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| UNIVERSITY of hertfordshire |
| Kaspar3 User Manual |
| First Draft |
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| **Adaptive Systems Research Group** |
| **11/5/2014** |

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# Technical Terminology

* *Operator*: Adult User of the system. (Researcher, Teacher, Parent)
* *User*: Child User of the System
* *Action*: Things Kaspar can do (Poses, Groups, Sequence, Sounds)
* *Trigger*: Things that cause Actions (Button Press, Sensor Press, Timed)
* *Play Session*: Interaction with a User consisting of one or more Play Scenarios
* *Play Scenario*: A combination of Actions and Triggers built to advance specific objectives
* *Researcher UI*: Interface primarily concerned with modifying the Actions available, best used with a mouse
* *Teacher UI*: Interface for use during an Play Session, designed for use on a tablet
* *KeyPad*: Wireless number pad associated with each Kaspar

# Starting Kaspar

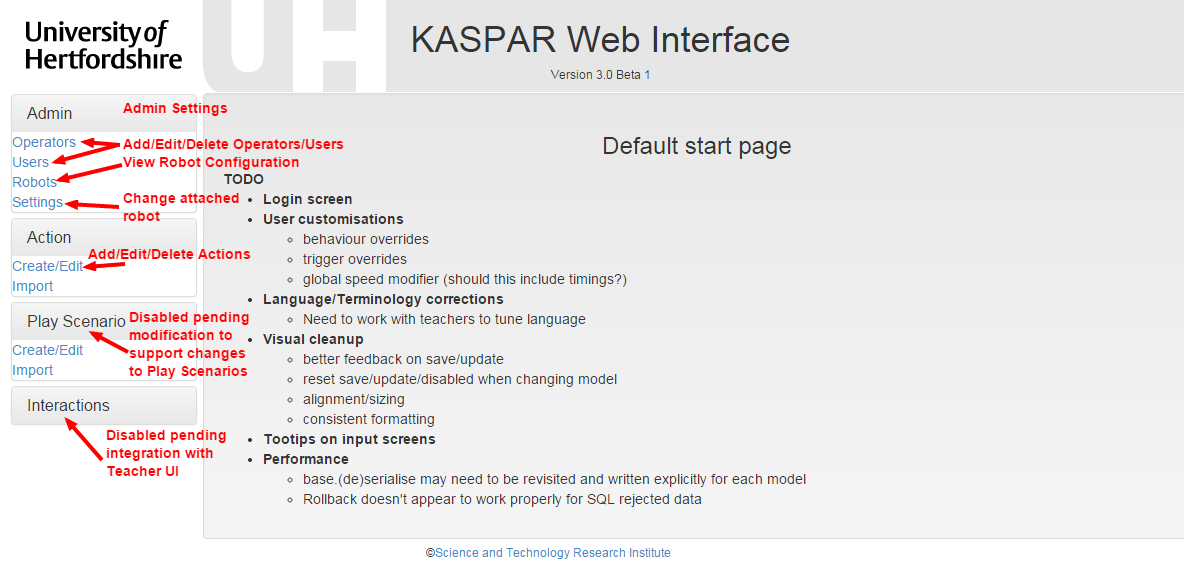
The power button is located on the back of Kaspar, just below the waist. Depress the button to turn on the power. Kaspar can run both with or without the charger connected.

Boot time on Kaspar is approximately 45seconds, and it will run a short ‘wake-up’ sequence when it has finished booting.

# Researchers Interface

To begin working with the KASPAR3, connect your device of choice to the WIFI access point kaspar3\_X where X is the Kaspar number. Next open a Web browser and navigate to 192.168.3.1. The interface has been tested in Chrome, but should be functional in all HTML5 compatible browsers.

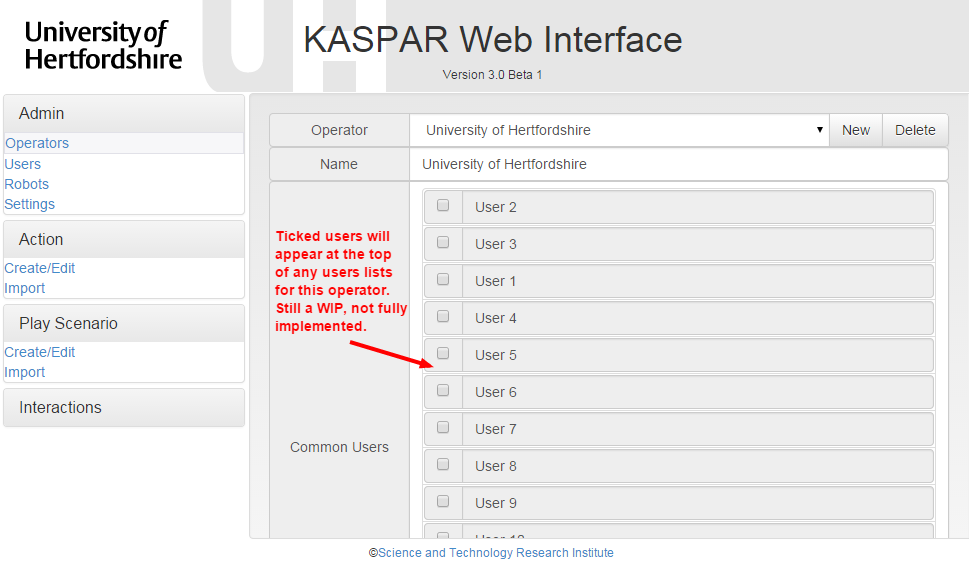
You should now see the screen shown below:

