STATUS INDICATOR

RUNNING — Platform is ONLINE and READY

RUNNING — Platform is WAITING for components

(If this status persists for more than 2 minutes upon startup, please refer to the HEALTH tab on the SETUP page for component status details)

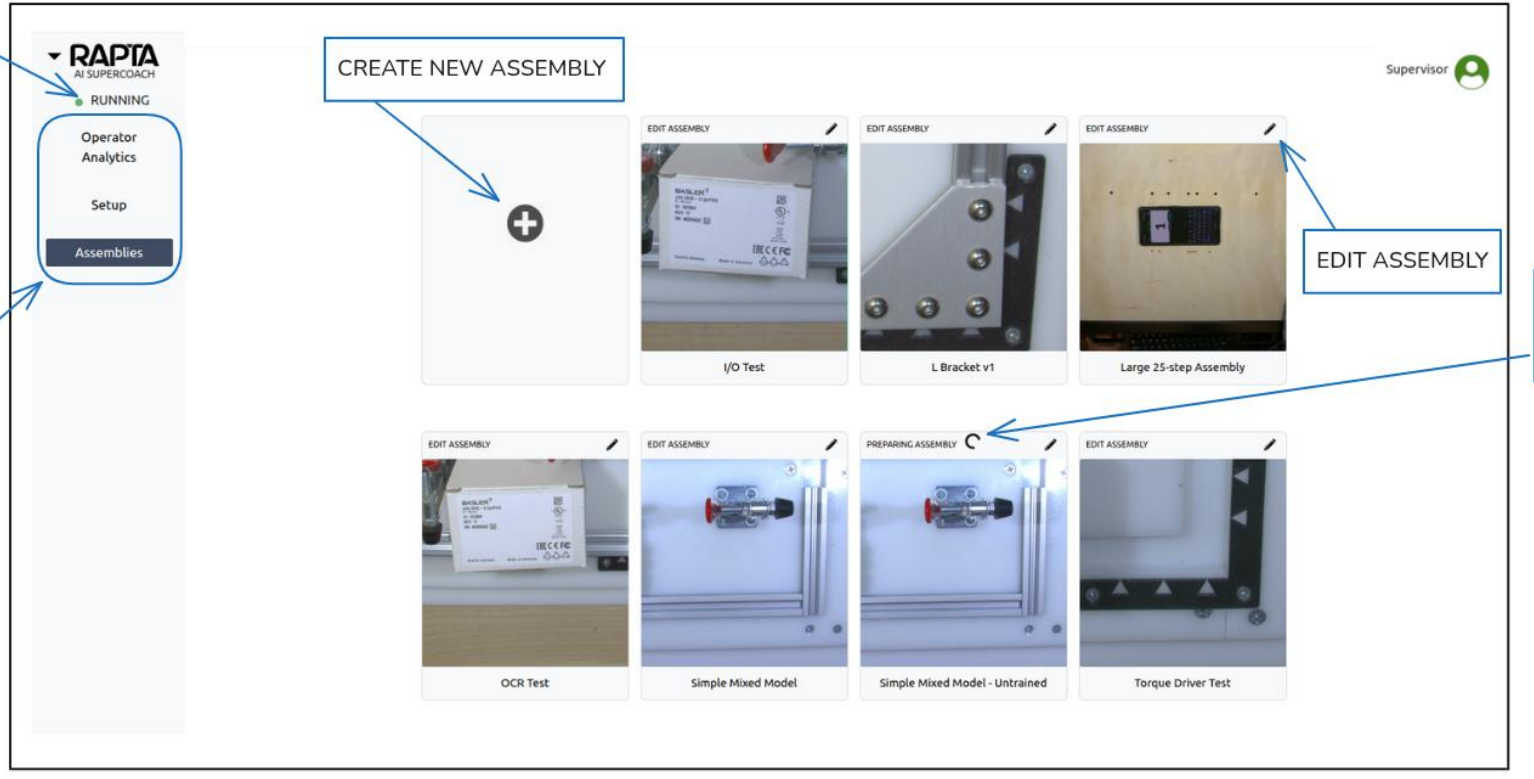
BUILDING ✕ — Platform is training an ASSEMBLY

NAVIGATION TABS

OPERATOR ANALYTICS
Allows viewing of all ASSEMBLY RECORDS

SETUP
Configuration options for the Rapta Supercoach

ASSEMBLIES
Editing and creating new ASSEMBLIES



EDIT ASSEMBLY

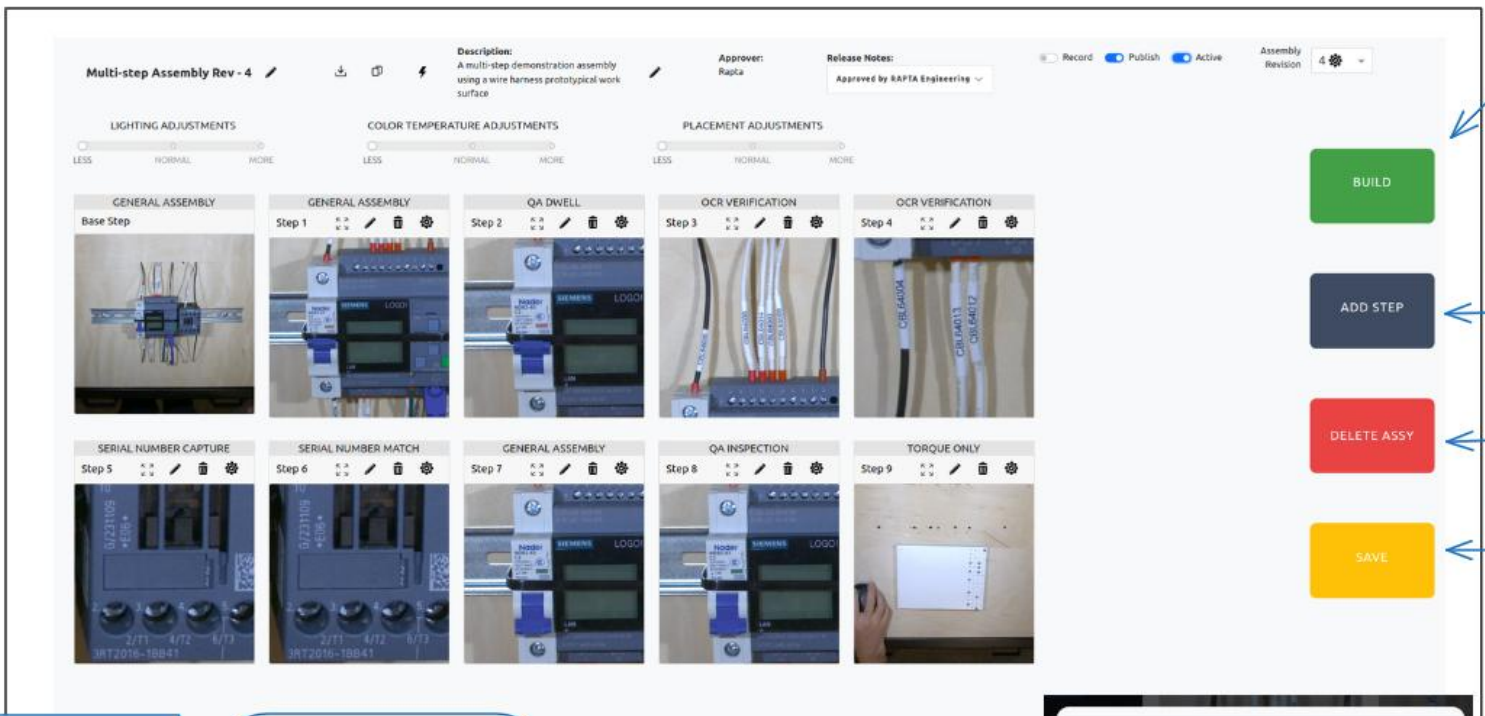
ASSEMBLY STATUS

SPINNING WHEEL indicates ASSEMBLY is not TRAINED and cannot be used for COACHING

Record — ASSEMBLIES can be set to record any time they are coached. This video can be used for documentation or training purposes.

Publish — With Release Control ENABLED (ASSEMBLIES tab on SETUP page), ASSEMBLIES must be Published before they can be set to active and available for COACHING.

Active — ASSEMBLIES can be set to record any time they are coached. This video can be used for documentation or training purposes.



BUILD

Trains the AI model and allows the ASSEMBLY to be active for COACHING.

This symbol will mark ASSEMBLY REVISIONS that have all steps trained. When Multi-step Model is ENABLED (see ASSEMBLIES tab on SETUP page), this symbol marks STEPS that have been trained.

ADD STEP

Allows a user to add a STEP to this ASSEMBLY

DELETE ASSEMBLY

Allows a user to DELETE this ASSEMBLY

SAVE ASSEMBLY

Saves the edits made to the ASSEMBLY without training. If changes are made to STEPS, the ASSEMBLY will need to be trained before being available for COACHING.

