

Final Project of Machine Vision

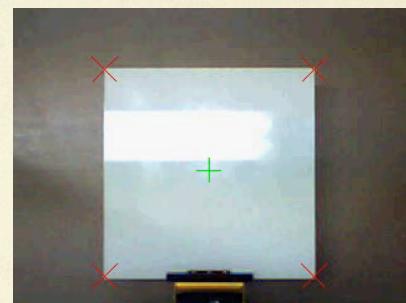
Image Tracking

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Background

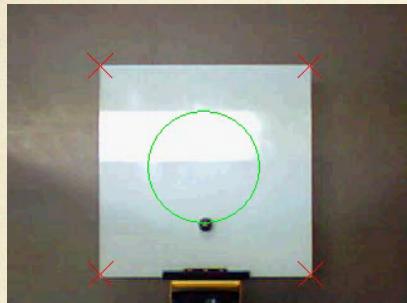
- Track a moving object in a scene.
- Can be useful for surveillance, inspection, observation, and operation with a robotic arm.
- The difficulty includes variations of shape, size, color, and orientation, as well as multiple moving objects.
- This final project asks you to implement basic image tracking methods for an object with translational motion.

Examples of image tracking



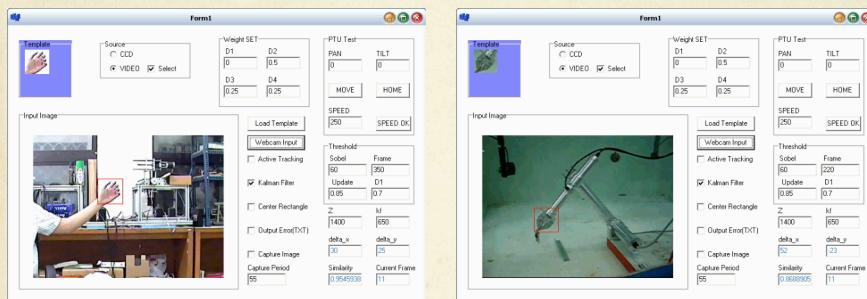
Ball balancing on a plate using a robotic wrist

Examples of image tracking (cont'd)



Tracking and path planning for a ball on a plate using a robotic wrist

Examples of image tracking (cont'd)



Tracking of a deformable moving object

Final project: Image tracking

1. You will be given **three images** from a video clip taken for a **fish tank**.
The first one is the template image and the other two are test images.
2. Your job is to **track a golden fish** in the fish tank.
3. There may be another fish with different color in the video.
4. The **size** of the tracked fish is almost the **same**.



The sample template image



Final project (cont'd)

5. Please accomplish the tracking task using the following **two** methods:
 - * **SSD with the three-step search algorithm**
 - * the **probability density function approach with Bhattacharyya coefficient** and the **three-step search algorithm**.
6. You are free to choose the size of the template for the tracked golden fish from the first image.
7. **Good luck !!**