

Module 1 - Real-World Measurement Worksheet

Repo: 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:

