ROBOTICS & DISCRETE AUTOMATION

RobotStudio® AR Viewer
User Manual

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1. Purpose

"RobotStudio® AR Viewer" app allows to view simulations prepared using "ABB RobotStudio®" desktop app in augmented reality using ARCore/ARKit-enabled device.

2. Application overview

2.1. Getting started

Three easy steps are required to view RobotStudio® simulation in AR application:

1. Export simulation to gITF (*.glb file)
2. Place exported simulation file on the cloud drive (e.g. OneDrive)

3. Import simulation to the mobile app
2.1.1. How to export station as GLB file?

To export station designed in "ABB RobotStudio®" desktop app use "Save Station as Viewer" feature.

Click “File” tab (1), select “Share” (2) and then “Save Station as Viewer” button (3).

In “Save As” dialog set “Save as type” option (1) to “glTF files (*.glb)”. Confirm by clicking “Save” button (2).
2.1.2. How to export simulation to GLB file?

To export simulation designed in "ABB RobotStudio®" desktop app (with animations) use "Record to Viewer" feature.

Go to "Simulation" tab (1) and click "down arrow" in Play button (2). Select "Record to Viewer" option from drop down menu (3).

After playing simulation, in “Save As” dialog set “Save as type” option (1) to “glTF files (*.glb)”. Confirm by clicking “Save” button (2).
2.2. Main screen options

Main screen consists of three buttons: "Examples", "My simulations" and "About". Tapping any of these buttons leads to the given section.

Image: Main screen
2.2.1. Examples

"Examples" screen contains list of sample simulations embedded in application. Tapping any tile on the list leads to "Viewer" screen which allows to display simulation in AR. Tapping "<" button in the top left corner of the screen allows you to go back to "Main screen".
2.2.2. My simulations

"My simulations" screen contains list of imported simulations. Tapping any tile on the list leads to "Viewer" screen which allows to display simulation in AR. To import simulation tap "+" button in the top right corner. Tapping "<" button in the top left corner of the screen allows you to go back to "Main screen".

Image: "My simulations" screen

Importing simulations

Tapping "+" button on "My simulations" screen allows to import simulation prepared in ABB RobotStudio® desktop app.

Using system file picker screen, you can select file which will be copied to the app. You can select file located on any cloud provider (e.g. OneDrive). After file gets copied and processed, it is added to the list.

Removing imported simulation

Tapping on "Bin" icon on the tile, you can remove file from app. Confirm action by tapping "YES" button in displayed dialog. Tap "Cancel" to resign.
2.2.3. About

“About” screen contains basic information about the app and support contact details.

Image: "About" screen
2.3. Working with simulations

2.3.1. Viewer

"Viewer" screen allows to load selected simulation (from "Examples" or "My simulations") and present it AR scene. Tapping "<" button in the top left corner of the screen allows you to go back to previous screen.

Steps to view simulation:

1. Move your phone and point to flat surface, e.g. floor
2. When horizontal surface gets detected, "grey dots" should appear. Red circle will indicate place where model will be placed
3. Tap on screen to place simulation loader
4. After simulation gets loaded it will be displayed in selected spot
2.3.2. **Simulation viewing options**

After loading simulation, additional buttons are displayed at the bottom of the screen.

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Play/Pause</td>
<td>Allows to play/pause animation in simulation</td>
</tr>
<tr>
<td>Reset</td>
<td>Allows to reset animation to initial state</td>
</tr>
<tr>
<td>Timeline</td>
<td>Allows to display animation timeline to go quickly to certain point in time</td>
</tr>
<tr>
<td>Adjust</td>
<td>Allows to switch to adjust mode to change model position, rotation and size</td>
</tr>
</tbody>
</table>
2.3.3. **Animation timeline**

Animation timeline button allows to display timeline slider to quickly scan through whole animation. Tap again animation button to close animation timeline slider.

*Tip:* Tap on "RESET" button to reset animation to initial state.

![Image: Animation timeline slider](image)

*Remark:* Buttons to control animation are displayed only when loaded simulation contains any animation.