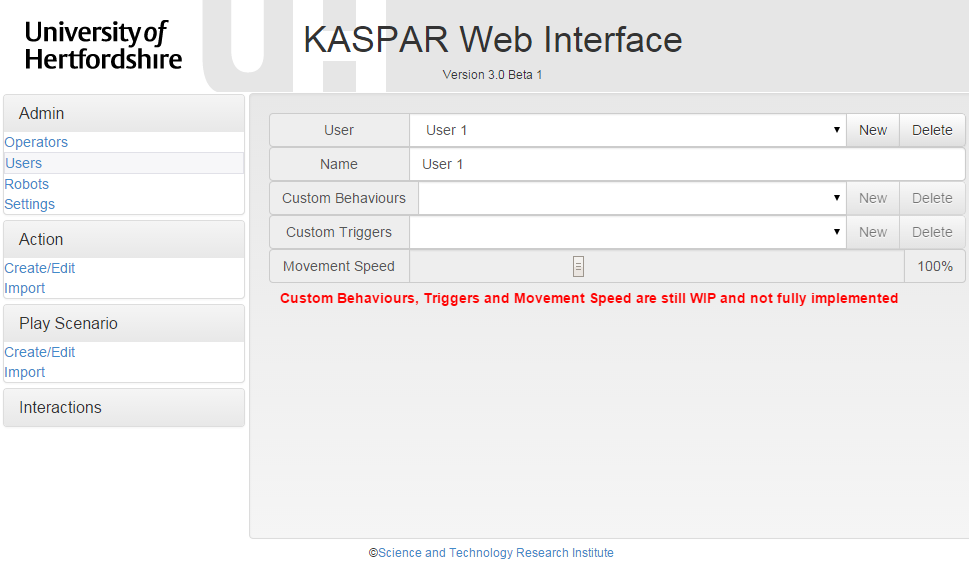


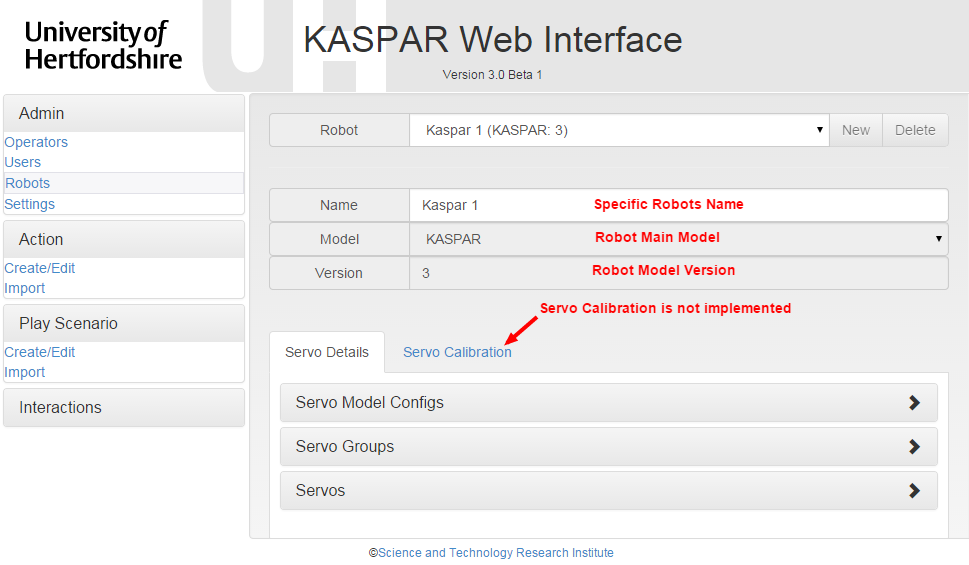
## Admin Utilities

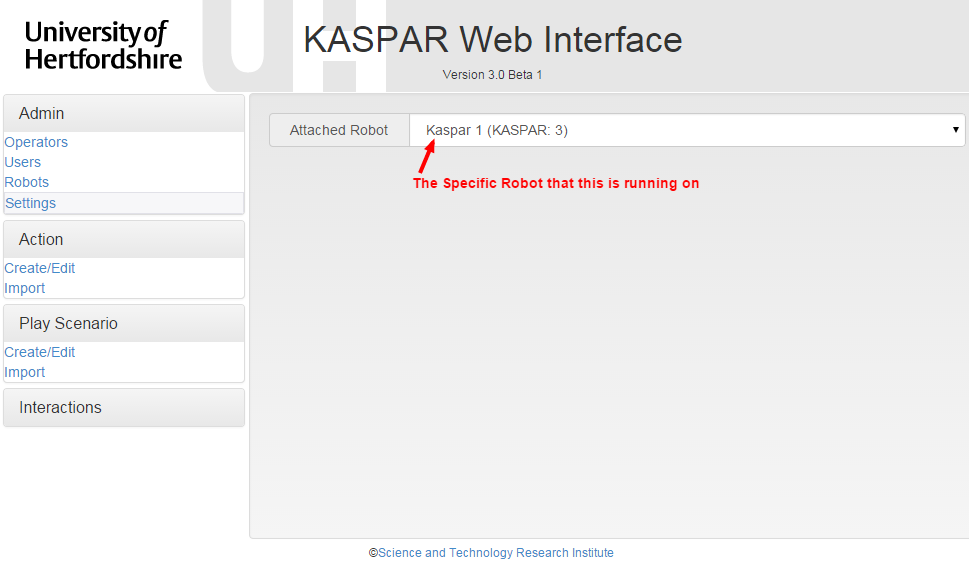
There is currently very little that can be modified in the Admin Section of the menu. You can add/edit operators, view the current Robot configuration and select the Robot that is currently connected. This last setting should be used with caution, as it will change the calibration data that is loaded.

The following images explain the various admin screens.



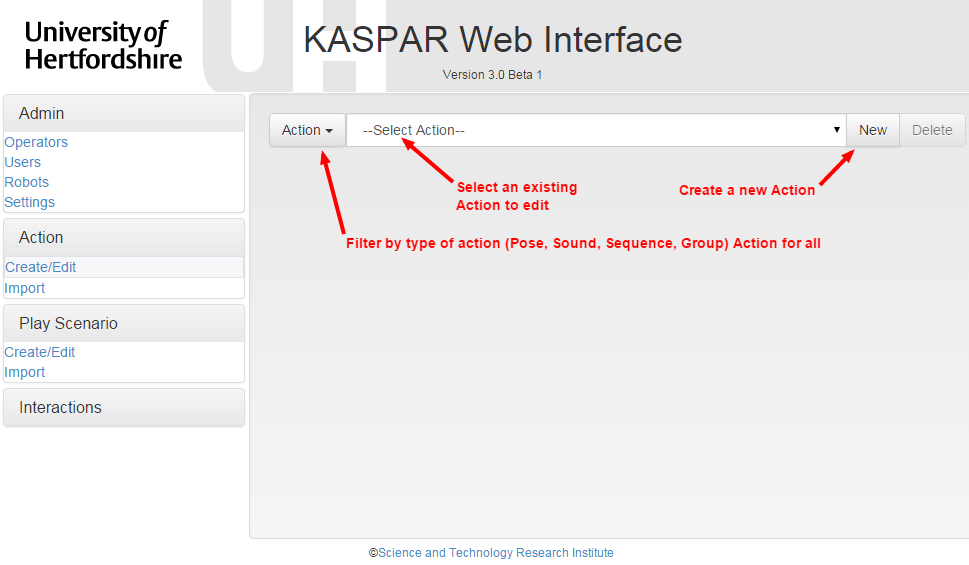




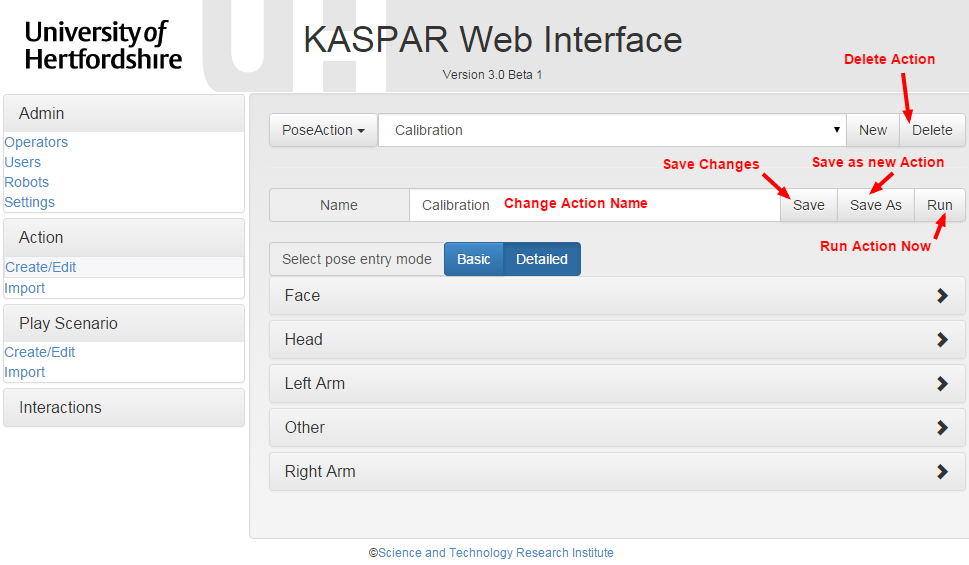


## Actions

The Actions section is where any changes to stored actions, including adding and deleting of actions occurs.

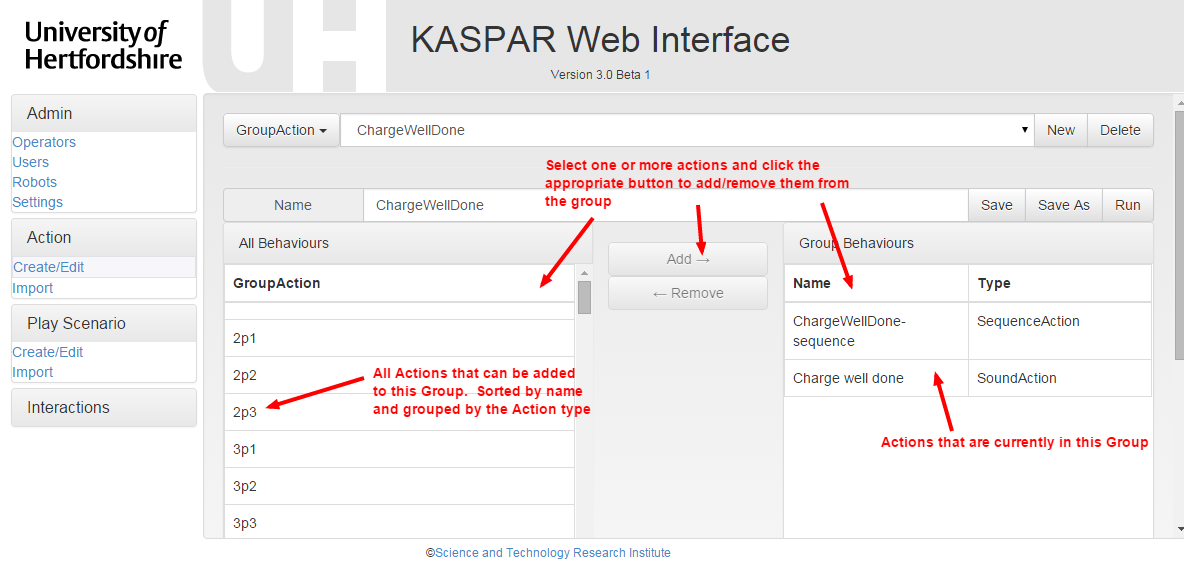


There are several common features of all of the Action Editors, they are indicated below.



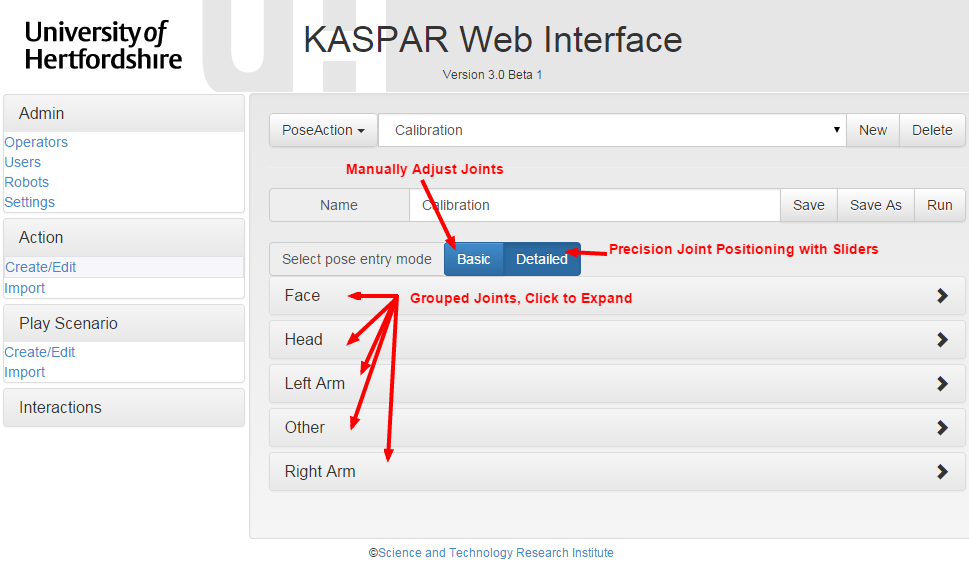
### Group Action

The Group Action type collects multiple Actions and allows them to run in parallel. This can be useful for playing a Sound at the same time as Movement is occurring.

