

# Module 1 - Real-World Measurement Worksheet

Repo: [https://github.com/daredevilx616/computer\\_vision](https://github.com/daredevilx616/computer_vision)

Overview: Use perspective projection to convert pixel distance to real-world length.

Steps:

- 1) Measure camera-to-object distance  $Z$  (meters).
- 2) Enter focal length  $f$  (mm) and sensor width (mm).
- 3) Capture photo, click two points on the object to get pixel distance.
- 4) Compute real size:  $S = (Z / f) * \text{sensor\_width} * \text{pixel\_distance} / \text{image\_width}$ .

Experiment log (example):

- Object: playing-card box
- Inputs:  $Z=0.2$  m,  $f=3.6$  mm, sensor width=3.2 mm
- Record pixel distance (e.g., 777.17 px) and resulting mm/cm/in values

Assumptions: planar face, perpendicular to camera; negligible distortion; intrinsics approximated.

Screenshot of annotated measurement:

