

MAGIC WELL

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Interaction with the “Magic Well”

- Look into the well and see a clear reflection of the participant
- As the participant leans in more, their reflection becomes less clear as another unknown person's reflection is layered with their own
- As they lean in even further, their image completely dissolves, and another person stares back at them



Inspiration

Christian Moeller's "Electronic Mirror"



- In this mirror, you can see yourself only from a distance.
- The mirror portrays the presence of his image
 - from viewer, by walking closer or further away, can change how sharply the full reflection to no image whatsoever.

Inspiration

Drift Bottles by Huang Shi



- Based on how sailors in the Middle Ages would put heartfelt messages into bottles in the ocean to be found by someone unknown
- participant speaks into an empty bottle then closes the lid.
- Another participant opens it and hears the first person's voice recording.
- The message is automatically erased, whereupon they speak into the bottle for the next participant to hear

Technologies Employed

1. One-Way Mirror
2. Liquidized Crystal Panel
3. Motion Detector
4. Projector
5. Camera

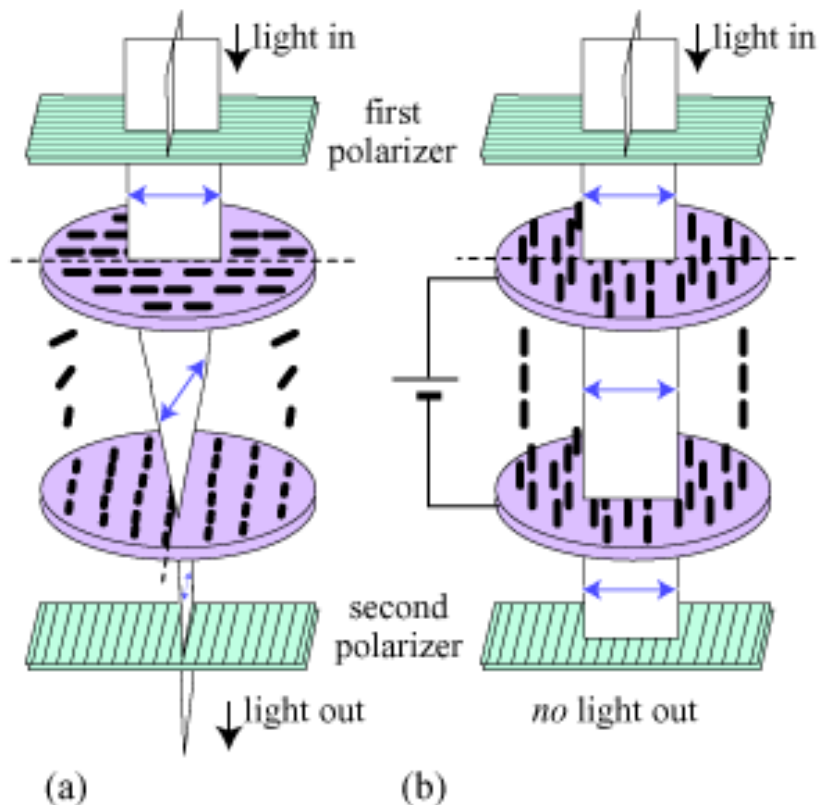
One-Way Mirror

- Glass is coated with a thin layer of metal (usually aluminum) to make a mirrored surface that reflects some light and is penetrated by the rest
- When one side is brightly lit and the other kept dark, the darker side becomes difficult to see from the brightly lit side because it is masked by the much brighter reflection of the lit side
- People on the brightly lit side see their own reflection and people on the dark side see through it
 - **Light** → **Mirror**
 - **Dark** → **Transparent**



Liquid Crystal Film

- Electrodes from power supply attach to transparent electrodes
- With no applied voltage, the liquid crystals arrange randomly, resulting in the scattering of light as it passes through
 - **No Voltage → Opaque**
- When a voltage is applied, the electric field formed between the two transparent electrodes causes the liquid crystals to align, so light passes through the droplets with little scattering
 - **Voltage → Transparent**



