Final Projects
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• Choose a project from one of these topics described on the next slides
  – The class provides the background necessary to do these
  – If you really want to do something else, contact me for approval

• Upload to Blackboard, project proposals by Oct 31
  – One page description – approach, data to be used, timeline

• Two people to a project – only one proposal per team

• Upload a progress report by Nov 23
  – Results so far, problems, plans

• Presentations in class on Dec 5, 7

• Report and video due Dec 12
Final Project Topic - Augmented reality

• Provide graphical overlays for guidance in using some object, or playing a game
• Ok to use markers if necessary, but should use natural features

An AR system to help a user play Shogi, a Japanese chess variant (by Eric Hislop)
Final Project Topic – Analog Gauges

• Automatically recognize analog gauges and determine their settings
  – It’s ok to have a priori knowledge of gauge appearance, but should work from different viewpoints and lighting conditions

![Image of analog gauges with values 4, 31, 22, 21, 10]
Final Project Topic – Pool Table

• Automatically determine the positions of balls on a pool table
  – Camera in non-orthogonal viewpoint
  – Use multiple views
  – If possible also identify the balls
Video vs Still Images

• For the preceding topics, you can use video instead of still images
• In that case, you don’t need to recognize the object in every image – is much easier
Final Project Topic – Image Stitching

• Stitch images to create a panorama of a flat(ish) object
  – Use video as input
  – Run in realtime in OpenCV
  – Automatically determine the orthogonal direction (we will cover how to do this a little later)
Final Project Topic – Image Stitching

• Example – an aid to see in confined spaces

Video from inspection camera

User’s field of view