Designing Mixed-Media Assembly Instructions

Peggy Chi, UC Berkeley CS
CS294-10 Project Presentation
11/18/2013
Graphical Assembly Instructions

ASSEMBLY

NOTE: Make sure the large hole of each plastic spacer is facing upwards.

top leg frame

large bolt

spring washer

plastic spacer

NOTE: Arrow indicates the front of each leg frame.

top leg frame

bottom leg frame

cap

center bolt

spring washer

IMPORTANT: Center bolt must be installed to secure leg assembly

NOTE: Bolts should be periodically tightened

top and bottom leg frame X 2
Automatically Generated Instructions

Steps & hierarchy

Parts

Orientation

Action


Difficult Cases

LOVIKEN DUAL CONTROL KITCHEN FAUCET
Mixed-Media Tutorials (Static + Video)

IKEA “How-To-Build” Videos

http://www.youtube.com/playlist?list=PL1E4201FC7DC7B322
IKEA “How-To-Build” Videos

- Different shot types and effects
- Videos are effective to show complicated, unfamiliar tasks
  - Corner cabinet
  - Double sink
  - Kitchen cabinet
- User complaint

"The instructions are horrible (in too many ways to even list), the drawers didn't come with the paper template or the hinge fill plugs. The whole thing is a nightmare. This video is infinitely better than the instructions (which are different in some instances). You should denote these videos in the instructions!” - Michael Cudahy
I.

Comparison of static instructions with manually segmented videos
II. Shot Detection on IKEA Videos
Using Edge + Histogram Change
Milestones - Only 2 weeks left!

• Analysis:
  – The shot types and effects used
  – The mapping with static illustrations

• Design mixed-media instructions
  – Static and video: side-by-side
  – Static $\rightarrow$ click $\rightarrow$ video snippets

• Larger scope:
  – Semi-Automatic Generation of Mixed-Media Assembly Instructions