STEP CARD

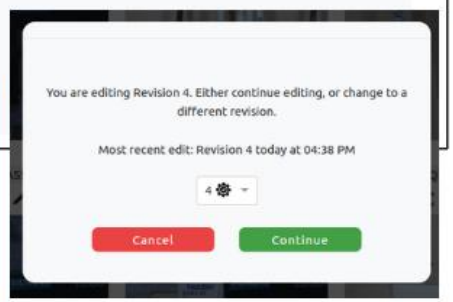
- Move STEP within ASSEMBLY
- Edit this STEP
- Delete this STEP
- This STEP has been trained (when Multi-Step Model ENABLED)

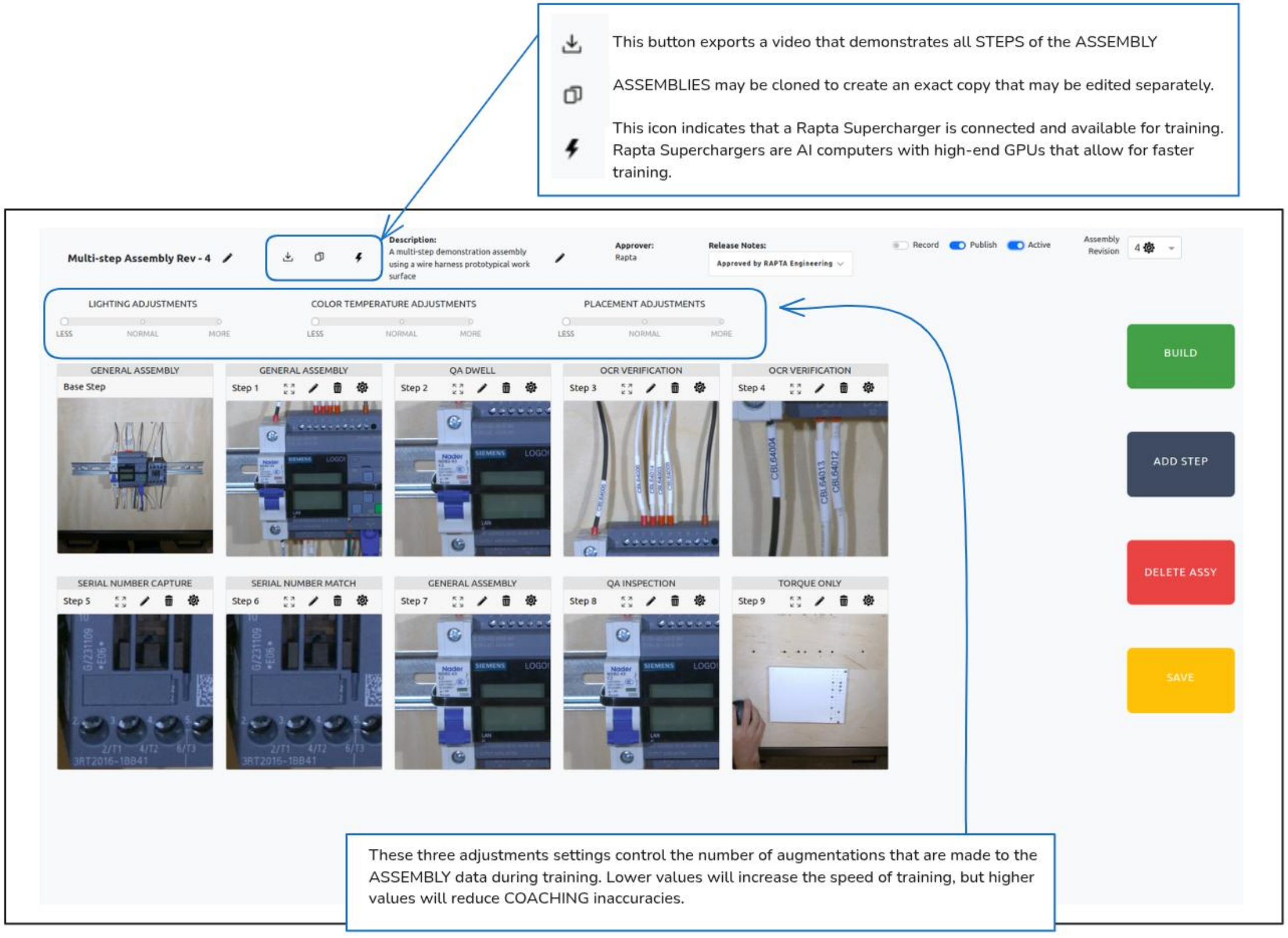
ASSEMBLY REVISIONS

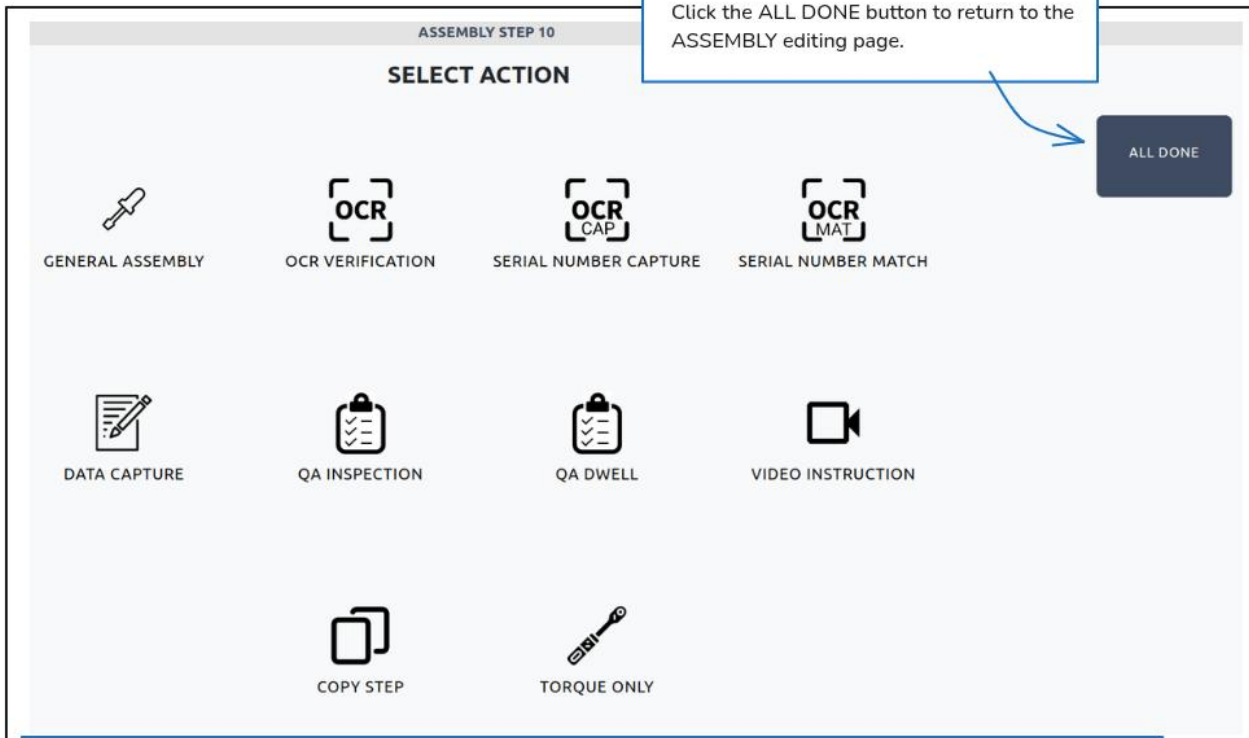
REVISIONS are snapshots of an ASSEMBLY's state at a given time.

Anytime edits are made that impact STEPS in an ASSEMBLY, a new REVISION is created.

Before reaching the ASSEMBLY edit page, the user is prompted to select a REVISION to edit. REVISIONS may also be selected from the drop-down in the top right.




This button exports a video that demonstrates all STEPS of the ASSEMBLY
ASSEMBLIES may be cloned to create an exact copy that may be edited separately.
This icon indicates that a Rapta Supercharger is connected and available for training. Rapta Superchargers are AI computers with high-end GPUs that allow for faster training.
Multi-step Assembly Rev - 4
Description:
A multi-step demonstration assembly using a wire harness prototypical work surface
Approver:
Rapta
Release Notes:
Approved by RAPTA Engineering
Record
Publish
Active
Assembly Revision
4
LIGHTING ADJUSTMENTS
COLOR TEMPERATURE ADJUSTMENTS
PLACEMENT ADJUSTMENTS
LESS
NORMAL
MORE
BUILD
ADD STEP
DELETE ASSY
SAVE
GENERAL ASSEMBLY
Base Step
GENERAL ASSEMBLY
Step 1
QA DWELL
Step 2
OCR VERIFICATION
Step 3
OCR VERIFICATION
Step 4
SERIAL NUMBER CAPTURE