Liquid Crystal Film

- The LC-film can be rendered from fully transparent to completely opaque in varying degrees
- Degree of transparency is controlled by the applied voltage



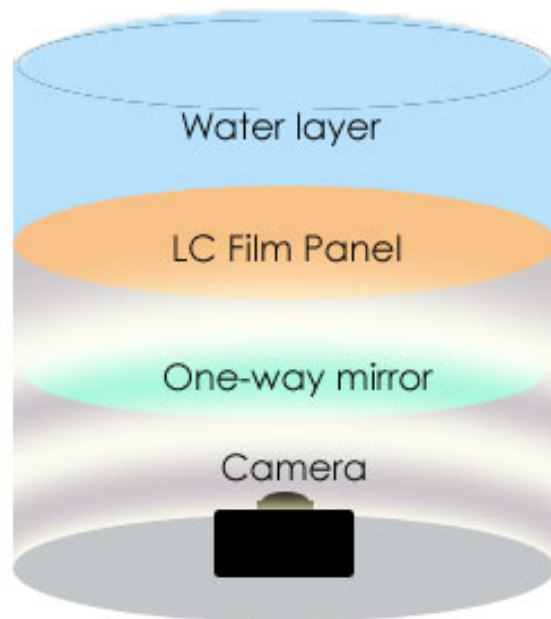
Voltage increases → fewer liquid crystals remain out of alignment → less light is scattered

Motion Detector

- Controls light and voltage
- Passive infrared (PIR) motion detectors "see" the infrared energy emitted by a person's body heat
- When a participant passes the field of view of the detector, the sensor detects a sharp increase in infrared energy

Structure

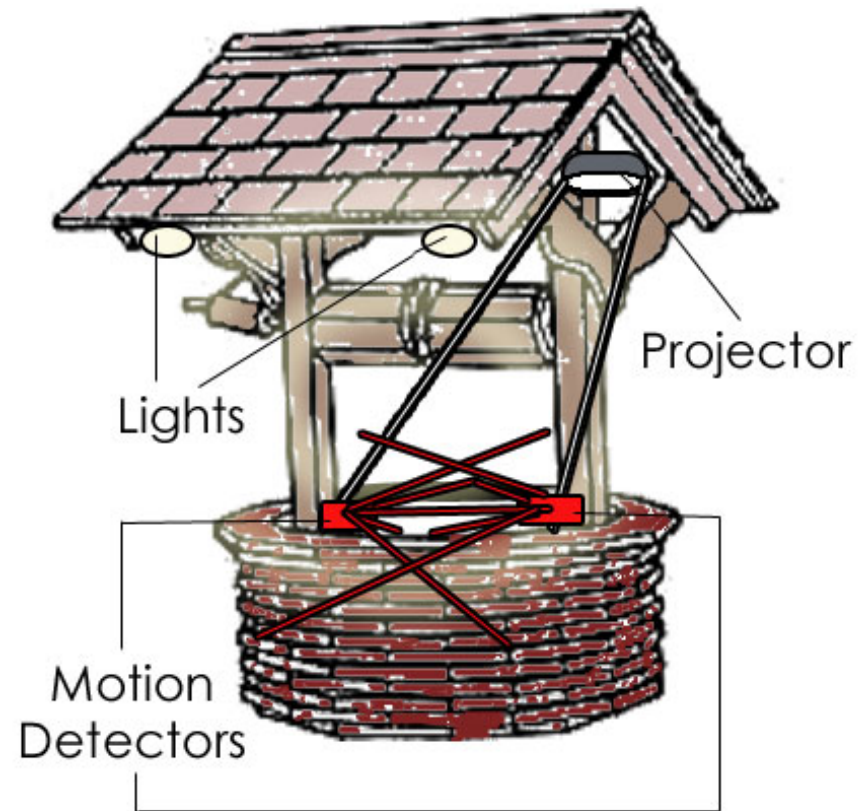
Inside Well



- Inside of well from bottom to top:
 - Camera facing up
 - One-way mirror
 - Panel of LC Film
 - Thin layer of water

Structure

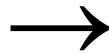
- Roof of well contains an image projector and lights
- Two side panels that hold up roof contain motion detectors on their bases



How it Works



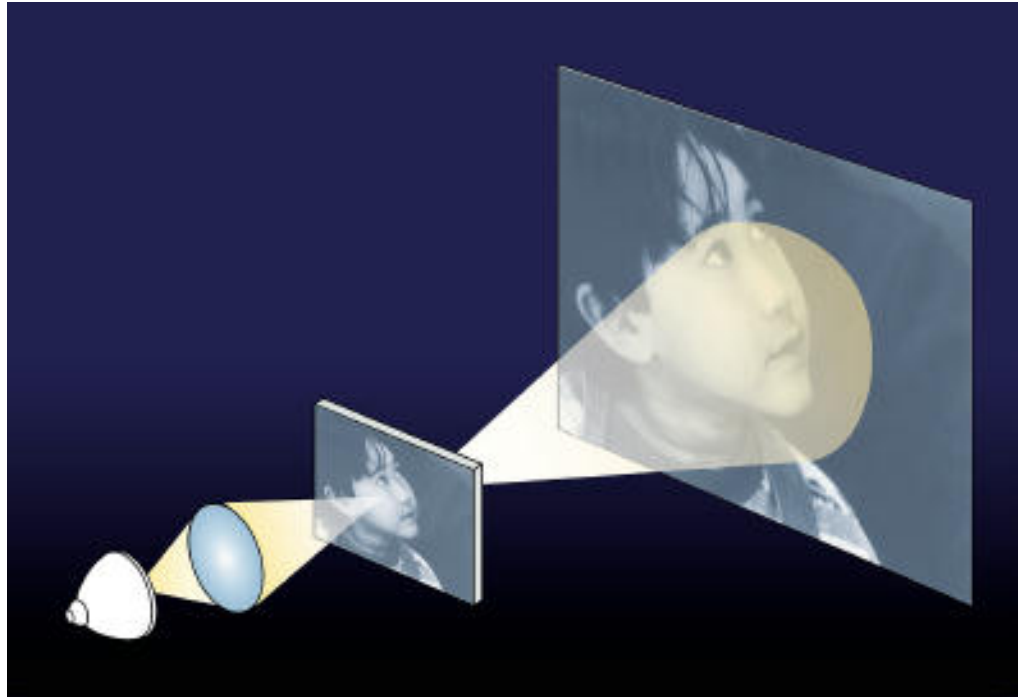
- The light and voltage are on at first → the LC film will be transparent and the one-way mirror will show the participant's reflection



- The participant leans over the well more → voltage and lights slowly dim → juxtaposition of the viewer's reflection and the last participant's projected image (projected from the roof of the well)



- If the participant looks even closer, their own reflection will completely disappear as the light/voltage turns off → only the above projection of the last participant remains



The current participant's image is taken from the **camera** at the bottom of the well → camera is triggered by the motion detector during the beginning of the participant's activity with the well → that photo is **projected** onto the LC film when the next participant interacts with the well

Concept

- Plays with expectations → the participant's perception of reality is obscured
- Demolishes the **anticipated relationship** between the object and its reflection
- The participant sees another realm in the mirror → the “reflection” becomes an **alternative reality**

Concept

- Promotes the idea of **interconnectivity** of humans by linking the current participant with the last
- Evokes **curiosity**, not only about this seemingly impossible interaction, but also about who the previous participant staring back at the current participant is and what he/she was thinking

Sources

- http://www.christian-moeller.com/display.php?project_id=48
- <http://home.howstuffworks.com/home-improvement/household-safety/security/burglar-alarm2.htm>
- http://www.nobelprize.org/educational/physics/liquid_crystals/history/
- <http://www.reflectionproducts.com/transparent-mirror.htm>
- <http://science.howstuffworks.com/question421.htm>
- <http://windows.lbl.gov/materials/chromogenics/>
- <http://2006.01sj.org/content/view/347/49/>