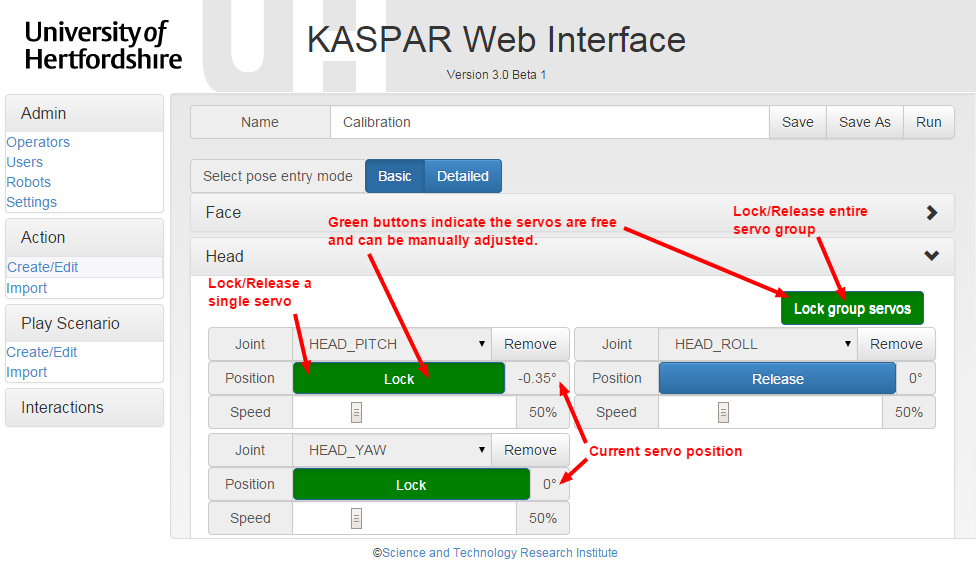


### Pose Action

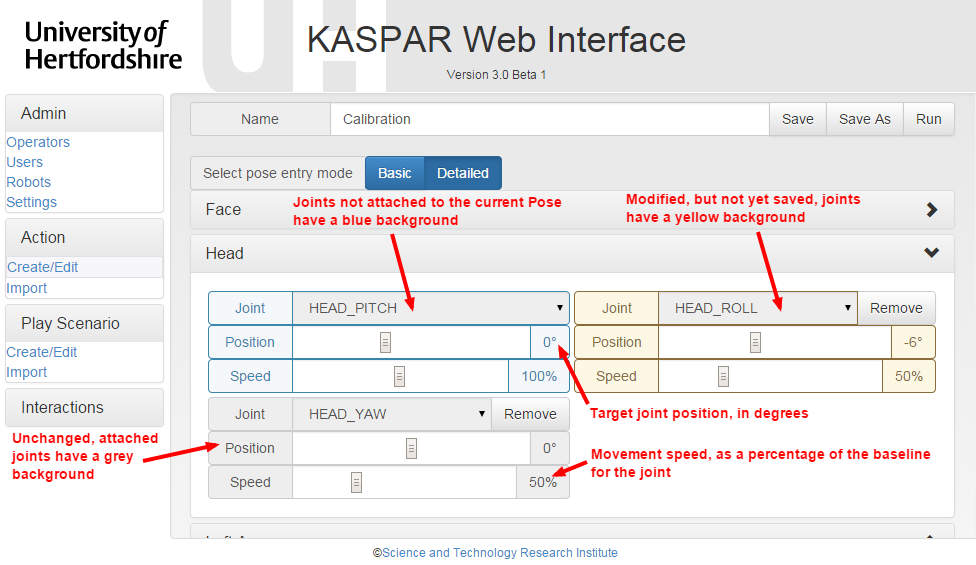
Poses are a collection of one or more Joint Positions and can be thought of as the basic Action of Kaspar. In addition to the position, a speed can be set for each Joint, changing how quickly it will attempt to reach the desired position. The speed is a modifier applied to the baseline speed for that servo, as indicated in the servo model configuration.



The Pose editor has two operational mode, Basic and Detailed. In Basic mode, the servos are set by releasing one or more servos, and manually moving them into position before locking them again. The editor will record the position that they are in when locked.



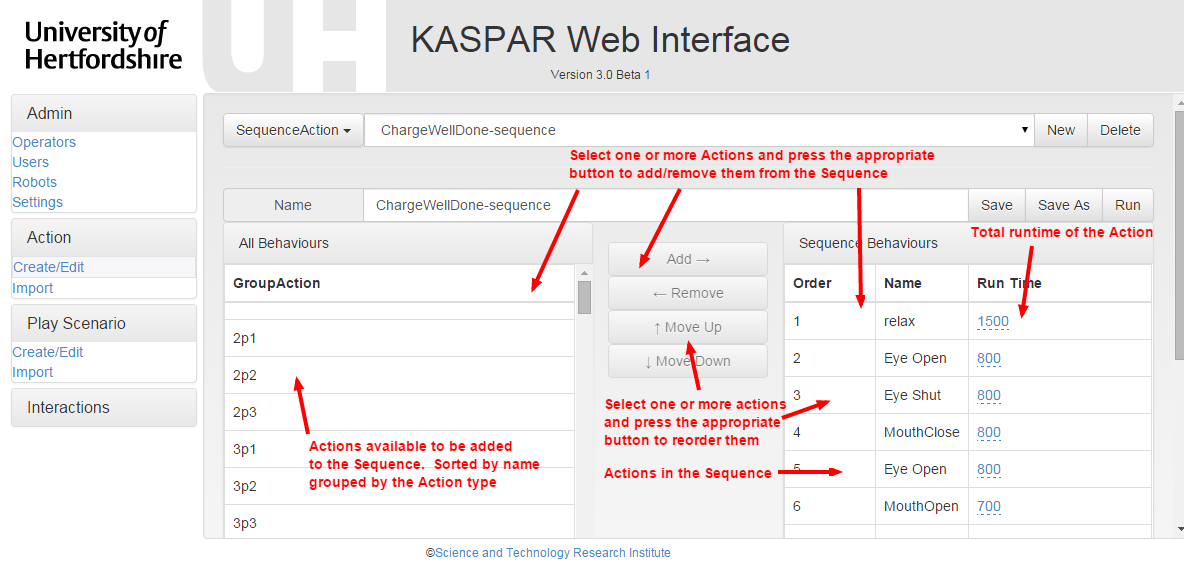
Detailed mode allows for more precise control of the servos, and must be used for the face servos, as they do not support manual positioning.



### Sequence Action

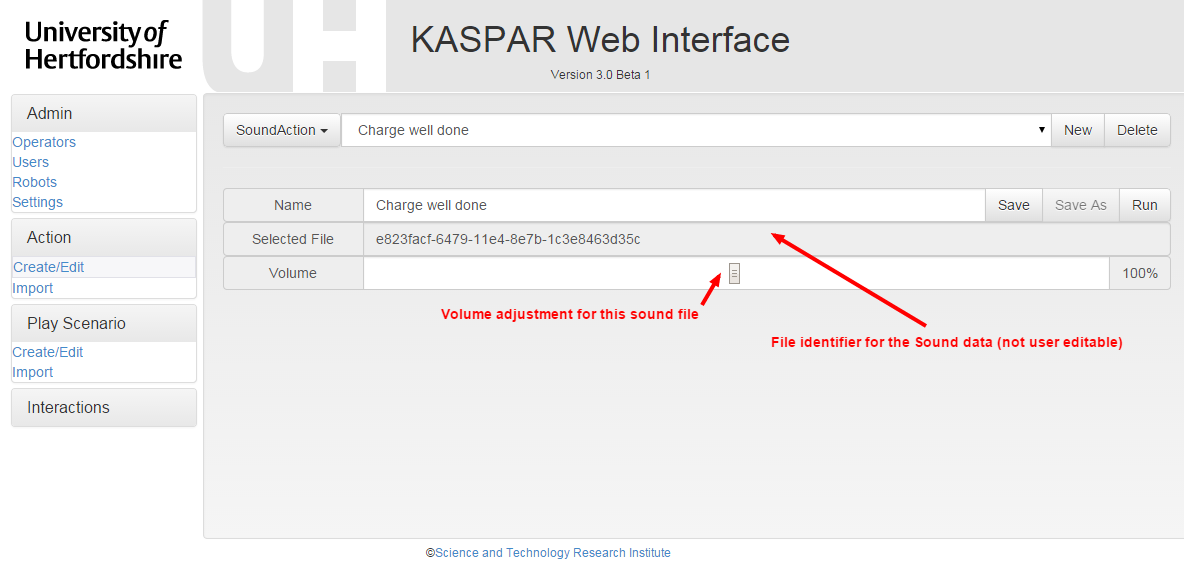
Sequences are groups of Actions that are run in a specific order. Additionally, they have an optional property that specified the total run time of each step of the sequence. This is the time from the start of that step, to the start of the next step. If a step in a sequence does not complete in the given time, it will be stopped so that the sequence can continue on time. Similarly, if a step finished before the specified time, a pause will be inserted for the remaining step time. This timing can be useful for timing movements to certain points in a Sound.