Step 5
SERIAL NUMBER MATCH
Step 6
GENERAL ASSEMBLY
Step 7
QA INSPECTION
Step 8
TORQUE ONLY
Step 9
These three adjustments settings control the number of augmentations that are made to the ASSEMBLY data during training. Lower values will increase the speed of training, but higher values will reduce COACHING inaccuracies.



Click the ALL DONE button to return to the ASSEMBLY editing page.

GENERAL ASSEMBLY

Captures any type of ASSEMBLY action and uses AI inference to confirm STEP was completed properly (PASSED)

OCR VERIFICATION

A general application of Optical Character Recognition to capture text from the ASSEMBLY subject.

SERIAL NUMBER CAPTURE

Captures a specific instance of text that can be later re-verified using Serial Number Match. (e.g. a serial number can be captured at the beginning of an ASSEMBLY and then confirmed to be present on all components of the subject).

SERIAL NUMBER MATCH

Confirms the presence of a text category that was captured during Serial Number Capture.

DATA CAPTURE

Captures data from the ASSEMBLY other than OCR (e.g. barcode scanning or manual entry)

QA INSPECTION

Uses AI inference to confirm that STEP was PASSED. Similar to General Assembly without the inclusion of a video instruction. Will document FAILED STEPS, but allow ASSEMBLY to progress.

QA DWELL

Same as QA Inspection, but will not allow ASSEMBLY to progress until STEP is PASSED.

