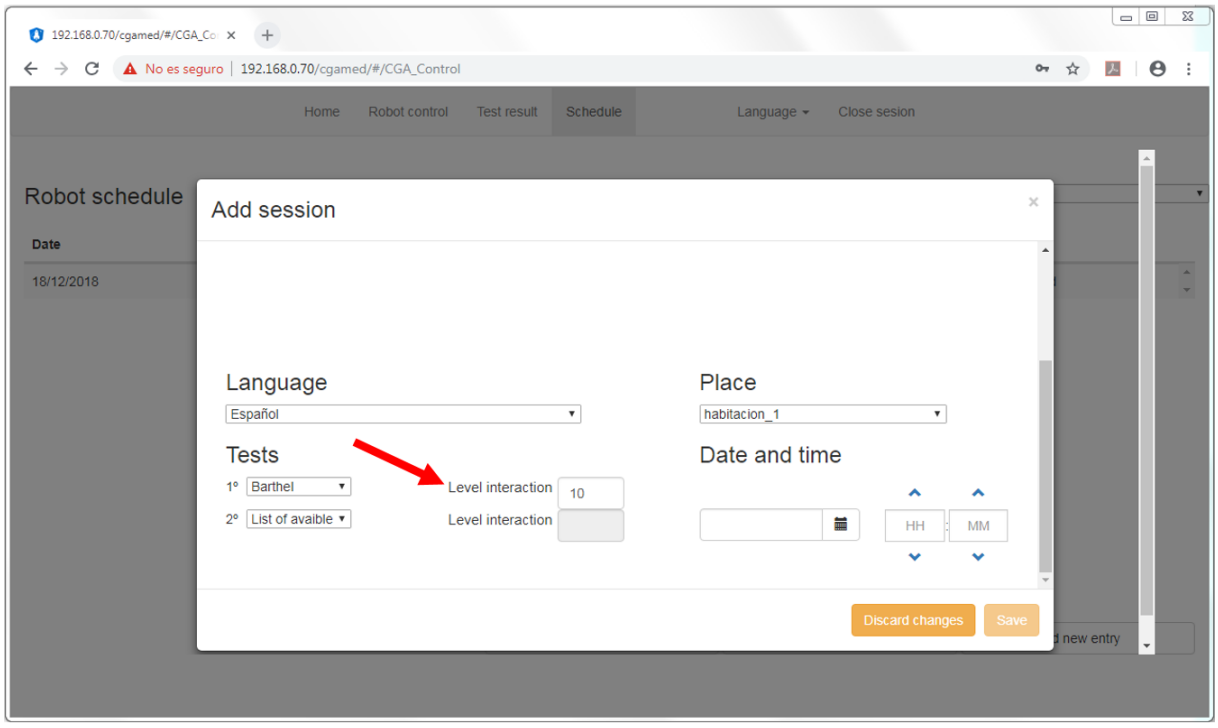
2. Choosing the room



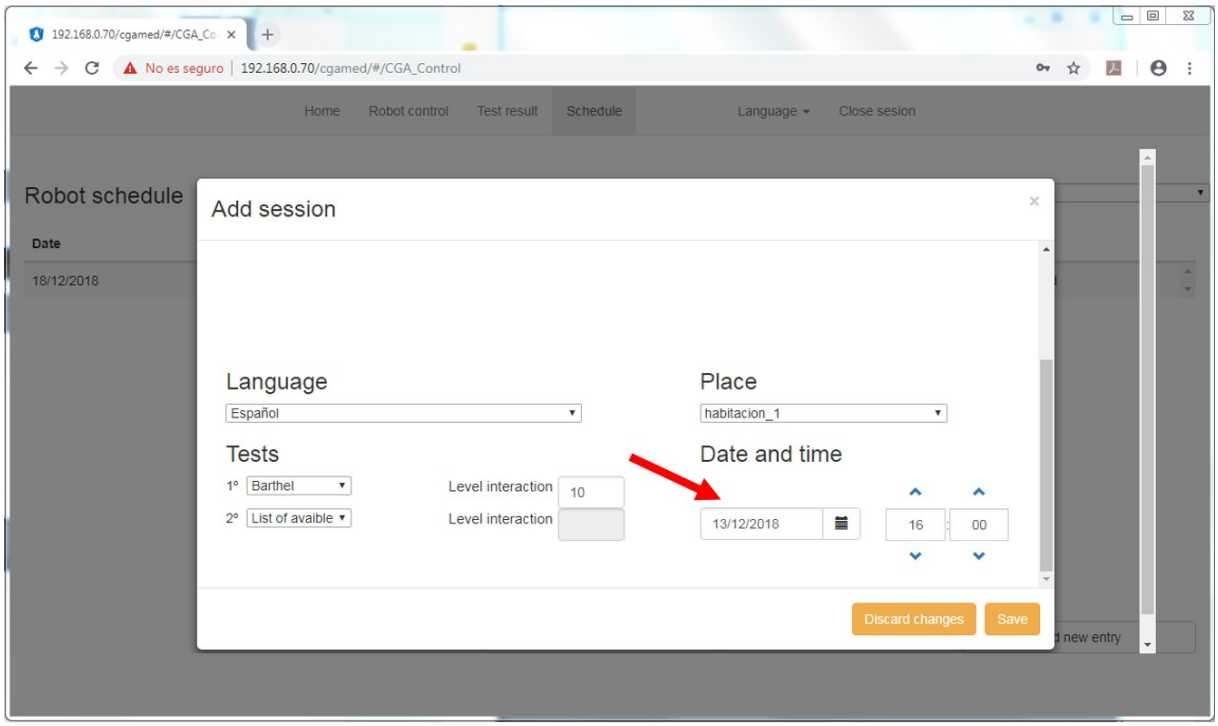
3. Choosing the test



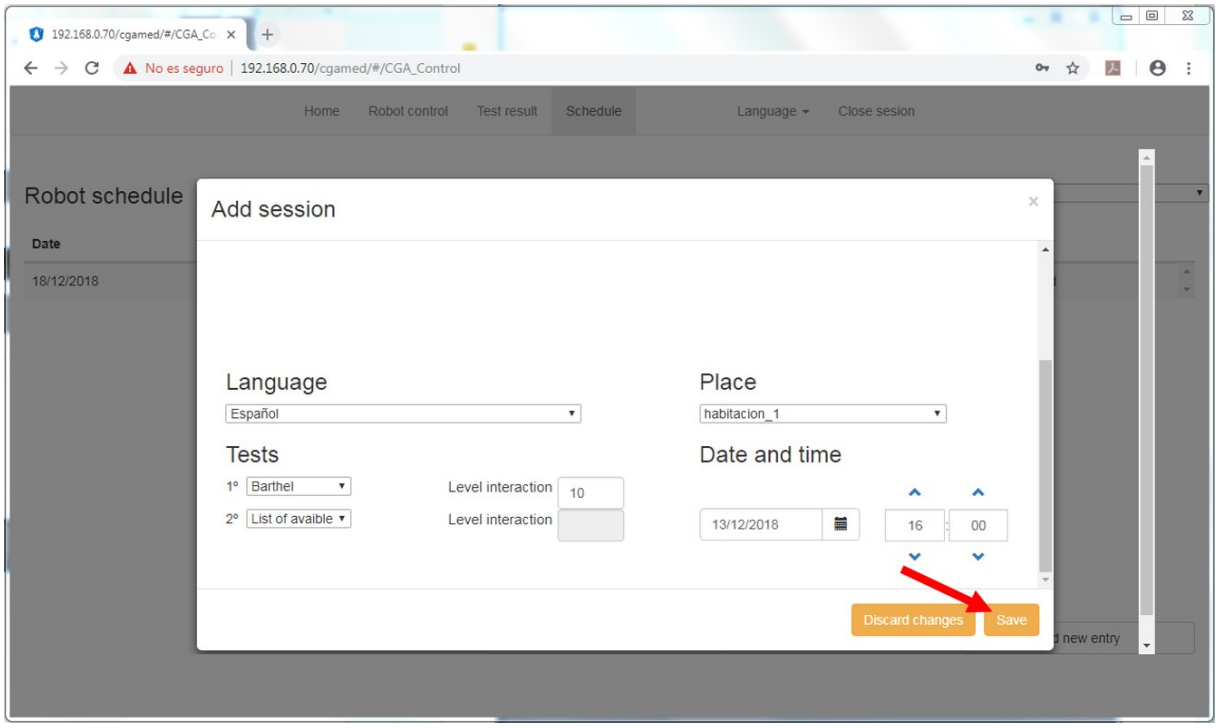
4. Choosing the level of interaction of the text (10 if you do not want that the patient performs the training test, and 0 in the other case).



5. Choosing the date and hour



6. Close and save the session



Once the session has been closed, you can visualize the new entry on the Schedule and Robot Control interfaces.

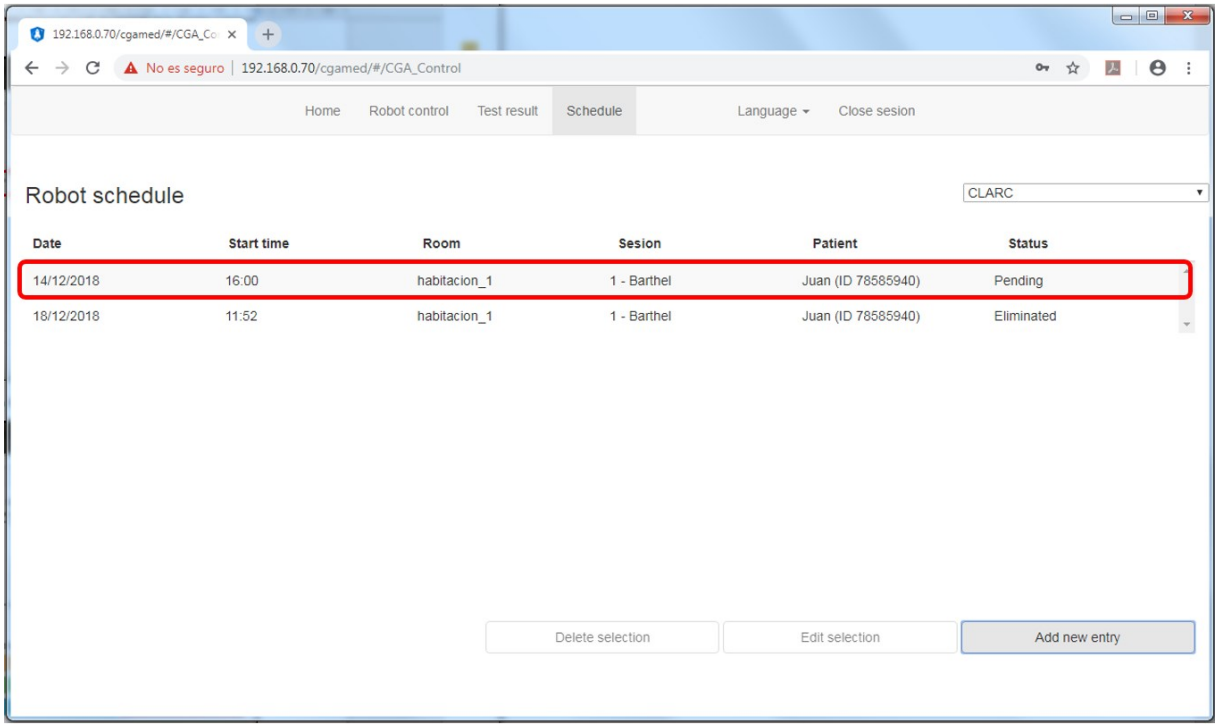


Figure 1: Schedule interface - New entry on the robot's agenda

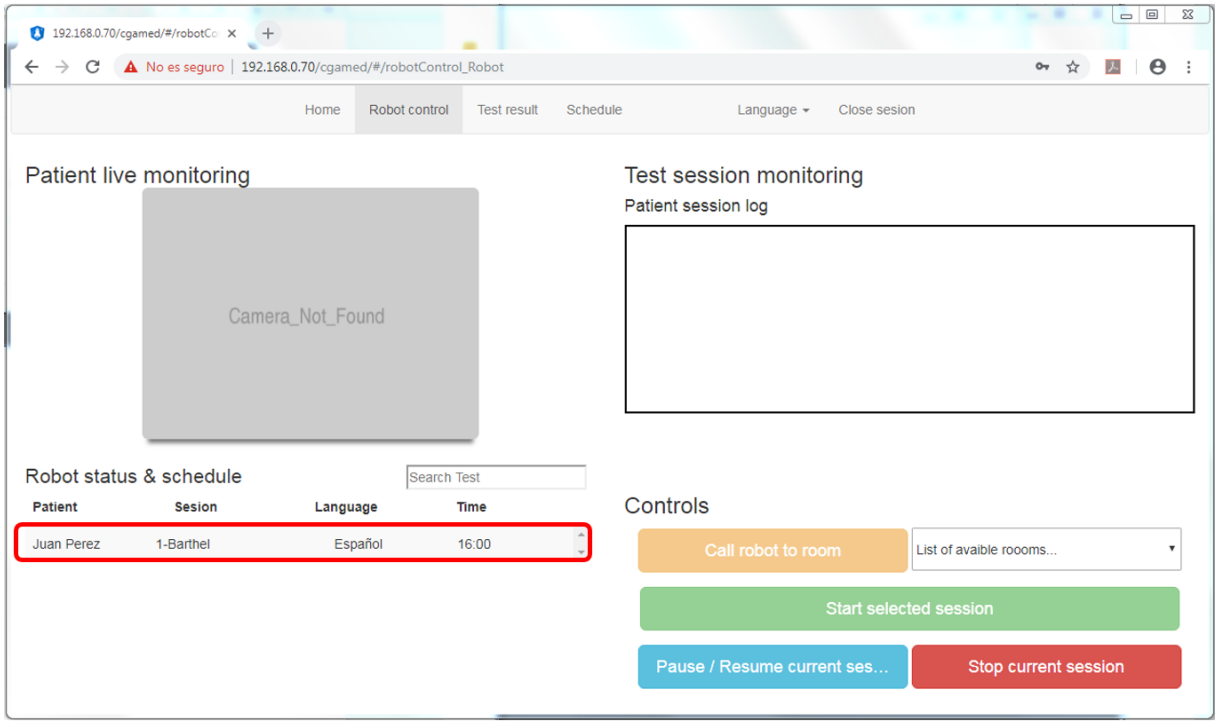


Figure 2: Robot control interface - New entry on the robot's agenda

4 Launching a CGA session

The process of launching a session, which has been previously programmed in the schedule service on the CGAmed (see Section 2.2.3c in 2.2.3 The Schedule service on the CGAmed), implies to firstly start up the software architecture endowed in the CLARA robot (the CORTEX architecture).

4.1 Starting up the components on CLARA robot

Overview

This Section describes how to start up the CORTEX architecture in the CLARA robot.

The process to start up the components on CLARA robot is explained in the **Starting up robot components.ogv** video.

Starting up the components on CLARA robot

Previous steps

1. Turn on the router
2. Turn on the embedded PC with the CGAmed database and connect it to the local wifi network provided by the router
3. Turn on the Remote Control device (using the small black switch)

Starting up the software components on CLARA

4. Open a yakuake session and launch the `start.sh` script.

```
>>cd robocomp_clarc/robocomp/components/cajasvaciasechord/

>>./start.sh
```

The different agents on the CORTEX software architecture will be wake up.

