



Transparent laptop

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Agenda

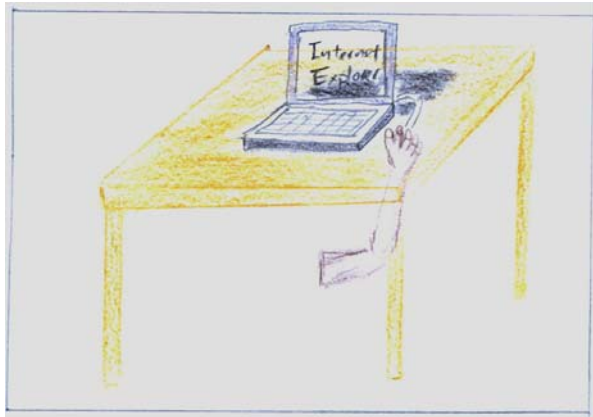
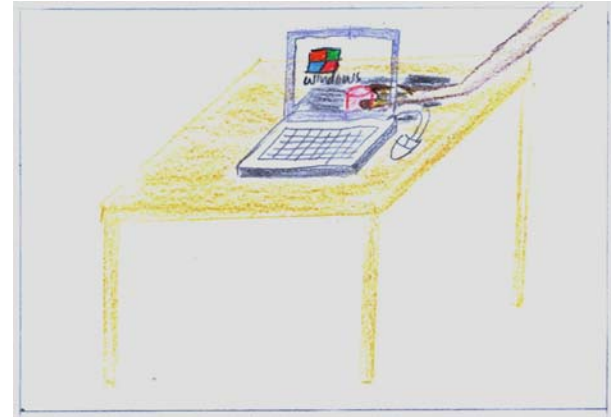
- Overview of the project, story board and planning – Mai Lan
- How to do the first effect by compositing and how to do compositing in general – Jackson.
- How to do taking coke out of screen – Liyan and Mai Lan
- Conclusion – Mai Lan

Overview

○ Effects:

- Laptop have transparent screen, it is illustrated by taking a bottle of tea behind the laptop.
- Taking a coke on the screen out and becoming a real coke. The screen will be deformed on the way getting the coke out of screen.

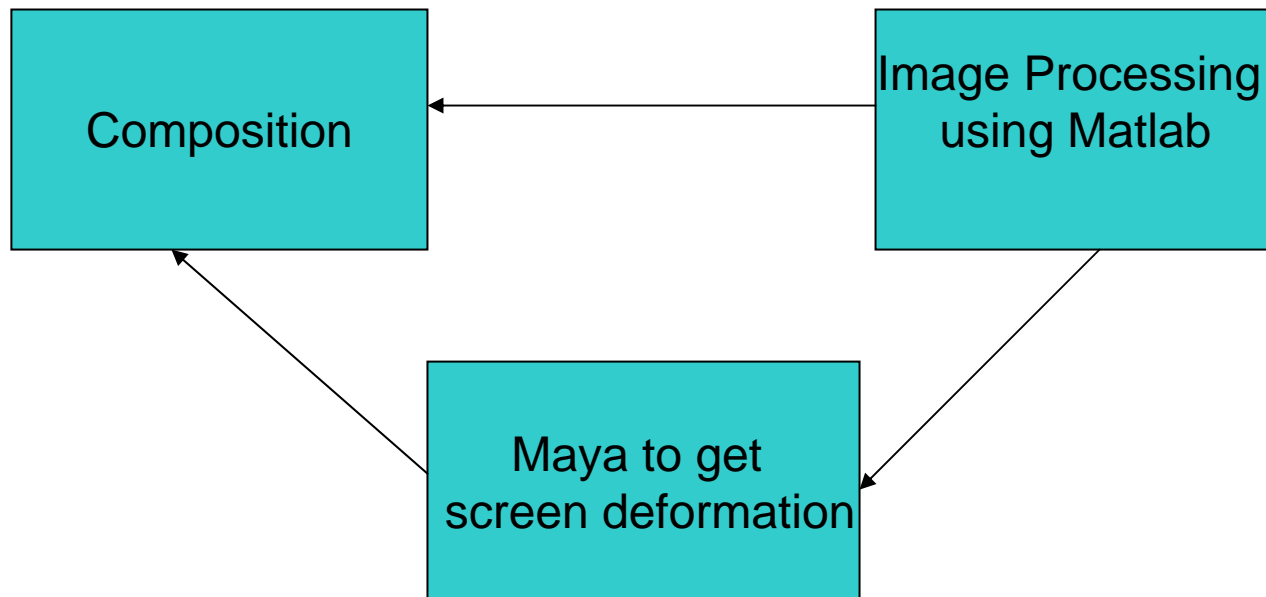
Story board



The original story board is followed quite closely, except that we remove the rotation camera part after several failure tries of getting 2 same camera rotation videos (1 for foreground object, 1 for background)

Overview of Work Done

- First part of video, done using compositing
- Second part of video, done using Matlab, Maya, and After Effect.