VIDEO INSTRUCTION

Simply records a video of the ASSEMBLY STEP for training purposes. Video Instruction steps can be configured to loop continuously until the OPERATOR advances the ASSEMBLY, giving new OPERATORS the time to learn the ASSEMBLY process.

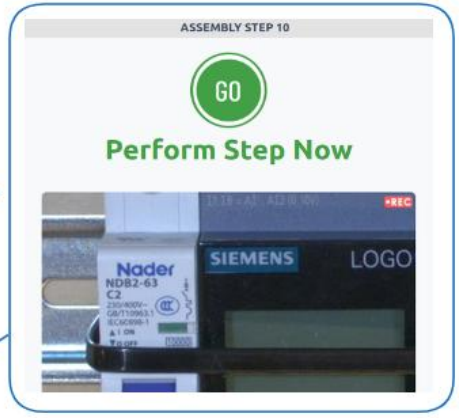
COPY STEP

Copies a STEP. STEPS can be copied from this or other ASSEMBLIES.

TORQUE ONLY

STEP using output of a torque wrench as PASS/FAIL criteria. Smart torque devices (e.g. Kolver K-ducer) can be programmed precisely for each STEP from the Rapta Supercoach training interface.

Simply follow the user prompts at the top of the page during TRAINING.



Click the GREEN button after following prompts to advance the TRAINING procedure.

Click the GREY or RED button at any time to return to a previous TRAINING step.

Add a STEP description to prompt the OPERATOR during ASSEMBLY COACHING

In addition to the main action of the ASSEMBLY STEP, additional correct and incorrect actions may also be trained. Documenting these possible outcomes and adding them to the training data will make the AI inference more robust, as well as provide the OPERATOR with more information during COACHING.

ASSEMBLY STEP 10

DO YOU HAVE ANOTHER CORRECT ACTION?

CORRECT

ASSEMBLY STEP 10

THE SYSTEM REQUIRES AT LEAST ONE INCORRECT STEP TO BE RECORDED.

ARE YOU READY TO MOVE ON TO INCORRECT STEPS?

CORRECT

START

CANCEL

Click the GREEN button after following prompts to advance the TRAINING procedure.

Click the GREY or RED button at any time to return to a previous TRAINING step.

When TRAINING torque STEPS, the user is prompted to enter the following torque parameters:

Target Torque - the intended final torque for the fastener

Max Torque - the maximum allowable torque for the application

Torque Units - units by which torque is measured in this application

Run Speed - the speed of rotation during tightening

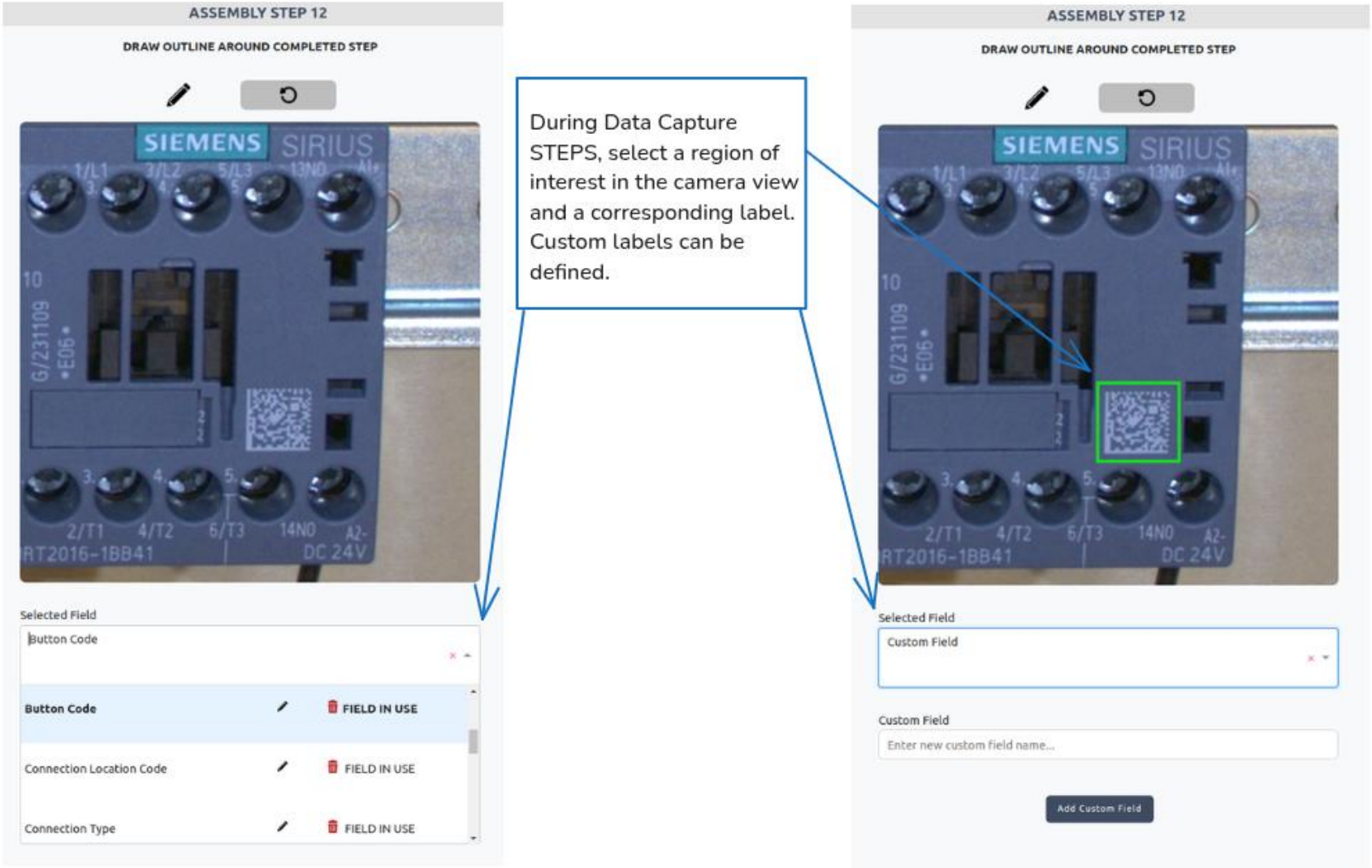
Speed Units - revolutions per minute

Angle Check - when ENABLED, will require the tightening to be performed within the indicated angle tolerance of the Final Rotaion Angle.

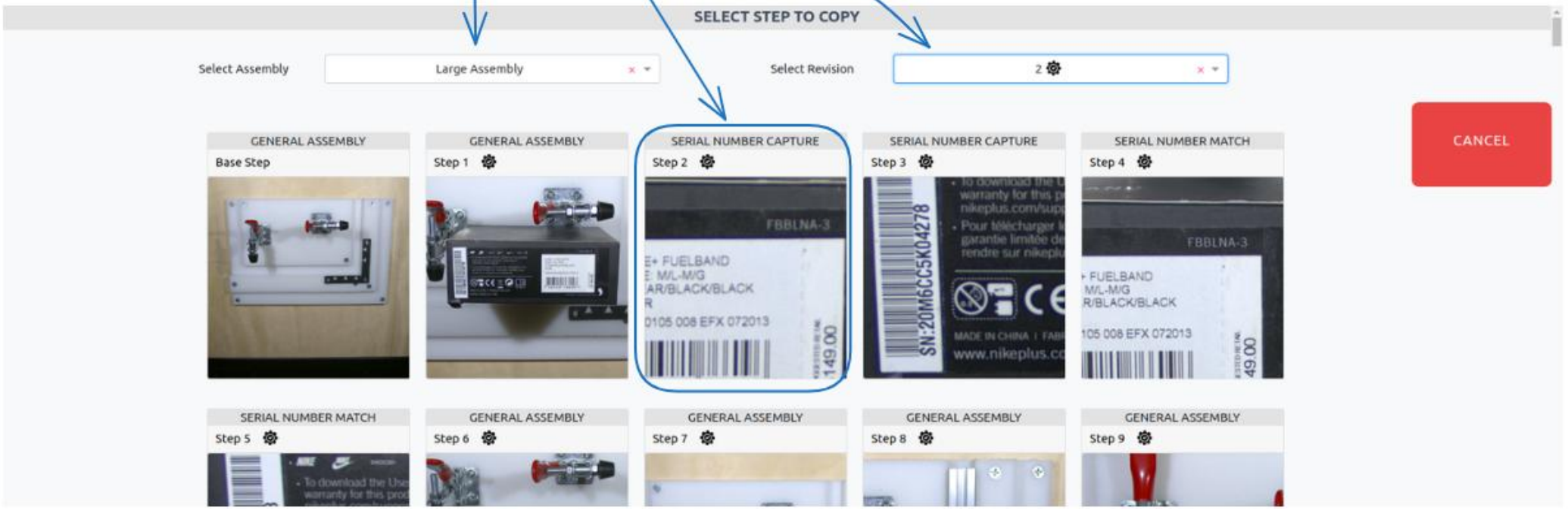
Final Rotation Angle - the intended rotation angle of the fastener

Permitted Angle Tolerance - upper and lower limit of rotation from the Final Rotation Angle. (i.e. fastener must be turned a number of degrees within this range: Final Rotation Angle ± Permitted Angle Tolerance)