If this Run Time value is not specified, the next step will begin as soon as the previous step finished.

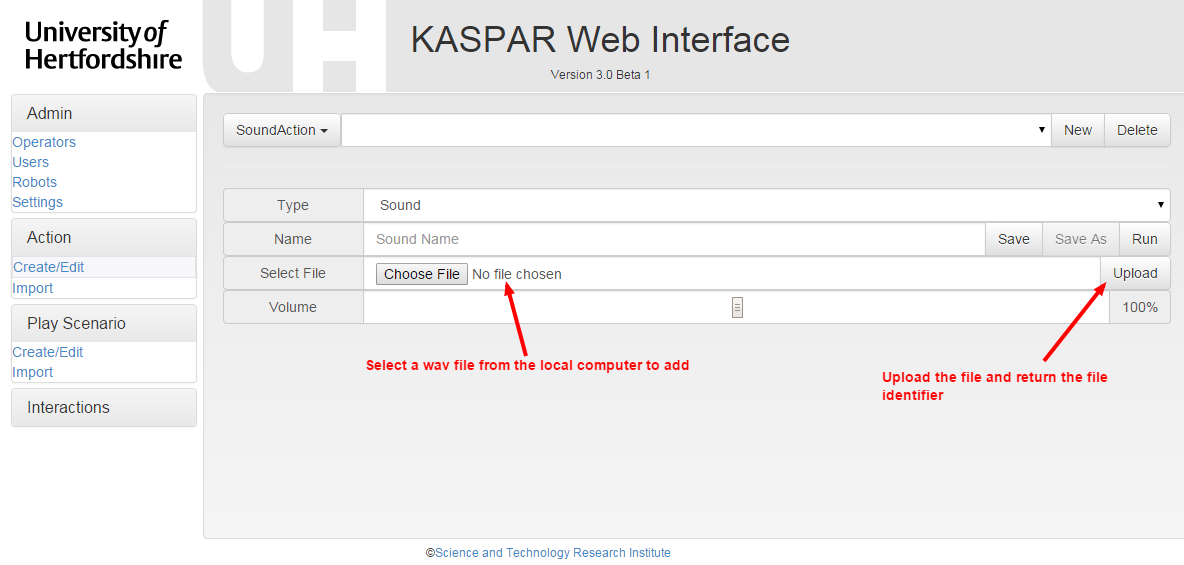


### Sound Action

Sound Actions are wav files that Kaspar can play. Each Sound can have the volume adjusted independently, which can be used to compensate for sound files that are too loud or too quiet.

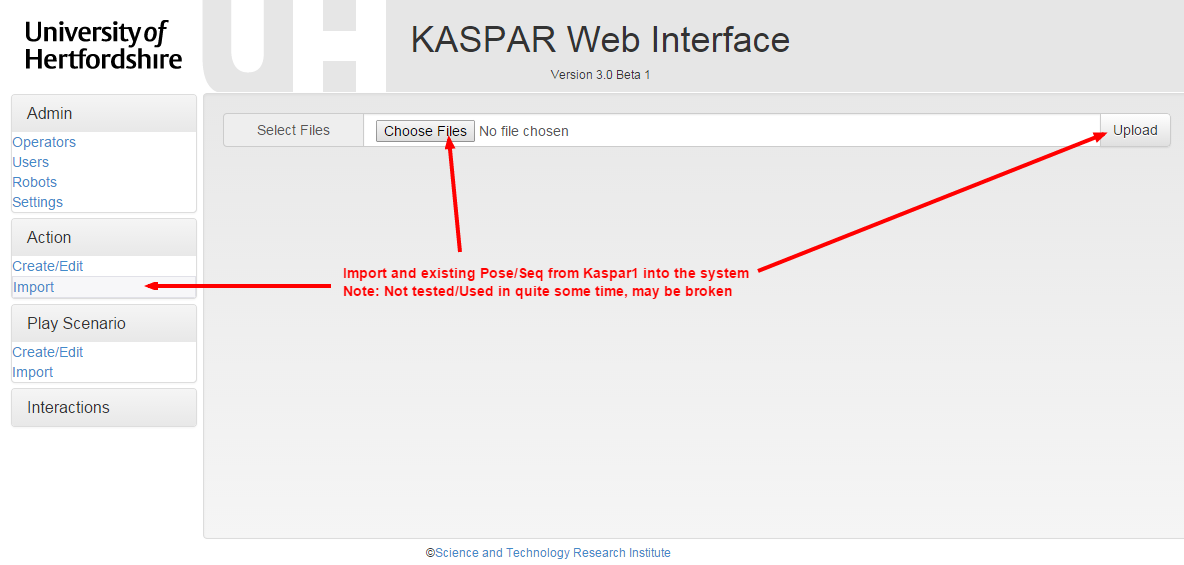


To add a new sound, first select a wav file and click upload. Finish by giving it an identifiable name and clicking save.



### Action Import

The final method of entering actions is to import a Kaspar1 formatted .seq or .pos file. Kaspar3 will attempt to convert these to the current format, with varying degrees of success.



## Play Scenarios

Due to changes in the structure of Play Scenarios, this section has been temporarily disabled.