Overview of Work Done

- Video recording, editing and composition, done by Jackson.
- Maya and website design, done by Liyan.
- Image processing and morphing, done by Mai Lan.

Transparent screen

- Effect 1: taking a green tea bottle behind the laptop.
- Input: 2 videos:
 - Video of laptop opening.
 - Video of taking the bottle when laptop is closed.
- Technique involve: compositing.
 - Video of the laptop is foreground.
 - Video of taking bottle is background.

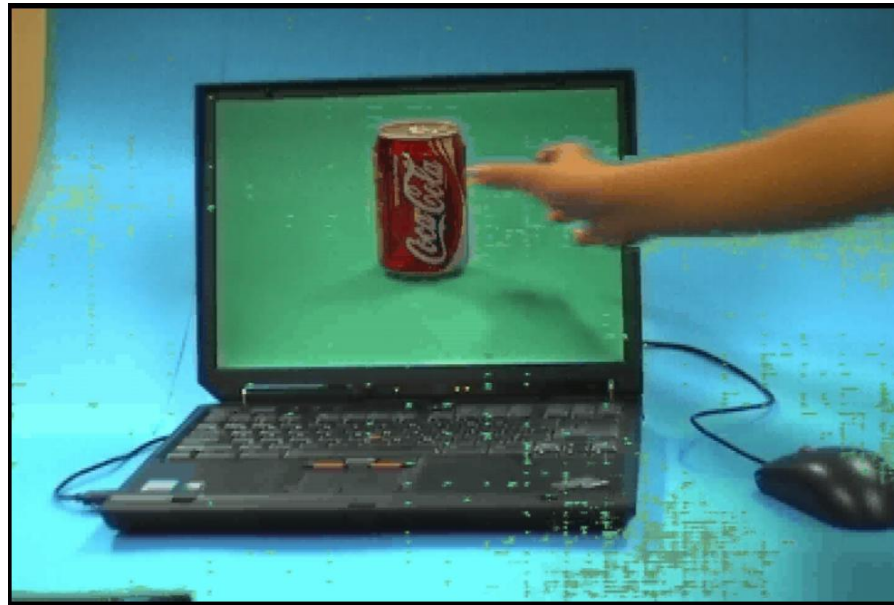
Transparent screen (cont)

- Difficulties:
 - Opaque problem. The hand outside the screen disappeared.
 - Initial shots of video using just blue screen becomes blur due to non-uniform colour.
- Solution: Use the video of taking coke as a third layer and put in on top of other 2 layers. Use mask to control the compositing.

Transparent screen (cont)

- Technique use:
 - Image control : use to match color of different video take.
 - Time stretch : to extend or shorten time of video.
 - Masking of images : to mask unwanted noise or add extra footage.
 - Colour keying

Problems of compositing



Compositing

- The initial idea in the first part.



Compositing

- The final idea in the first part.



Taking coke out of screen

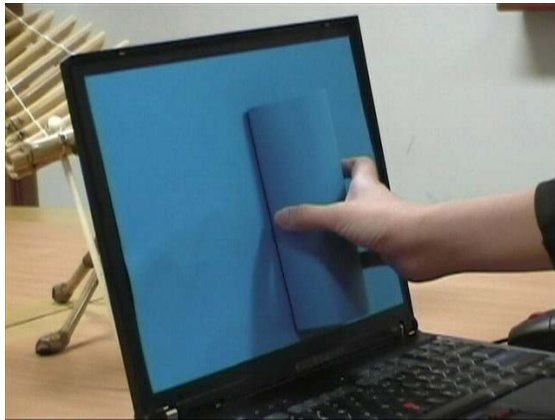
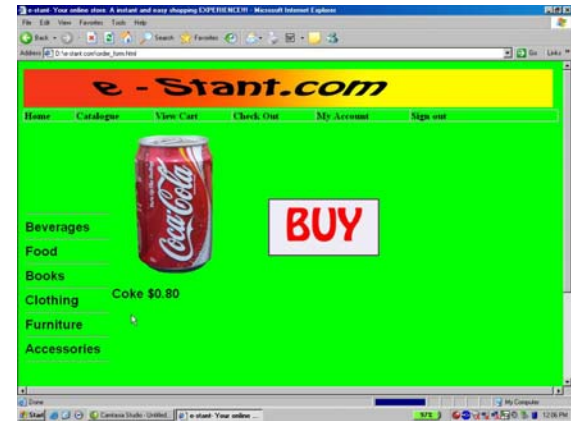
- Effect 2: (Main)
 - When customer order a coke, the screen pop up the coke image half-way out so that a hand can go in and take the coke.
 - The screen will be deformed and oscillated when the coke is out of screen.

Taking coke out of screen (cont)

○ Input:

- Video of environment background.
- Video of screen capture the action of browsing web and order coke.
- A video of the hand go in and reach the screen, grasp the coke in blue screen.
- The video of taking the real coke out.

Taking coke out of screen (cont)



Taking coke out of screen (cont)

- Techniques involve:
 - Particle system: Create a model of the laptop screen in Maya using soft body and spring to create effect of deformation for the screen.
 - Compositing: combine all the video nicely.

Taking coke out of screen (cont)

- Techniques involve:
 - Write program to eliminate the non-uniform blue screen.
 - Morphing: from the image coke on the screen to the real coke to create smooth transition.



Particle System

- Using Maya, we create a plane for the 3D screen and apply the file texture image.
- Create a duplicate of the screen as a soft body and the original screen as a goal



Particle System

- For the popping out effect of the screen, first create a cylinder that is cut into half and then we create a spring system between the screen and the cylinder
- And set a key frame for the start and end position of the cylinder , the screen will deform under the force of the spring



Particle System

- Problem faced:
particle motion is hard to control, so have to do some trial and error with particle values.
- Different goal weights are given to different particle, a lower goal weight is given to area where the coke is.
- Some Mel script and expression are written to give different weights at different time intervals



Particle System + Morphing

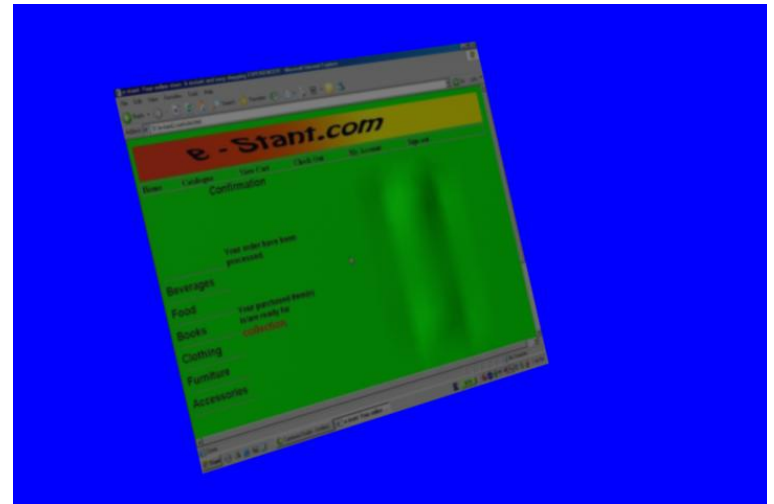
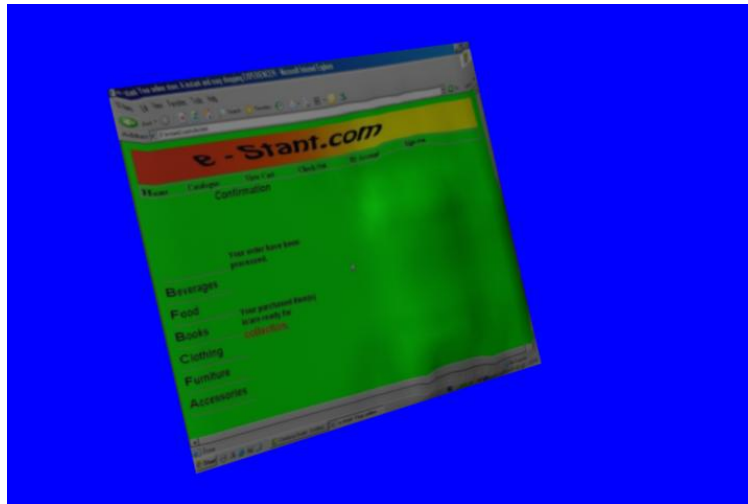
- In the end when the coke is out of the screen , the spring we created in Maya will be cut and with some morphing, an oscillating effect of the screen is created
- Although Maya can produce the oscillating effect but the rendering time is too slow and sharp edge are produced in the area of the empty screen where the coke is originally found
- So we decided to incorporate morphing to the oscillating effect