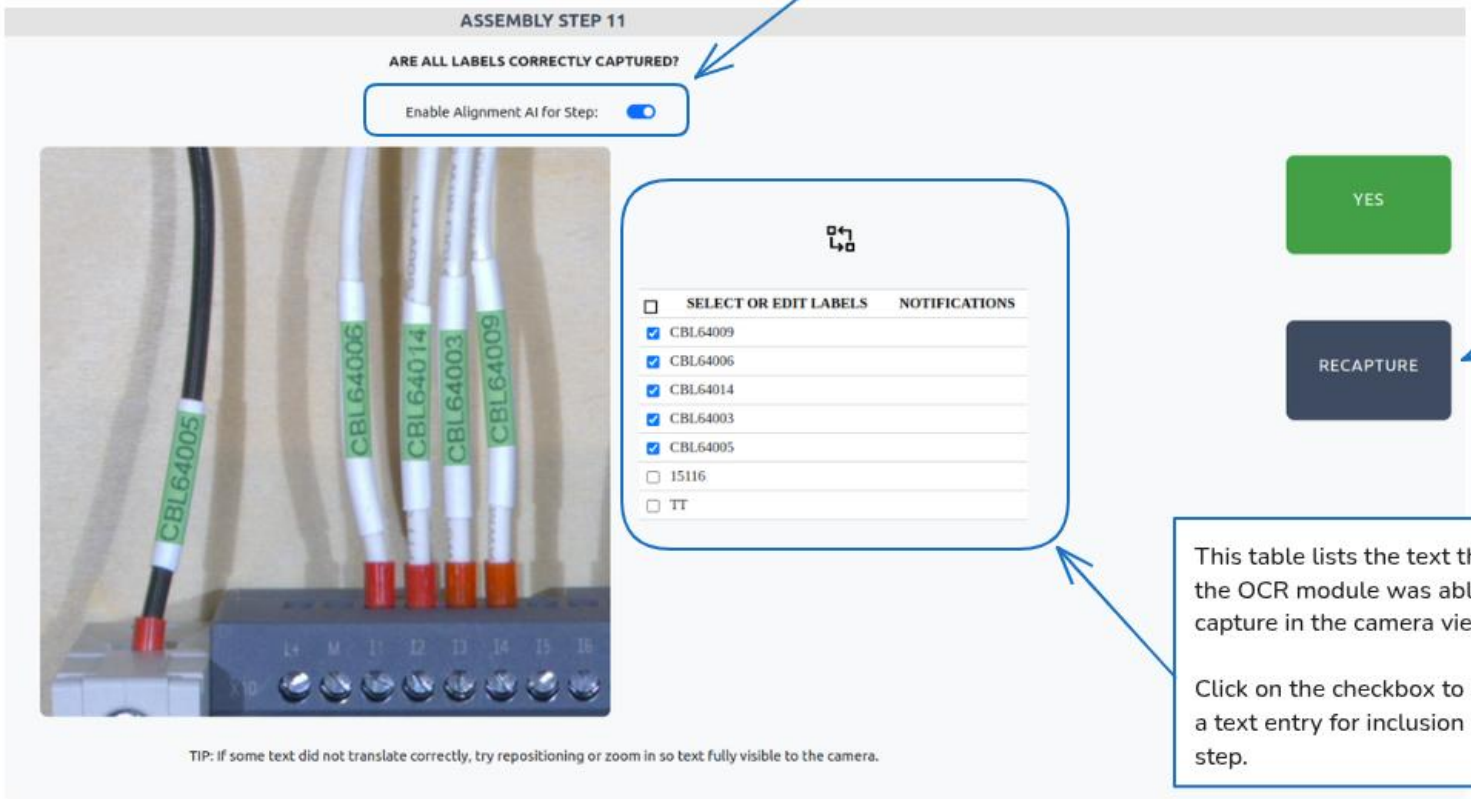
After performing the torque step during training, the achieved Final Rotation Angle is presented. The user is able to precisely set this value on the following screen while defining the region of interest and adding a STEP description.


ASSEMBLY STEP 12
DRAW OUTLINE AROUND COMPLETED STEP
SIEMENS
SIRIUS
Selected Field
Button Code
Button Code
FIELD IN USE
Connection Location Code
FIELD IN USE
Connection Type
FIELD IN USE
During Data Capture STEPS, select a region of interest in the camera view and a corresponding label. Custom labels can be defined.
ASSEMBLY STEP 12
DRAW OUTLINE AROUND COMPLETED STEP
SIEMENS
SIRIUS
Selected Field
Custom Field
Custom Field
Enter new custom field name...
Add Custom Field

To copy a STEP, select the source ASSEMBLY and REVISION and then click the STEP card to copy.



