Moving Windows

Masters Semester Project

Milestone 1 Presentation

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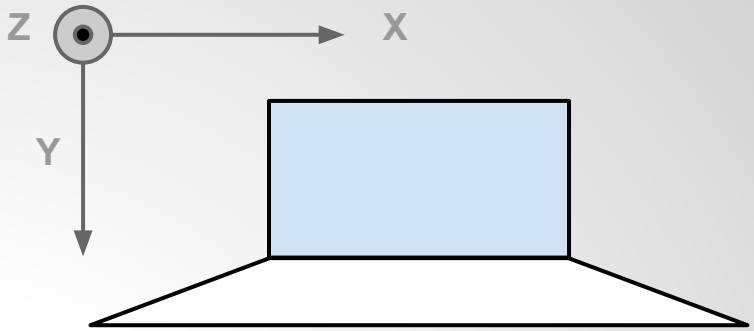
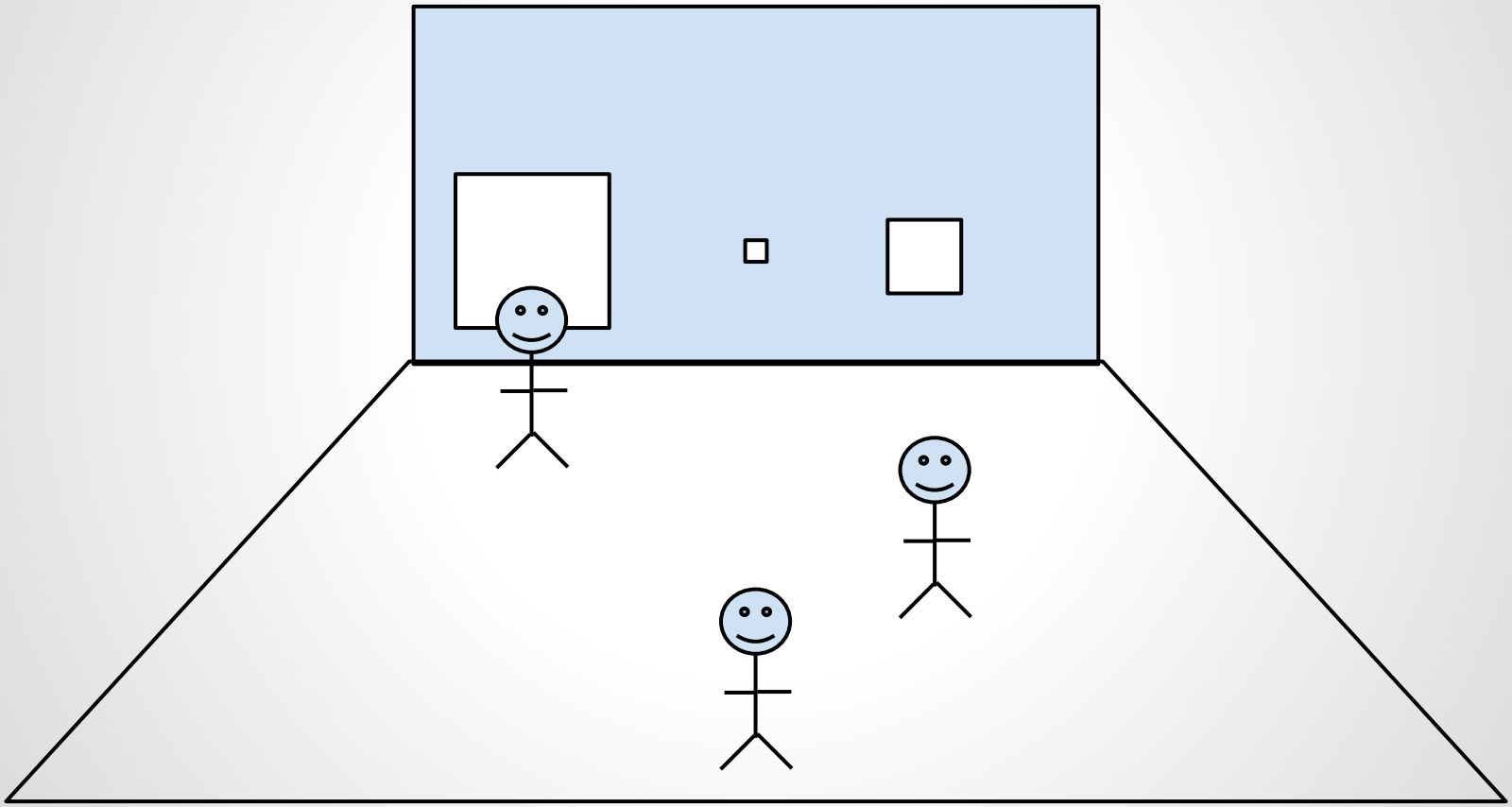
Concept



- Build a solid wall with physical pixels that can be opened or flipped to reveal the background.
- When people get within a certain distance of it, a window forms in front of them.
- The window should be centered on the person's head, i.e. same XY position on the wall plane.
- The window grows inversely proportional to the distance of person, and follows him/her around space.

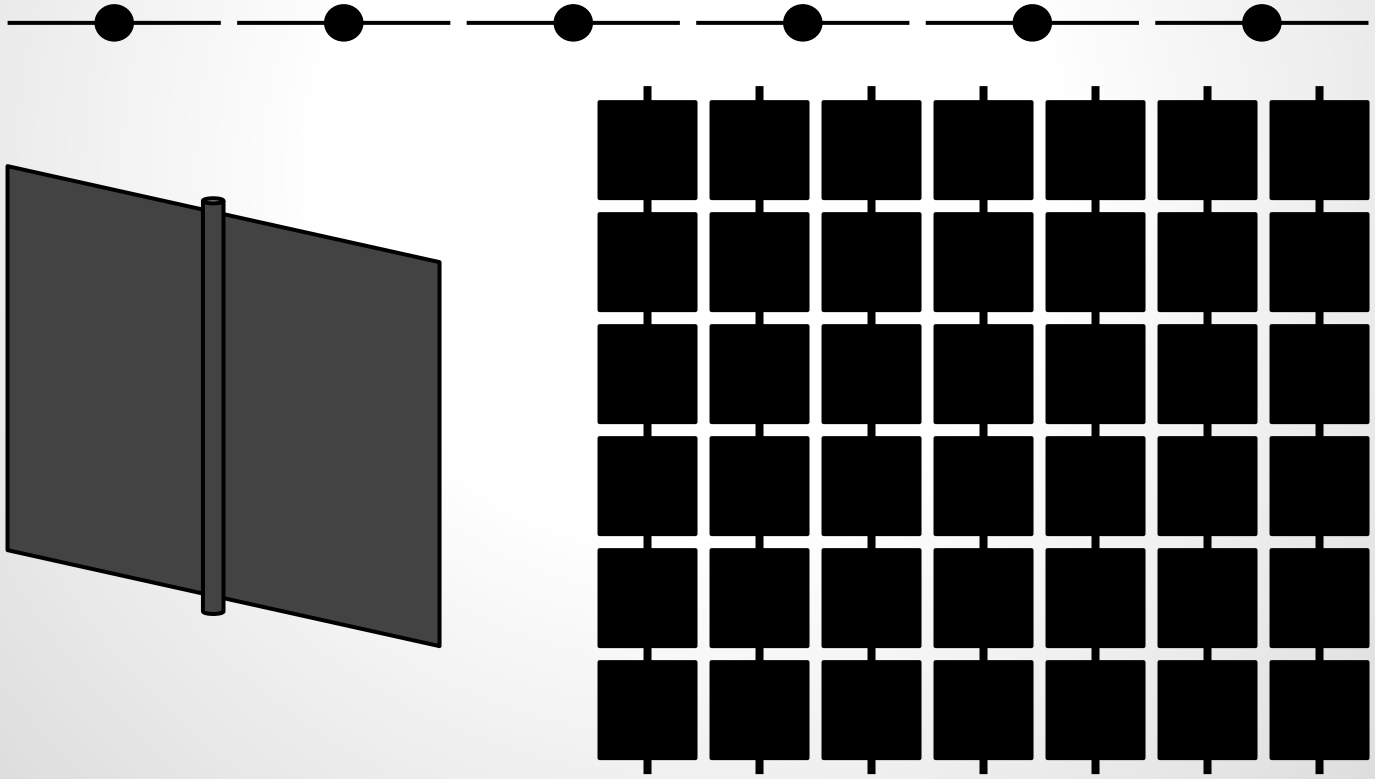
Initial concept sketch*

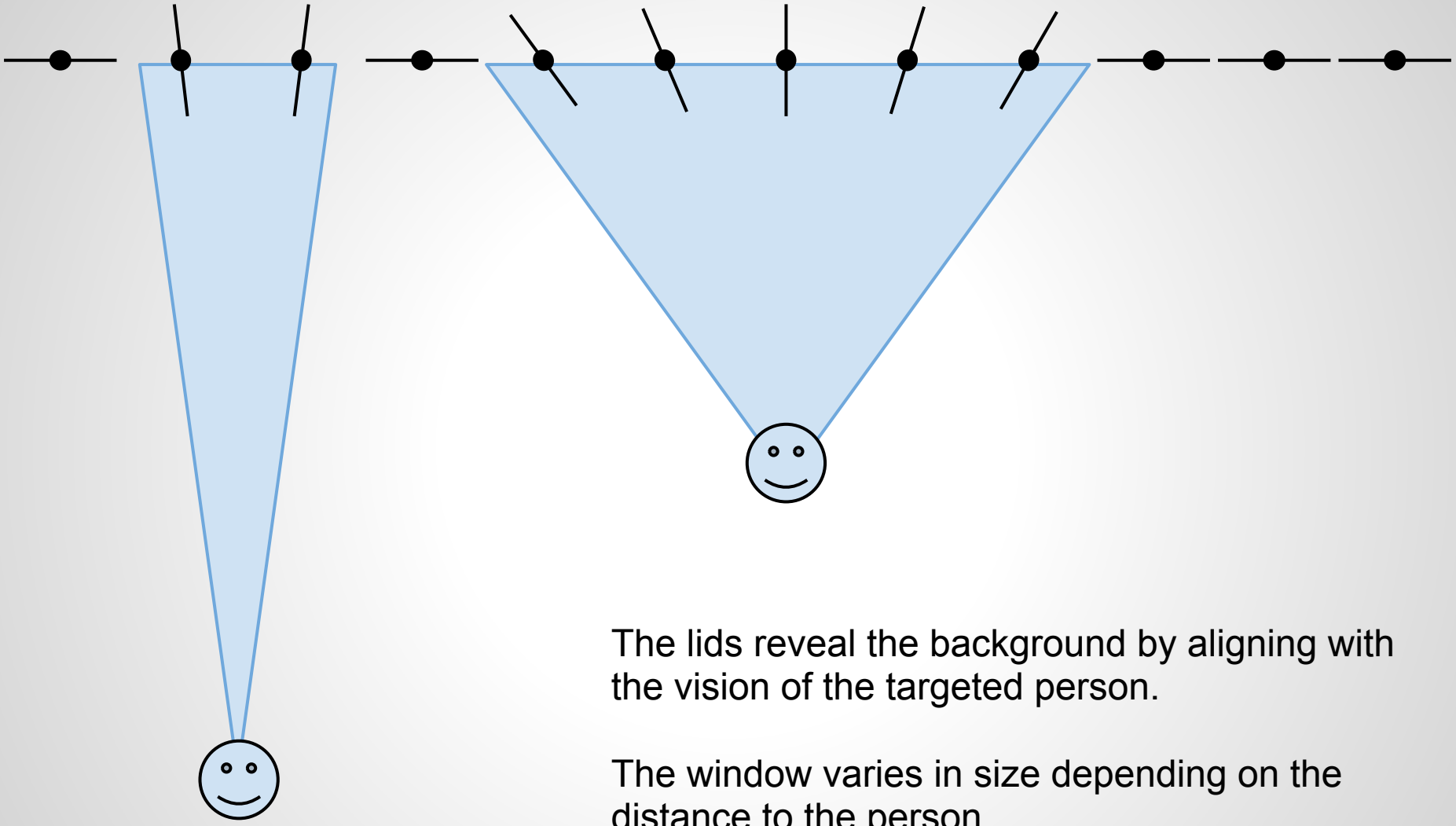


*: actual product may differ.

Physical Implementation:

Mechanical pixels made of a hinge + lid system.





The lids reveal the background by aligning with the vision of the targeted person.

The window varies in size depending on the distance to the person.

Drawbacks / Problems:

- Scaling: 1 motor per pixel
- Single point of view per window, superposition problem
- Analog world: active-inactive state of pixels (going from X° to 0° in one time step)
- Response time of mechanical system

Current Implementation:

- Processing simulation
  - on screen 3D pixel grid (demo)

- Kinect for head tracking in 3D space
  - simple-openNI library: http://code.google.com/p/simple-openni/

- 3D pixel prototype (hardware)
  - Arduino + servo motor

Goals and further development

- Create a working prototype of the physical pixels.
- Build a working small scale prototype: a 1D array of physical pixels.
- Explore more interesting interaction cases virtually: play with silhouettes, interact with the background scene, etc...

Demo