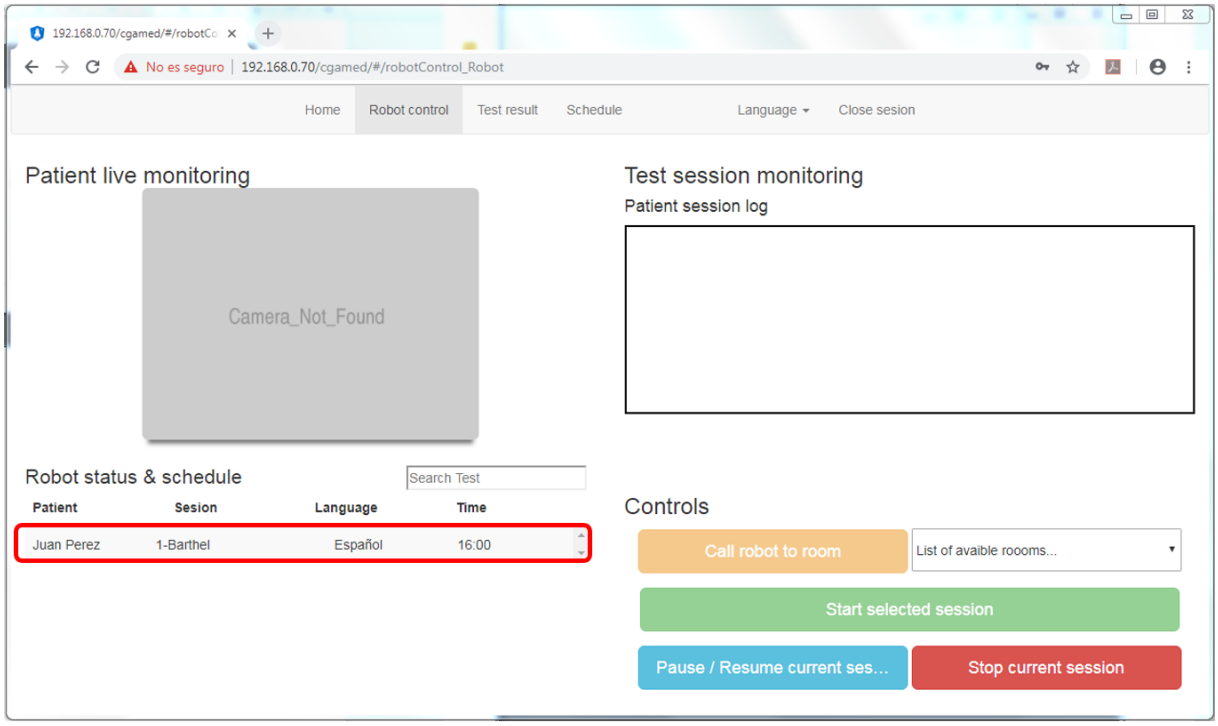
Once all the components are started and the planner (Execution - Pelea shell terminal) is waiting for click, you can launch a test from the CGAMed web.