Morphing (For oscillating effect)

- This is done by selecting key frames of images of the oscillated screen in Maya to morph.
- Whether is morphing good for representing the oscillating effect will depend how good the key frames are selected
- If insufficient key frames are used blurring will occur

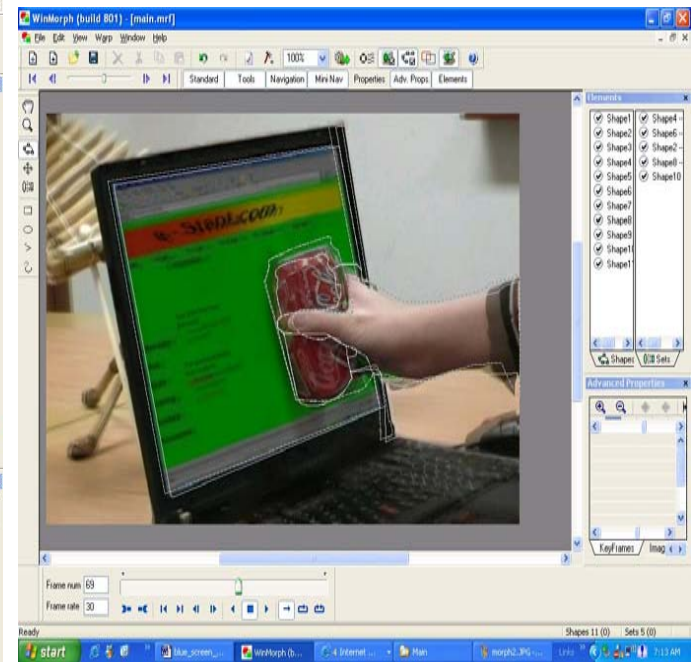
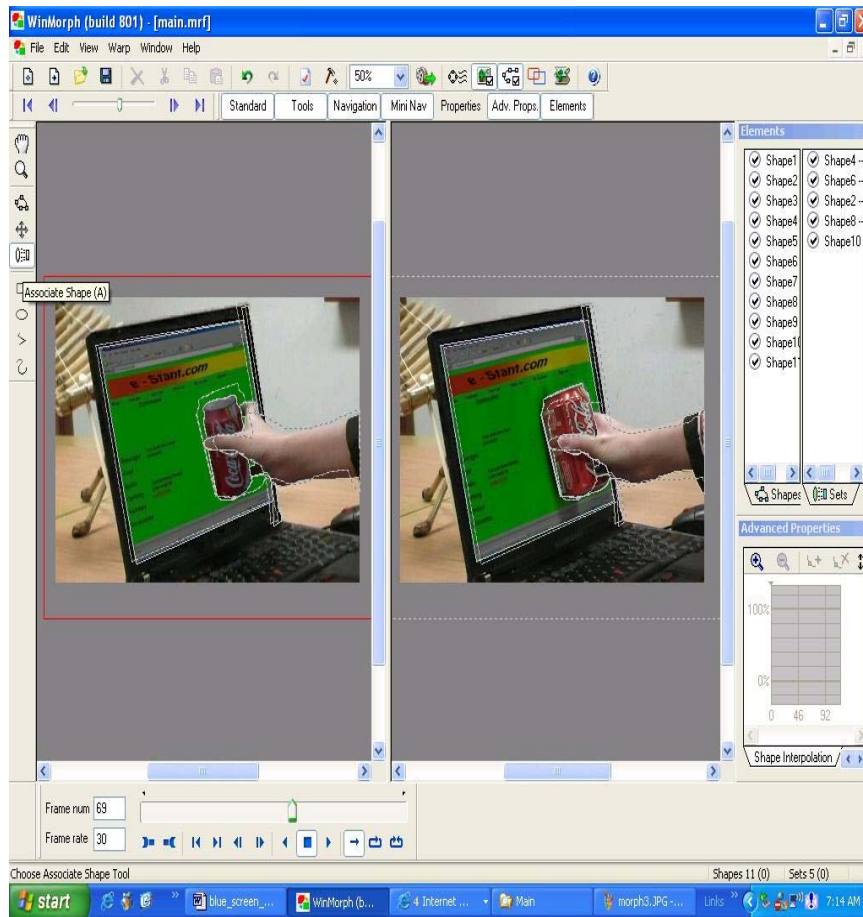
Morphing



Morphing (For 2D to 3D transition of coke)

- Now we have 2 videos, 1 with a empty hand reaching to touch the screen and the other is the hand with the real coke
- In order to have a smooth transition between the 2 videos, morphing is used.