## Interactions

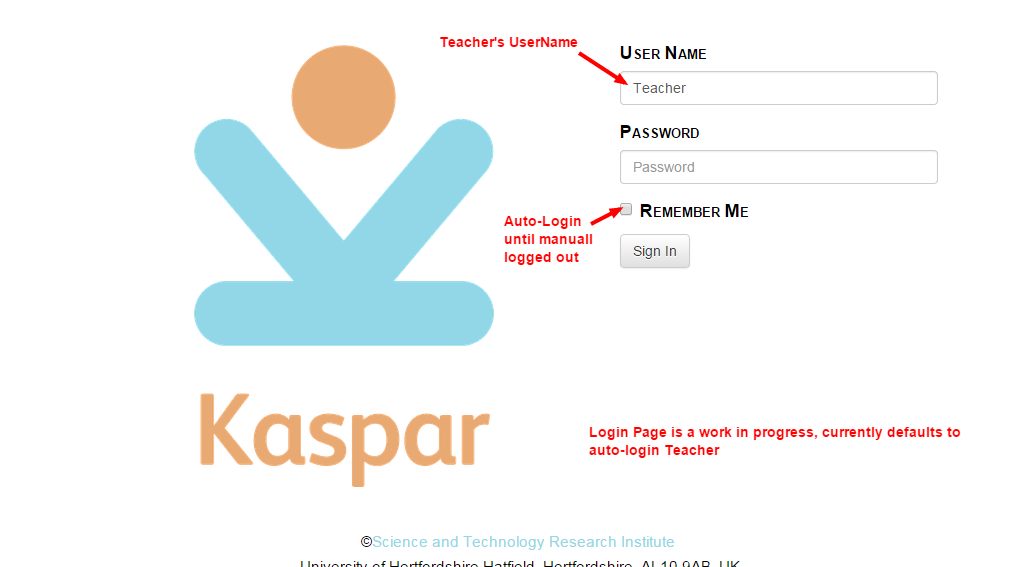
This section will offer an embedded Teacher UI for researchers to use for testing purposes; it has not yet been implemented.

# Teachers Interface

To begin working with the KASPAR3, connect your device of choice to the WIFI access point kaspar3\_X where X is the Kaspar number. Next open a Web browser and navigate to 192.168.3.1/teacher.html. The interface has been tested in Chrome, but should be functional in all HTML5 compatible browsers.

On all screens, there is a small loading bar that is visible while data is still being retrieved. It is generally advisable to not interact with the interface while data is loading, as it may cause unexpected results.

You should now see the screen shown below:



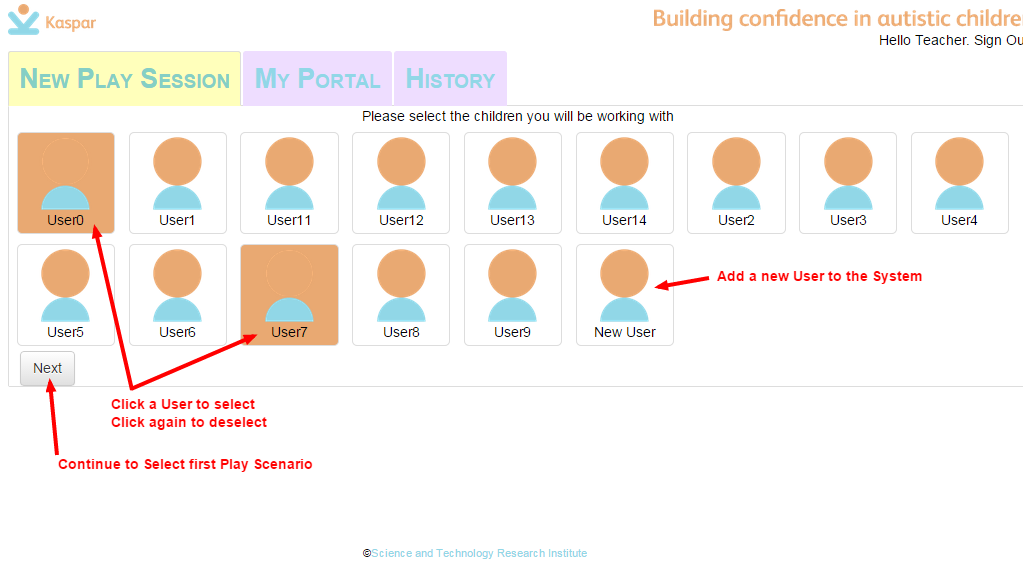
Once authenticated, you will be presented with the following:



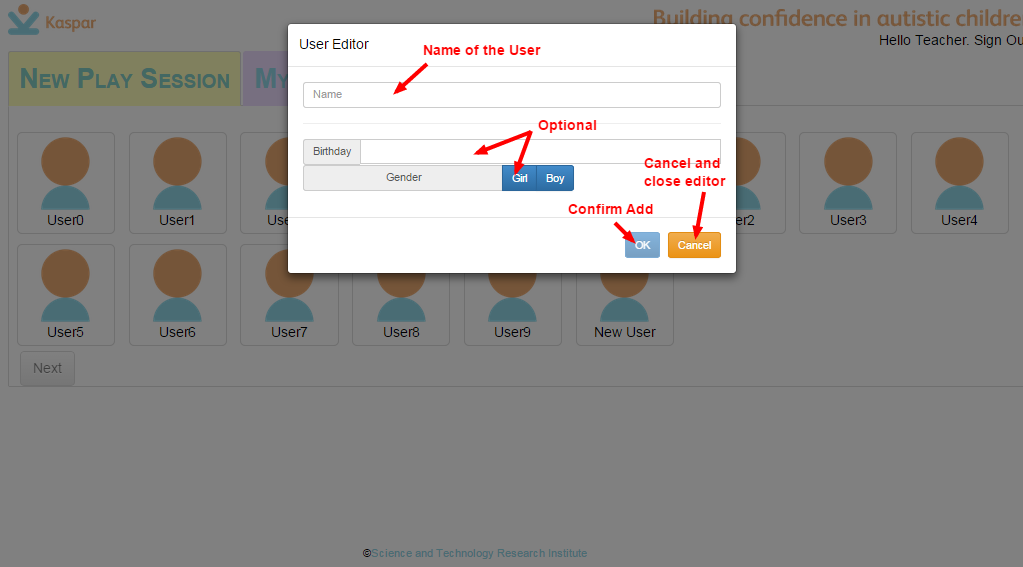
## New Play Session

### Select Users

In order to begin a New Play Session, first select one or more users in which you will be interacting with and click ‘Next’.



If a user that you wish to work with is not yet known to Kaspar, clicking ‘New User’ will bring up a dialog where they can be added. The only required field is the Users name, but other fields may help with our research.



### Select First Play Scenario

From here you will be presented with a list of all Play Scenarios that are stored on Kaspar. Select the first Play Scenario that you wish to use and press ‘Next’, or press ‘Back’ to return to Select Users.



