

AccessDB: annotating inaccessible objects in indoor environments

Motivation

Real-world objects easily become inaccessible to people with different abilities, because disability is contextual. Recognizing inaccessibility demands significant prior experiences or domain expertise, and designing applicable augmentations is challenging for people under unawareness. With the goal to provide the capability of detecting individual components of parts of everyday objects that can present accessibility barriers per type --- handle in previous examples --- **AccessDB** provides **inaccessibility classes (IC)** for real-world objects presenting different accessibility barriers; the handle can be further classified with static bar-shaped handle, round handle, lever handle, etc.

Annotation instruction

Define the 'type' of the objects based on (1) the shape and (2) motion required to operate them, and group the objects based on the type identified.

For instance, annotators can create new classes for 'button panel'; 'turn_handle' requires gripping and rotating of round knobs, and 'push_buttons' requires push motions onto the flat buttons.

After obtaining an initial list of new classes, the rest of the images can be sorted into these classes and more classes were created as annotators proceed with labeling and finding new objects that do not belong to the existing classes.

If the object cannot be classified to existing classes due to their low resolution like the images below, annotators are asked to classify them as 'unidentifiable'.

