Instructions for photogrammetric 3D-images with the Smartphone

Object images

1. Position the object on a table/turntable

(Picture: 01) Photogrammetric image with the business card-sized scale bars. (see Target Papers, page 4)

(Image: 02) Photogrammetric image taken with the A4 paper. (Target Papers, see page 4)

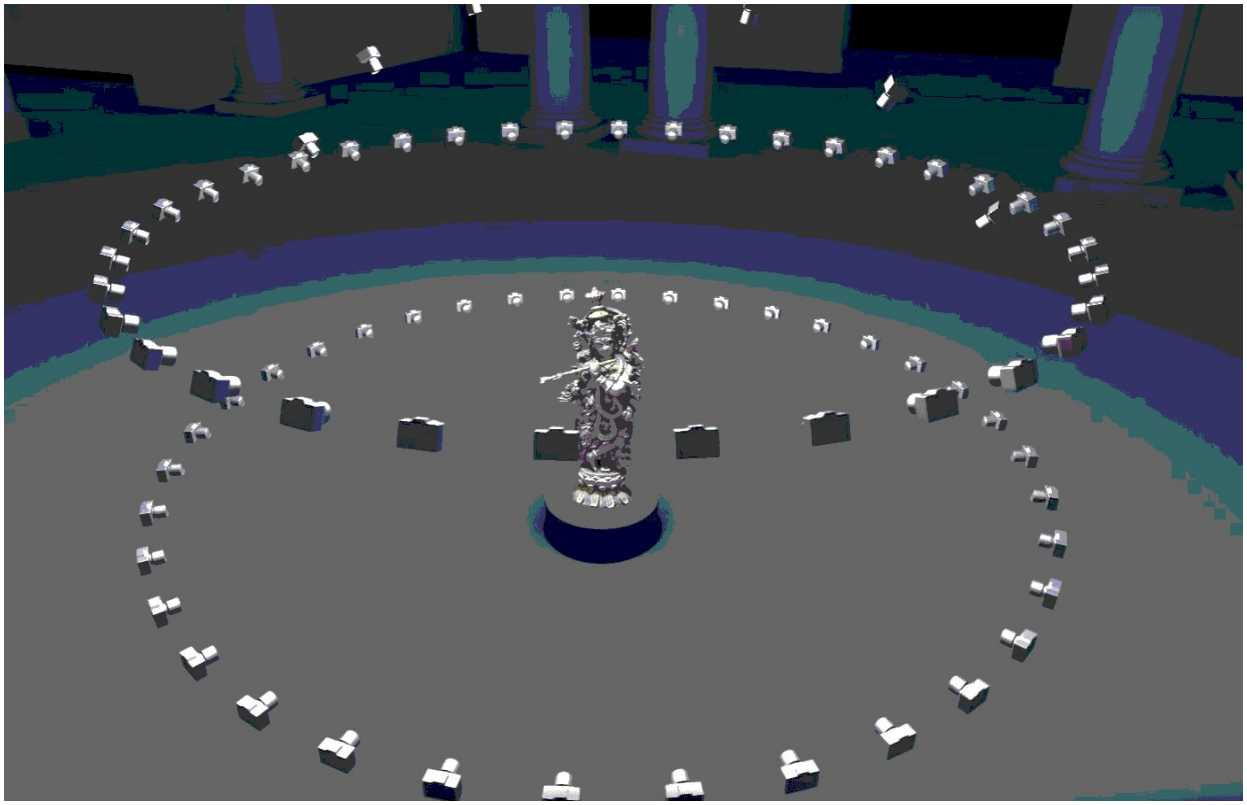
Position the markers (cards) placed around the object, but NEVER remove or touch them during shooting (see Picture 01/02). Also moving the object (rotate) or adding other/additional scale bars during de photo shoot will result in useless data.

If you don't have any scale bars with you (templates from us), you can add a folding meter or another comprehensible object in an emergency. (e.g. ballpoint pen, bank/business card, cigarette pack etc.)

It is also important that you use either the A4 template or the cards. Never both, because the codes are identical for both templates (the codes must remain unique).

Tip: Do not position the object directly on the A4 paper, but on a smaller object, e.g. a wooden block, dice, etc.

2. Footage



(Picture: Source Autodesk)
Always take the photos of the object from several layers.