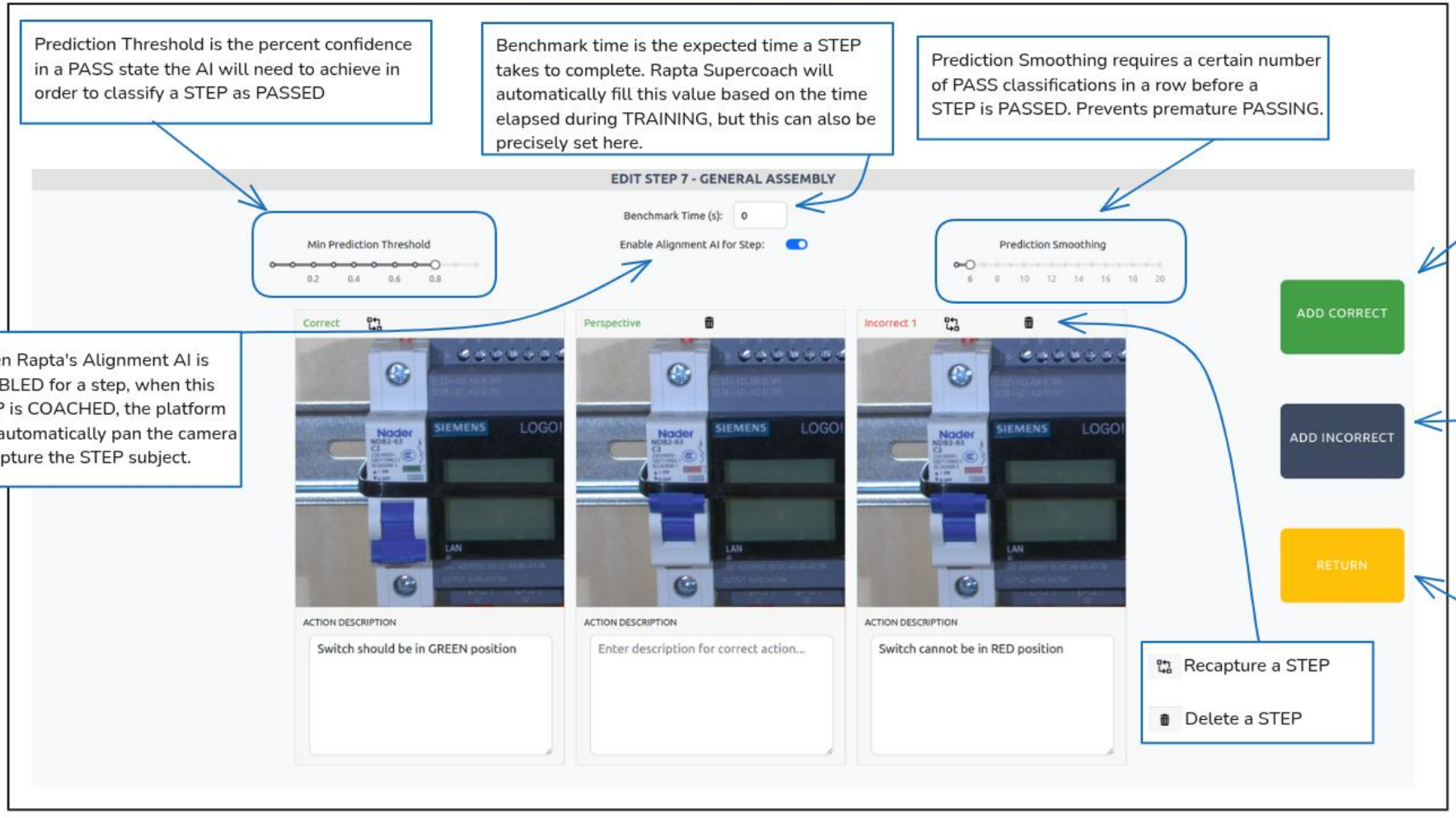
When Rapta's Alignment AI is ENABLED for a step, when this STEP is COACHED, the platform will automatically pan the camera to capture these OCR subjects.



RECAPTURE will reinitiate the OCR capture process in the event that some text was incorrectly processed.

This table lists the text that the OCR module was able to capture in the camera view.

Click on the checkbox to select a text entry for inclusion in the step.


Prediction Threshold is the percent confidence in a PASS state the AI will need to achieve in order to classify a STEP as PASSED
Benchmark time is the expected time a STEP takes to complete. Rapta Supercoach will automatically fill this value based on the time elapsed during TRAINING, but this can also be precisely set here.
Prediction Smoothing requires a certain number of PASS classifications in a row before a STEP is PASSED. Prevents premature PASSING.
EDIT STEP 7 - GENERAL ASSEMBLY
Benchmark Time (s):
0
Enable Alignment AI for Step:
Min Prediction Threshold
0.2 0.4 0.6 0.8
Prediction Smoothing
6 8 10 12 14 16 18 20
Correct
Perspective
Incorrect 1
ACTION DESCRIPTION
Switch should be in GREEN position
ACTION DESCRIPTION
Enter description for correct action...
ACTION DESCRIPTION
Switch cannot be in RED position
ADD CORRECT
ADD INCORRECT
RETURN
ADD CORRECT - Add additional correct action to this STEP
ADD INCORRECT - Add incorrect action to this STEP
RETURN - Return to the ASSEMBLY edit page
When Rapta's Alignment AI is ENABLED for a step, when this STEP is COACHED, the platform will automatically pan the camera to capture the STEP subject.
Recapture a STEP
Delete a STEP