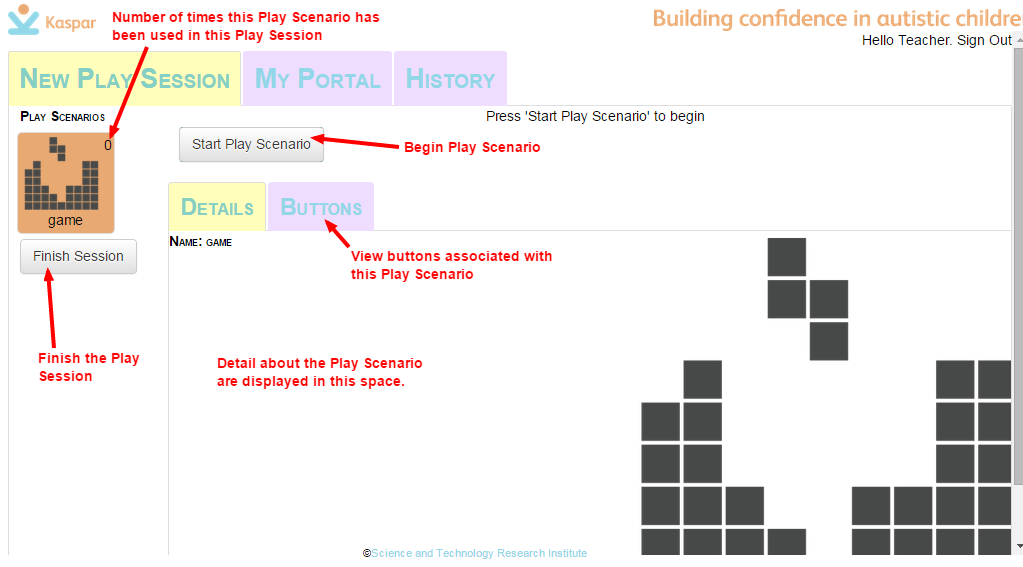
### Confirm Users and First Play Scenario

This is the final screen prior to beginning the Play Session, and the last opportunity to change the selected Users and first Play Scenario.



### Active Play Session

Once you have started the Play Session, but there is not an active Play Scenario, you’ll see the following screen. Once you are ready to begin each Play Scenario click ‘Start Play Scenario’. This will activate all of the appropriate behaviours on Kaspar, which can take several seconds. The progress bar visible at the top of the screen during this process will indicate when Kaspar has finished loading the behaviours.



The ‘Buttons’ tab allows you to manually activate any Actions associated with this Play Scenario, even if they do not have associated buttons on the KeyPad.

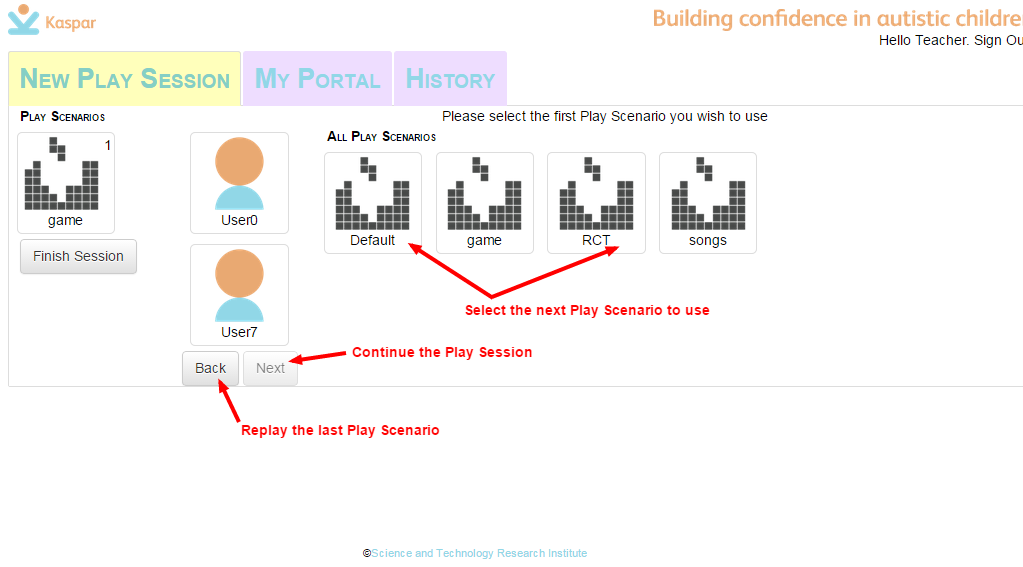


Once several Play Scenarios have been used, the screen will look more like what you see below. The Play Scenario highlighted in Orange is the one currently selected. The number near the top right of each Play Scenario indicated the number of times it has been used in this Play Session.