Photograph the object from as many different angles and positions as possible. The overlap of the previous shots is ideally 60-80% or more. **The more photographs are taken from different angles, the more detailed and accurate the 3D model becomes.**

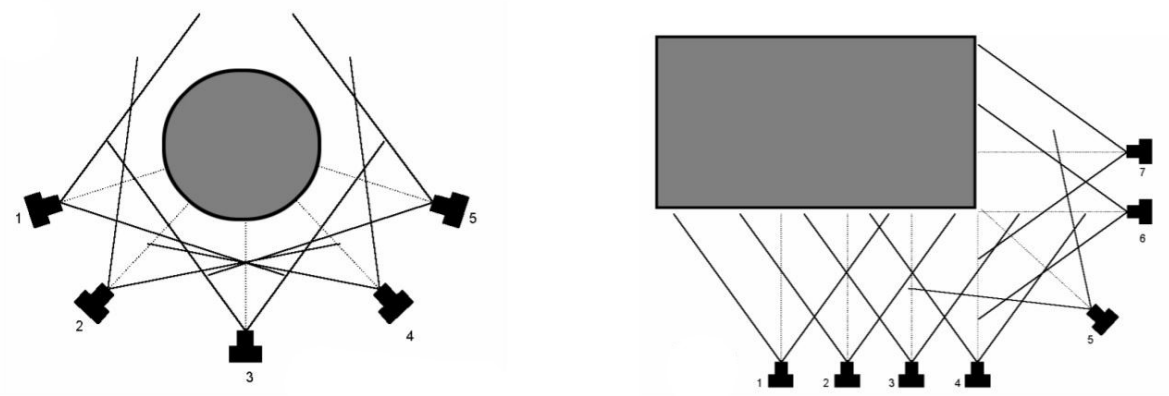
Mirrored/transparent or shiny objects are not suitable (glass, polished gold/silver or metal).

No different shades may fall on the object during the shooting.
Indoor: Photograph without flash and do not change the existing ceiling lighting.
Exterior: The right weather for shooting would be a slightly cloudy sky with diffuse light.

It would also be an advantage that the background of the object remains the same (no crowds of people or animals running around, no cars or bicycles, etc...)

For example, if you want to have 3D information from the bottom of the object, you have to turn the object over and repeat the same procedure from different positions as in the first scan. It is important that at least 30% of the last scan is on the following one. Otherwise you can't join the several scans or

we don't have any links!



(Image: Source Unknown)

Illustration of the camera positions and the photographic overlaps.

Use a smartphone or digital camera with at least 20 MP and if possible set the ISO value (under Settings) to 80 or 100. Please never use the zoom function. The JPG format is ideal and is perfectly sufficient. A powerbank is advantageous depending on the duration of the shots. Noisy or shaky pictures are not to be used!

3. Data delivery
download the JPG images to your computer/laptop and send it to us over Wetransfer.

https://wetransfer.com/

3.1: Please send us a description of the object and why it is interesting for the Ramar community. If necessary also a photo of the information board.

3.2: If the Ramar Poi is not yet recorded on our site, please record it.

Send it to: 3d@ramar.space

After that we will check the files for usability and give you a short feedback.

Addendum: The same system can also be used for sites such as temples, buildings or stone formations.

Two additional tutorials for indoor architectural sites, or for underwater sites are in progress and can be sent on request. Please contact us for these: 3d@ramar.space

4. separate files for download - so-called target papers:

Explanation of the TARGET papers, which can be downloaded separately as PDFs. These are the cards and A4-sheets which are enclosed next to the object or the area to be scanned - these are important for an exact measurement reference:

Always print the PDF with the setting - "ACTUAL SIZE"!

Target Paper Studio - AVERY - C32011-25 (PDF
The business card-sized targets. To print out yourself.

Here is the link to the recommended print product: https://www.avery-zweckform.com/produkt/visitenkarten-c32011-25

If possible, always print with a laser printer!

Targets Paper UAV 1.0 (PDF)

Never print the five A4 sheets for drones several times, these five sheets are always a set. Since each sheet is unique with its coding, each sheet is a position reference.

Here is the link to the recommended print product: https://www.avery-zweckform.com/produkt/wetterfeste-folien-3487

Ideal for outdoor use as it is weatherproof.

Targets Paper UAV 2.0 (PDF)

This A4 template can be printed as much as you want.

After printing always check everything or measure the scale with the ruler!

Note: Either you use the A4 paper or the cards, never both together, because the same QR Codes were used (otherwise the calculation program gets confused 😉)