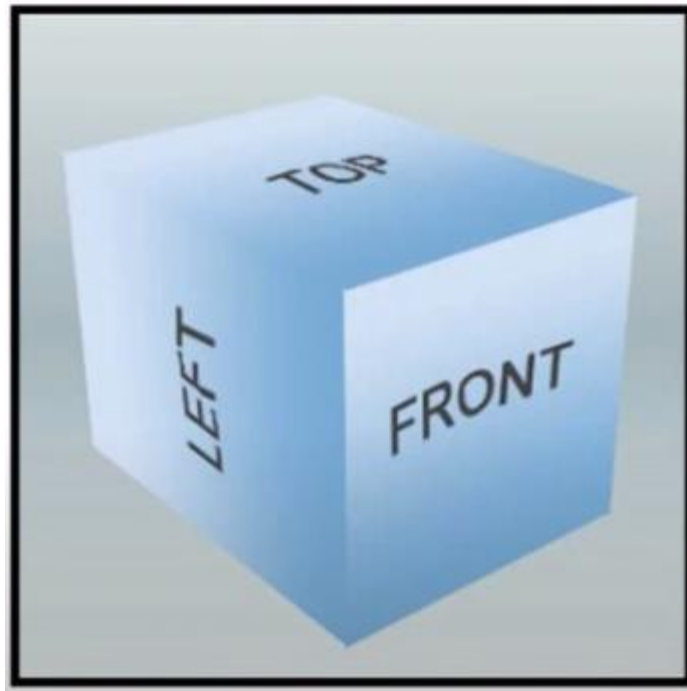


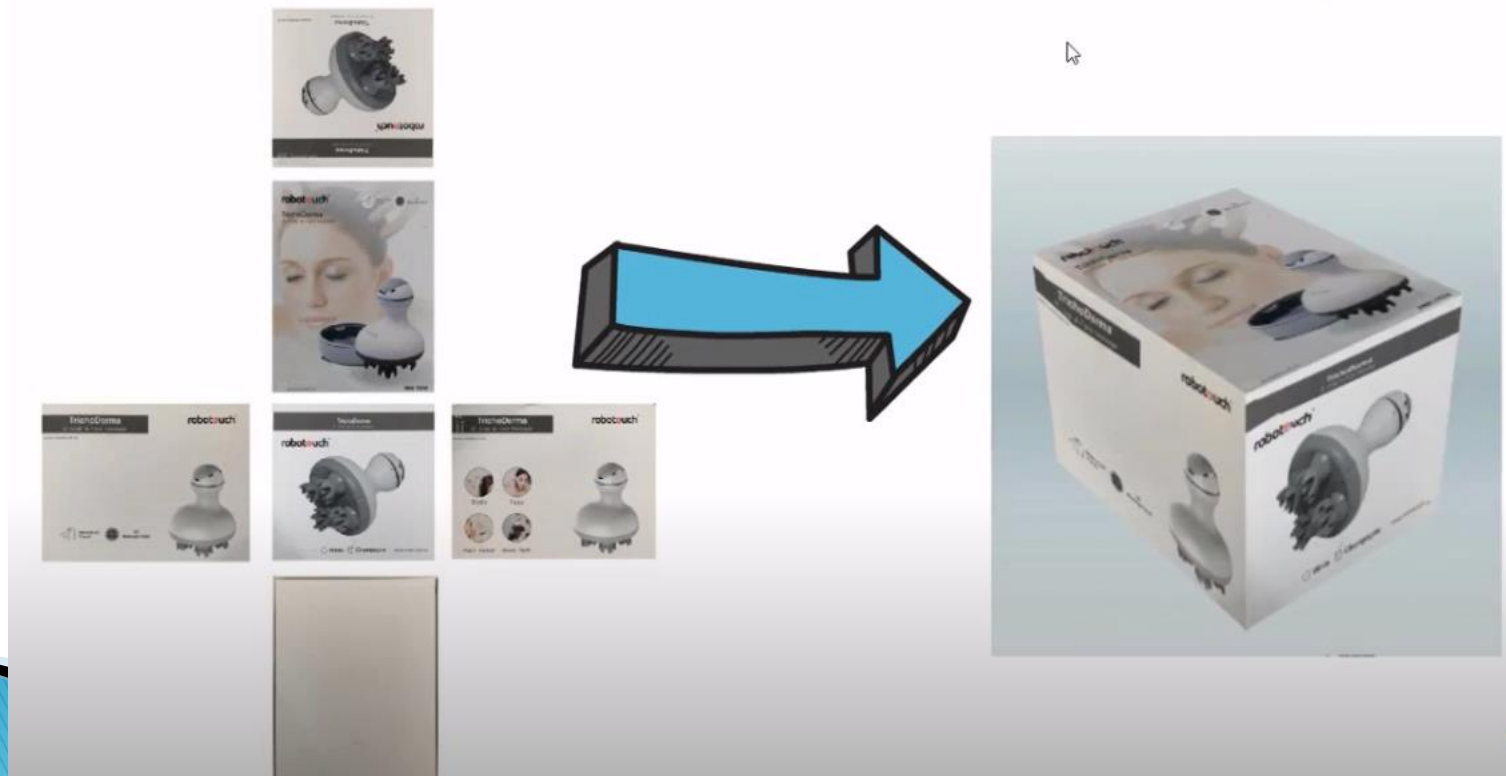
# Multi Targets in Unity

# What is Multi Target

- ▶ Multi target consist of multiple images in CUBOID arrangement



- ▶ Multi target feature of Vuforia is generally used to identify cuboid objects.
- ▶ That's why we need 6 images each representing one side of cuboid





- ▶ Start capturing images of cuboid box using Camscanner /Office Lens.
- ▶ Save all the 6 images in a folder.
- ▶ As the dimensions of all the images are not same, we cannot use them directly in Vuforia.
- ▶ Now change the dimensions of the images so that images are fit to be uploaded as multi targets inside of vuforia in Multi target database.
  - Ex: In real world, the top image consisted of the width and length but the captured 2D top image consist of width and height.

# Rescaling of images

IMAGE	WIDTH	HEIGHT
TOP / BOTTOM	12	15.4
FRONT / BACK	12	11.6
LEFT / RIGHT	15.4	11.6

► Reference chart for scaling images:

IMAGE	WIDTH	HEIGHT
TOP / BOTTOM	WIDTH	LENGTH
FRONT / BACK	WIDTH	HEIGHT
LEFT / RIGHT	LENGTH	HEIGHT

- ▶ Convert the images in cm to pixels because this is the unit for images in computers.
- ▶ We can use the [www.canva.com](https://www.canva.com) for this conversion







# Adding Images to Cuboid target

- ▶ Open vuforia and create a database of type device
- ▶ Now add a cuboid target to the database.

**Add Target**

Type:



Single Image

Cuboid

Cylinder

3D Object

Dimension:

Width:

Height:

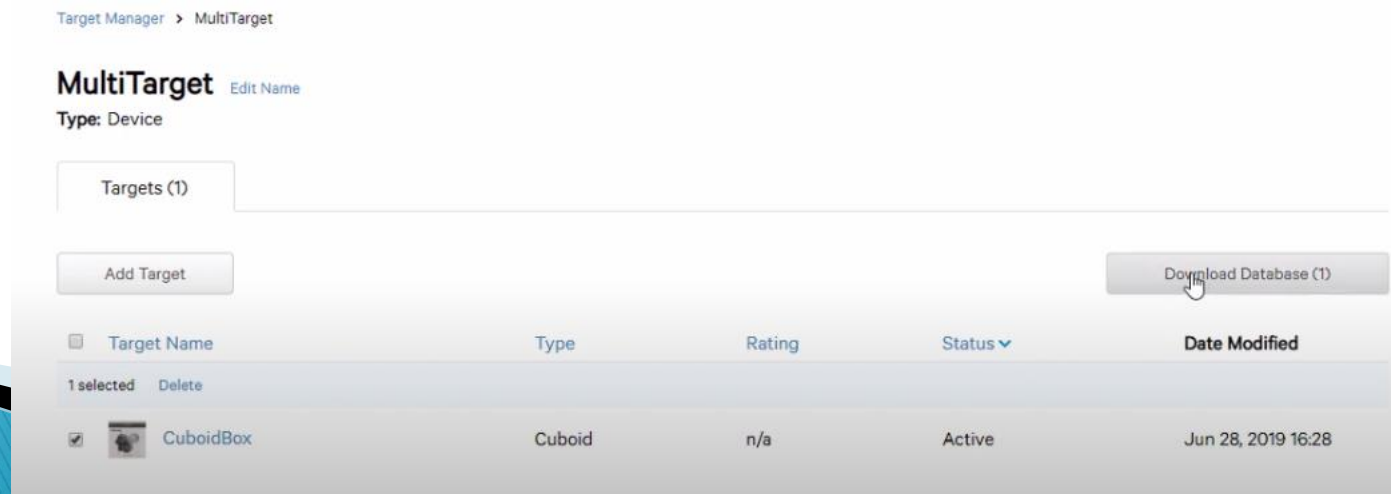
Length:

Enter the width, height and length of your target in the same unit as your augmentation.  
The size of the target shall be relative to the size of the augmented virtual content.

Name:

Name must be unique to a database. When a target is detected in your application, this will be reported in the API.

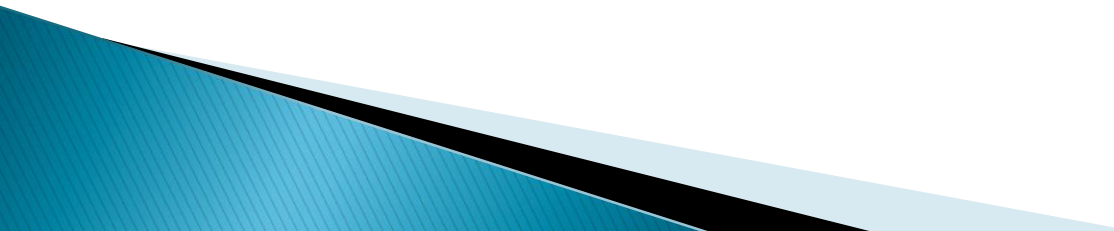
- ▶ Specify the value of width, height and depth in meters.
- ▶ Upload the images to the added cuboid.
- ▶ After uploading check the Augmentation of each image.
- ▶ Now download this database while keeping the Cuboid Target option checked.



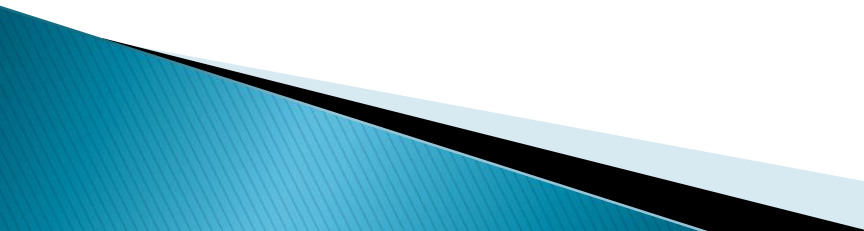
- ▶ The database would be downloaded as Unity package.

# Importing the Multi Target database into Unity

- ▶ Add AR Camera by clicking on Create -> Vuforia engine -> AR Camera
- ▶ Click on AR Camera -> Open Vuforia engine configuration from inspector -> Paste the License key here.
- ▶ Import the MultiTarget Unity package which we already downloaded by double clicking on it. (Make sure the unity is currently open)

- ▶ Create -> Vuforia engine -> Multi Target (for working with Multi Target)
    - Set properties for Multi target from Inspector
  - ▶ MultiTarget cuboid box would get added to Scene panel
  - ▶ Rotate the box along the x-axis(Rotate :x=-90)
- 

# Displaying Barbarian Model on Multi Target

- ▶ Asset Store -> Barbarian warrior -> Download
  - ▶ Assets -> Barbarian -> Models -> Barbarian
  - ▶ Drag the Barbarian inside the Hierarchy
  - ▶ Reduce the scale of Barbarian (0.1)
  - ▶ Move the Barbarian on the top of the box (Y=0.08) and Rotate it along y-axis (y=180)
  - ▶ Make the Barbarian child of MultiTarget
- 

- ▶ Add some Animation to the Model by clicking the '*Select*' button on the '*Inspector*'
- ▶ Rig Tab -> Animation Type -> Legacy
- ▶ Animation Tab -> '*RoundKick*' from list of animations -> Wrap mode -> Loop -> Apply
- ▶ Select Barbarian model from> hierarchy -> Animation from Inspector -> Set it to '*RoundKick*'
- ▶ Click on play button to test the output
- ▶ When the Webcam recognize this box, barbarian model would get displayed on top of it and it will perform RoundKick animation

# Use:

- ▶ Assume the real box contains a barbarian model and using Augmented reality we are trying to explain what a user will get inside the box
  - ▶ Suppose you had a toy car box, then you can display a car 3D model on top of the box so that the user can see the car in 3D before actually purchasing the real car.
- 