*Tip:* Tap in centre of the screen to hide top bar and buttons at the bottom. Tap again to bring back top bar and buttons at the bottom.
2.3.4. **Adjusting simulation**

Adjust simulation button allows to switch to adjust mode to change model position, rotation and size. Tap again adjust simulation button to exit adjust mode.

<table>
<thead>
<tr>
<th>Move simulation</th>
<th>Allows to move simulation to change its initial position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotate simulation</td>
<td>Allows to rotate simulation model in relation to initial placement</td>
</tr>
<tr>
<td>Resize simulation</td>
<td>Allows to resize simulation to display it in real or simulated scale</td>
</tr>
</tbody>
</table>

2.3.5. **Moving simulation**

In adjust mode "Move simulation" button allows to adjust simulation initial position. Touch on model and move finger to change simulation position.

*Tip:* Tap on "RESET" button to reset position to initial.

Image: Moving simulation
2.3.6. **Rotating simulation**

In adjust mode "Rotate simulation" button allows to display slider to rotate model.

*Tip:* Tap on "RESET" button to reset rotation to 0°.

Image: Rotating simulation slider
2.3.7. **Resizing simulations**

In adjust mode "Resize simulation" button allows to display slider to resize model.

*Tip:* Tap on "RESET" button to reset scale to 100%.

![Image: Resizing simulation slider]
2.4. Photo and Video

2.4.1. Camera mode

Simulation viewer allows also to take photo or record video of loaded simulation. Tap “Camera” button in top right corner to switch to camera mode. Tap “×” button in top right corner to close camera mode.

Image: Viewer with camera button
Tip: You can switch between “Photo” and “Video” mode by tapping “Photo” or “Video” text right above camera shutter button.
2.4.2. Taking photo

In camera mode tap “Take photo” button to take photo of current view. After processing screenshot dialog is displayed with option to share taken photo or resign.

![Photo share dialog](image)

Tap “Share” button on dialog to display system share panel. You can share photo using social media app or save it to any cloud drive provider (e.g. OneDrive).
Image: Example system share panel (iOS)
2.4.3. **Video recording**

In camera mode tap "Record video" button to start recording. Video recorder starts grabbing whole screen. To finish video recording tap on screen. After processing video system share panel is displayed. You can share video using social media app or save it to any cloud drive provider (e.g. OneDrive).

Image: Video recorder
3. Technical information

3.1. Supported platforms

iOS

<table>
<thead>
<tr>
<th>Minimum system version</th>
<th>13.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices</td>
<td>iPhone, iPad</td>
</tr>
</tbody>
</table>

Android

<table>
<thead>
<tr>
<th>Minimum system version</th>
<th>8.0 (Oreo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices</td>
<td>phone, tablet</td>
</tr>
<tr>
<td>ARCore-enabled devices</td>
<td><a href="https://developers.google.com/ar/discover/supported-devices">https://developers.google.com/ar/discover/supported-devices</a></td>
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3.2. Acknowledgements

Component

AppCenter: https://github.com/Microsoft/AppCenter-SDK-Unity-Extension
License: MIT License

Visual Studio App Center SDK for Unity Editor Extensions
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Component

UnityGLTF: https://github.com/KhronosGroup/UnityGLTF

License: The MIT License (MIT)

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Component


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Component

LeanTween: https://github.com/dentedpixel/LeanTween

Licence: The MIT License (MIT)

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Component

Unity3dAsyncAwaitUtil: https://github.com/svermeulen/Unity3dAsyncAwaitUtil
Licence: MIT License

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Component

UnityNativeShare: https://github.com/yasirkula/UnityNativeShare
Licence: MIT License

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### 4. Revisions

<table>
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<tr>
<th>Rev</th>
<th>Description</th>
<th>Date Dept./Init.</th>
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<tbody>
<tr>
<td>A</td>
<td>User manual created</td>
<td>2020-02-06</td>
</tr>
<tr>
<td>B</td>
<td>User manual updated to application version 1.1</td>
<td>2020-06-30</td>
</tr>
<tr>
<td>C</td>
<td>Extended section on how to export GLB file</td>
<td>2020-07-31</td>
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