4.2 Launching a session

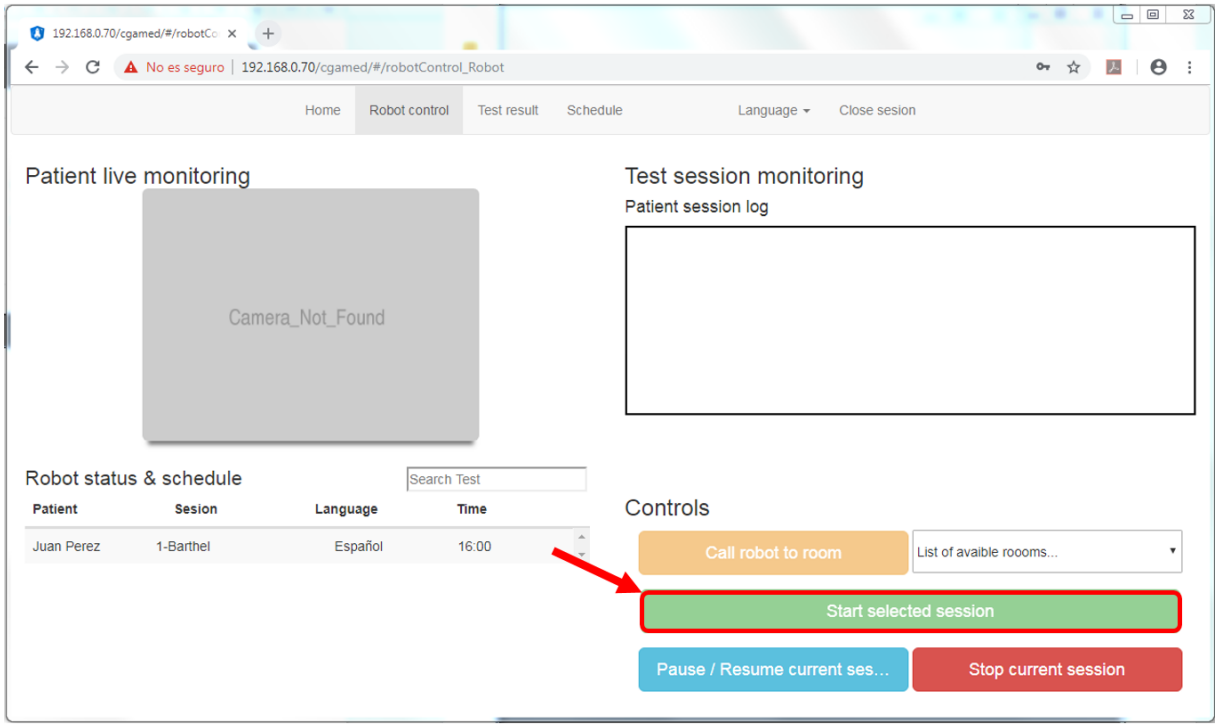
Overview

This Section describes how to launch a session previously scheduled (the CORTEX architecture in the CLARA robot has been started as explained in Section 3.1).

In the Robot Control tab of the CGAmed (see Section 2.2.3) appears the scheduled session



Select the desired session in the **Robot status & schedule** list and push the **Start selected session** button.



5 Shutting down

Overview

This section describes how to shut down the robot in an correct way.

The process to shut down the robot is explained in the **Shutting down.ogv** video. After following the steps in the video you can shut down the Linux based PC.

Stopping the software components on CLARA

1. Launch the `kill.sh` script in “robocomp_clarc/robocomp/components/cajasva-ciasechord/”
2. Close all the yakuake sessions.

Stopping the hardware components on CLARA

3. **Shutting down the windows pc:** connect to the windows pc using the remmina desktop application and click in “apagar equipo”.

4. **Shutting down the Raspberri Pi (old CLARA robot):** connect to the Raspberry pi using ssh and stop it:

```
ssh pi@192.168.0.59

>>sudo poweroff
```

5. Shut down the linux pc.

Shutting down the remote control

6. To shut down the remote control, first press the small red button and then, when the red light will be off, move the black switch to the off position.

6 Charging the robot

Overview

If the robot detects that its battery is discharged, it will leave all it is doing (e.g. a test) and will go automatically to charge. Hence, it is recommended to **charge the robot every night** in order it be ready for doing tests during the day.

The process to charge the robot is presented in the Charging.mp4 video.

To charge the robot, it must be correctly placed (centered) on the charging station and the key must be in the ON position. When it is charging, the small light close to the key of the robot is blinking and the “Charging” light in the base station is on.

Note: You can command the robot to go to the Charging Station by clicking the “call robot to room” button in the CGAMed web, selecting previously the base_station in the list of available rooms. In this case, you must control that, when the robot finish to move, it is well located in the charging station and it is charging. It must be noted that this option is only possible if the components of the robot are running and the base_station have been correctly calculated and written in the goalPositions.txt file and in the CGAMed database.

7 Bugs

Module	Problem
CGAmed	The IP Address is currently the same in all CGAmed stations. This will provoke conflicts when several robots work in the same environment.