Morphing



Blue screen removal

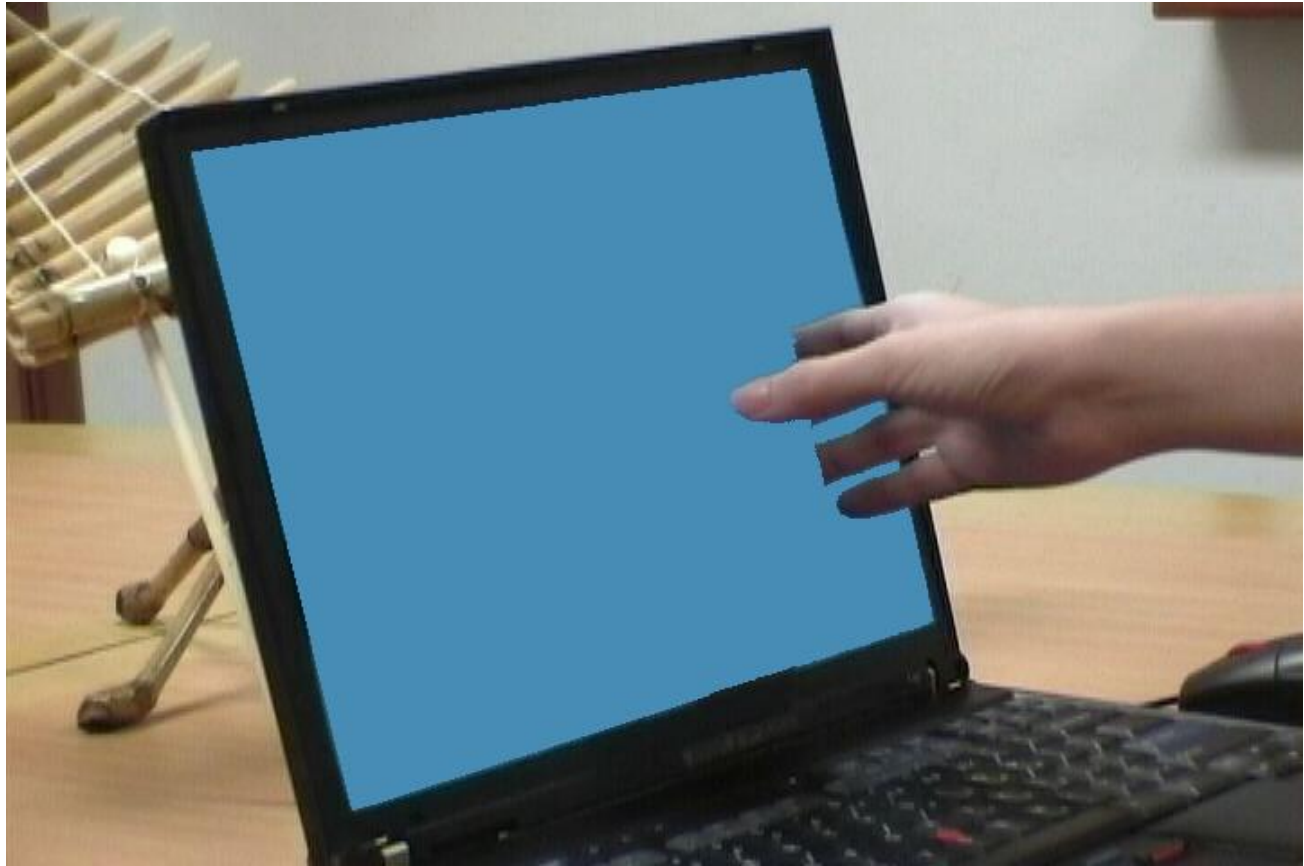
- Requirement:
 - Produce the effect that the hand go in and touch the screen.
 - Must show that the (empty) hand can hold the coke can on the screen.
- How to do:
 - Shoot the hand go into blue laptop screen and composite with Maya screen.



Blue screen removal (cont)

- Problem: opaque and transparent: either all the fingers are opaque or transparent.
- Come out with solution:

Blue screen removal (cont)





Conclusion

- Use some of the techniques learned in the course.
- Understand the process of making movie.
- Appreciate of the making movie work.
- Learn how to solve problems to get the final purpose.



Thank you