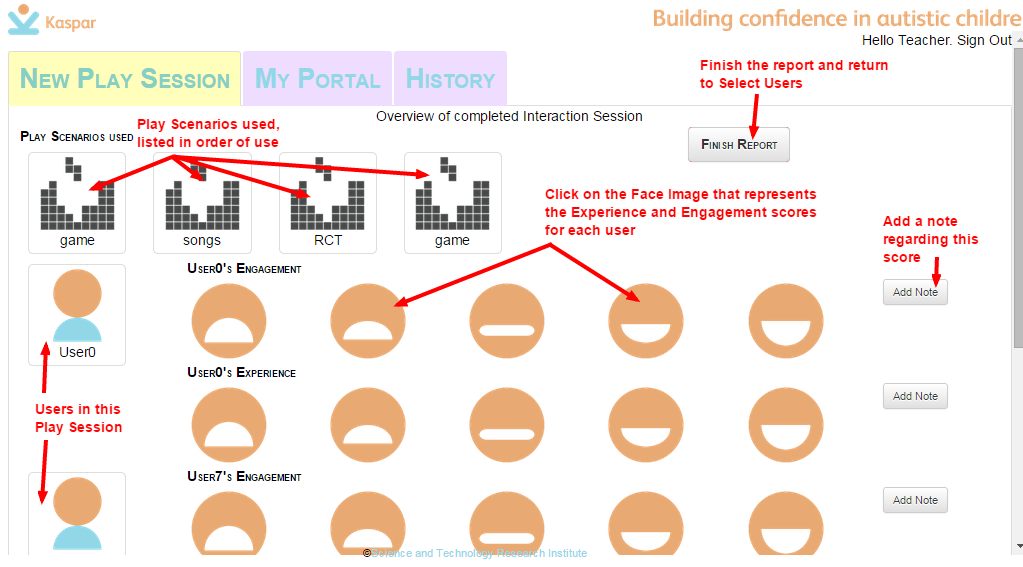
### Select Next Play Scenario

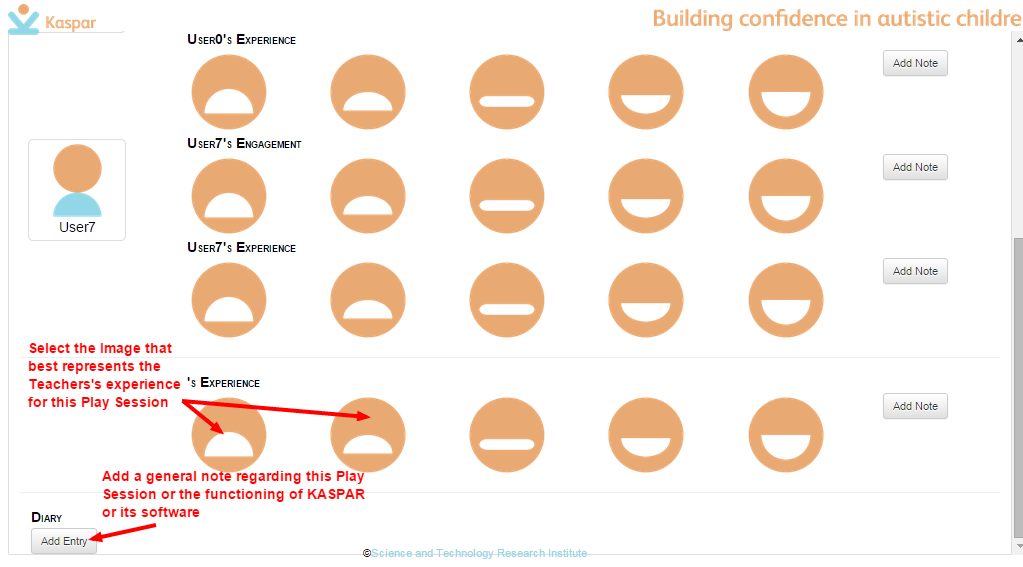
After finishing each Play Scenario, you will be presented with this screen. From here you can select another Play Scenario and click ‘Next’, click ‘Back’ to use the last selected Play Scenario, or click ‘Finish Session’ to complete the interaction.



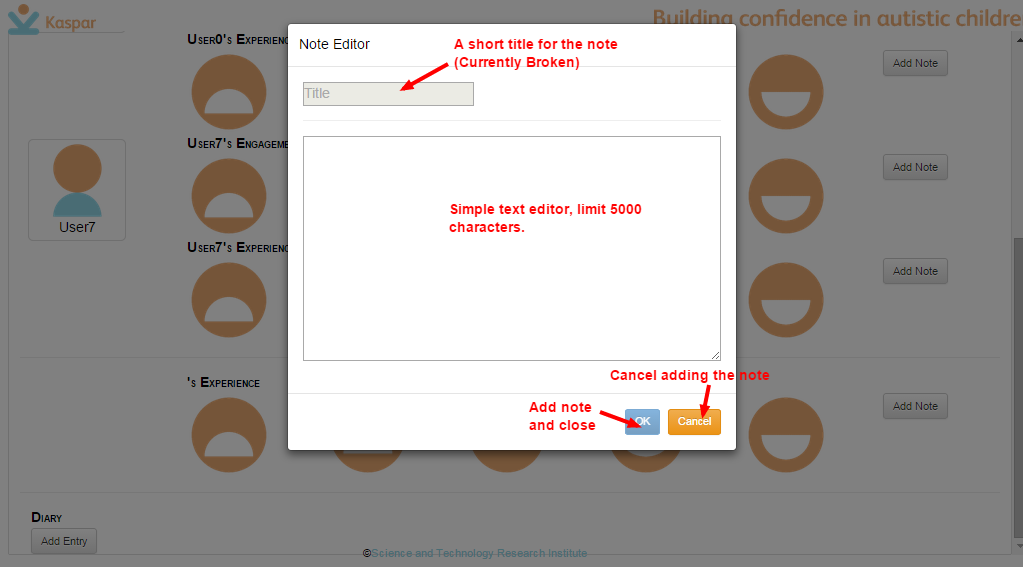
### Report

Upon finishing a Play Session, Kaspar will present you with a short report form. At the top of this form, you can see the Play Scenarios that were used, and in which order they were used. We ask that you fill out a rating for each users Engagement and Experience during this Play Session, as well as one for yourself. If you have more information that you would like to add regarding each rating, the ‘Add Note’ button at the end of each row is for this purpose. Near the bottom, you will find a ‘Add Entry’ button under the diary if there are any general notes that you would like to add regarding how well Kaspar performed during this Play Session.



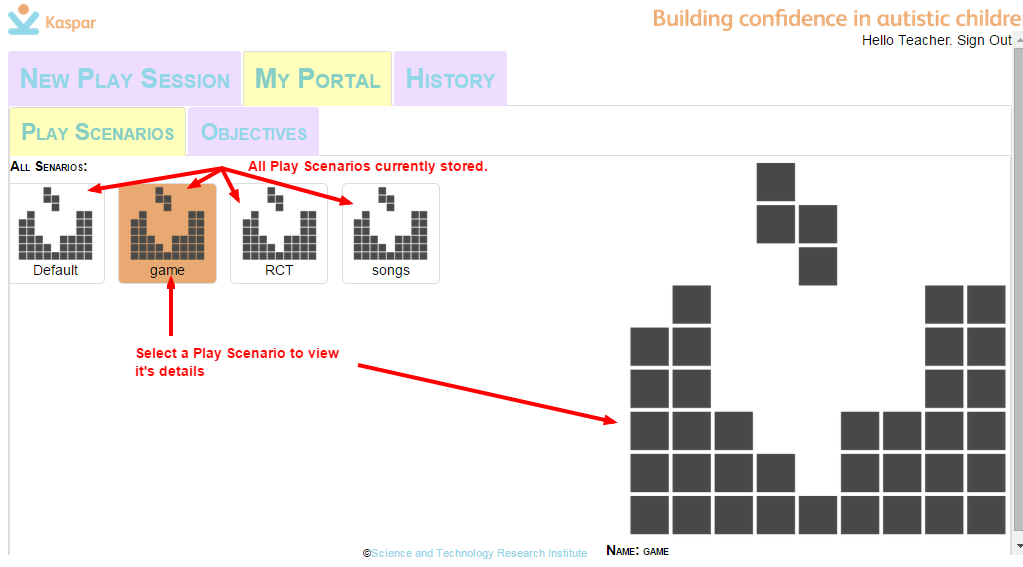


Clicking either ‘Add Note’ or ‘Add Entry’ will present you with the Notes Editor. For Experience and Engagement scores, the Title cannot be edited.



## My Portal

The portal section of the Teachers Interface can be used to view details about the Play Scenarios in the system. This section will be expanded upon based upon feedback from other Researchers and Operators.





## History

The history tab is used to review all past interactions with this Kaspar. On the left you can see a list of every interaction, with the average rating indicated by the background colour. This can give a rough estimate of the improvement seen from interacting with Kaspar.



Clicking on one of these interactions will show its details. More notes can be added to the interaction at any time. All notes are time-stamped so it is possible to know what was added during the report versus during a review.



