

TaPS - Tangible Personal Space



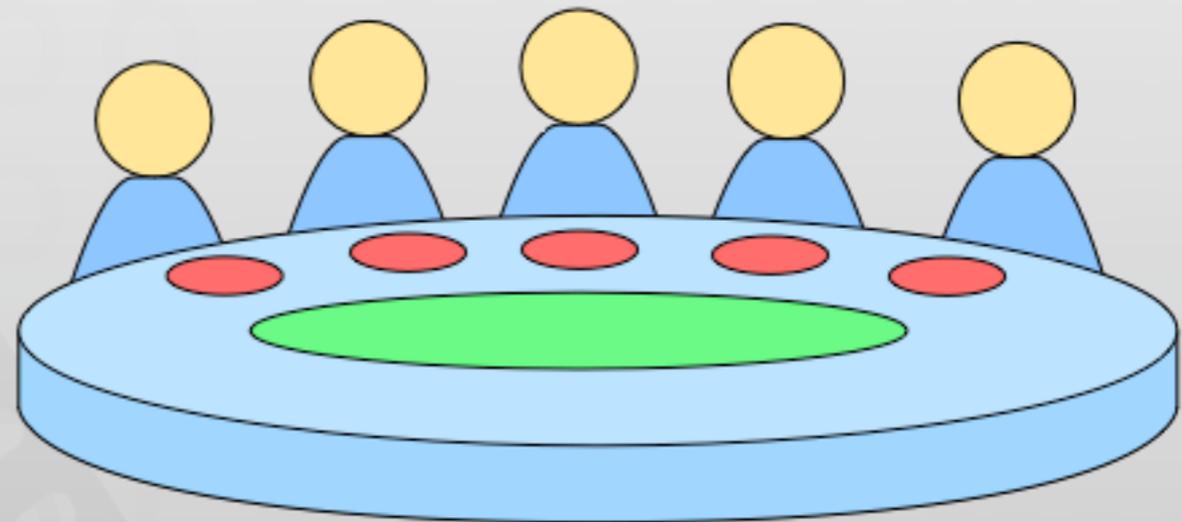
Introduction

- Motivation
- Tangible Personal Space
 - implementation
 - methods
 - user studies
- Project schedule
- final Q&A



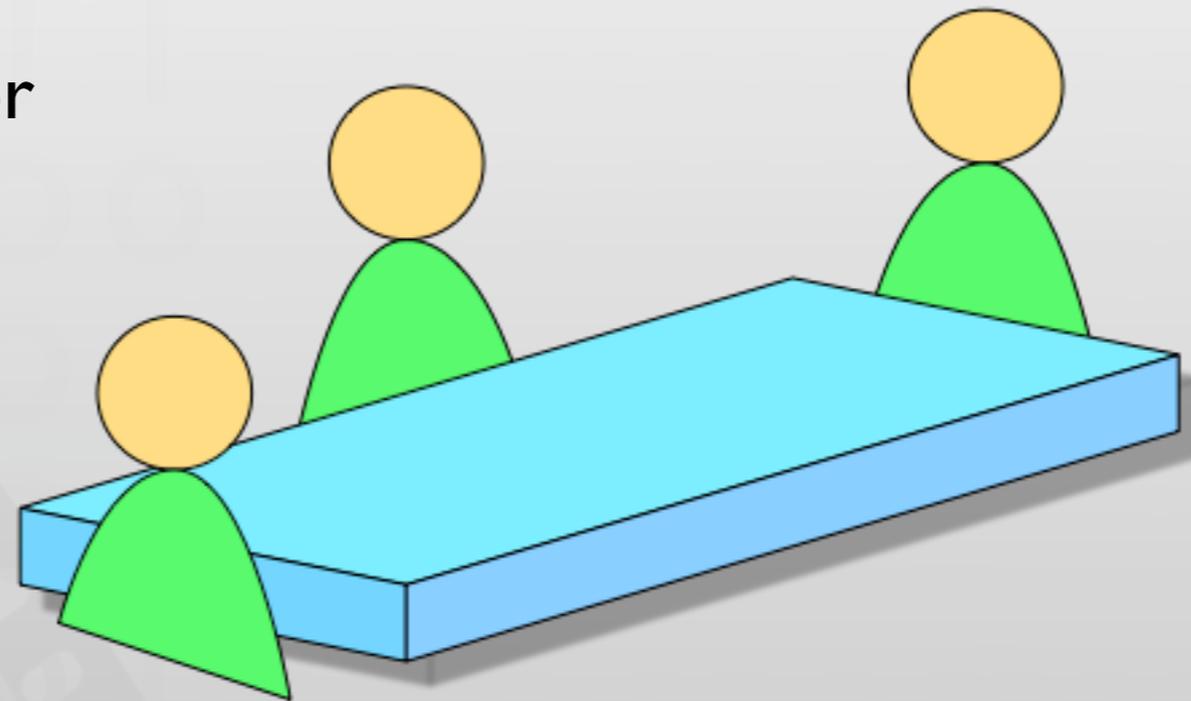
Motivation

- different tasks in real life
 - ask for different types of space
 - e.g. conference table
 - shared space 
 - private space 



Motivation

- mostly collaborative work
- situations on tabletop ask for personal space too
 - secured areas
 - private documents
 - non distracting areas



Brainstorming

interaction

convert priv → pub.

privacy

Konferenzen
Popus (Ankündg)
- mit allen
- direkt

Conferences

personal data

Spiele (Pok^{er})
seiner Karten...
- Planung von
Spiel zügen

Games
- Card...
- Puavel

PERSONAL ZOOM



1 on 1 situation on
screen
~ Frage-Antwort...

Exams ...

Brainstorming
/ private / undisturbed
at
Credibility

security

PASSWORD ENTRY



SECRET/PRIVATE
DOCUMENT HOSTING



distraction

Pivots → want → ^{to} ~~to~~
→ forced
→ good for all
→ no detour needed

CLUTTER AVOIDANCE/
INCREASED REAL-ESTATE



Detail info in
Thumbnail lists
Allgemein, sondern
essential for info
(erst klicken, dann sprechen)

~~Security~~ ...
intermediates needs
→ no disturbance
for the other

Private Views - Related Work

- Extra devices
 - Poker Surface: Combining a Multi-Touch Table and Mobile Phones in Interactive Card Games (Sahami et al) 2009
- AR/VR - Glasses
 - The two-user responsive workbench (Agrawala et al.) 1997
 - VITA: visual interaction tool for archaeology (Benko et al.) 2004
- Shutterglasses
 - Single display privacyware (Shoemaker, Inkpen) 2001
- Polarized Light
 - A visibility control system for a collaborative digital table (Sakurai et al.) 2009
- Holographic approach
 - On top of tabletop: a virtual touch panel display (Chan et al.) 2008
- Foil
 - Public and private workspaces on tabletop displays (Dmith, Piekarski) 2008



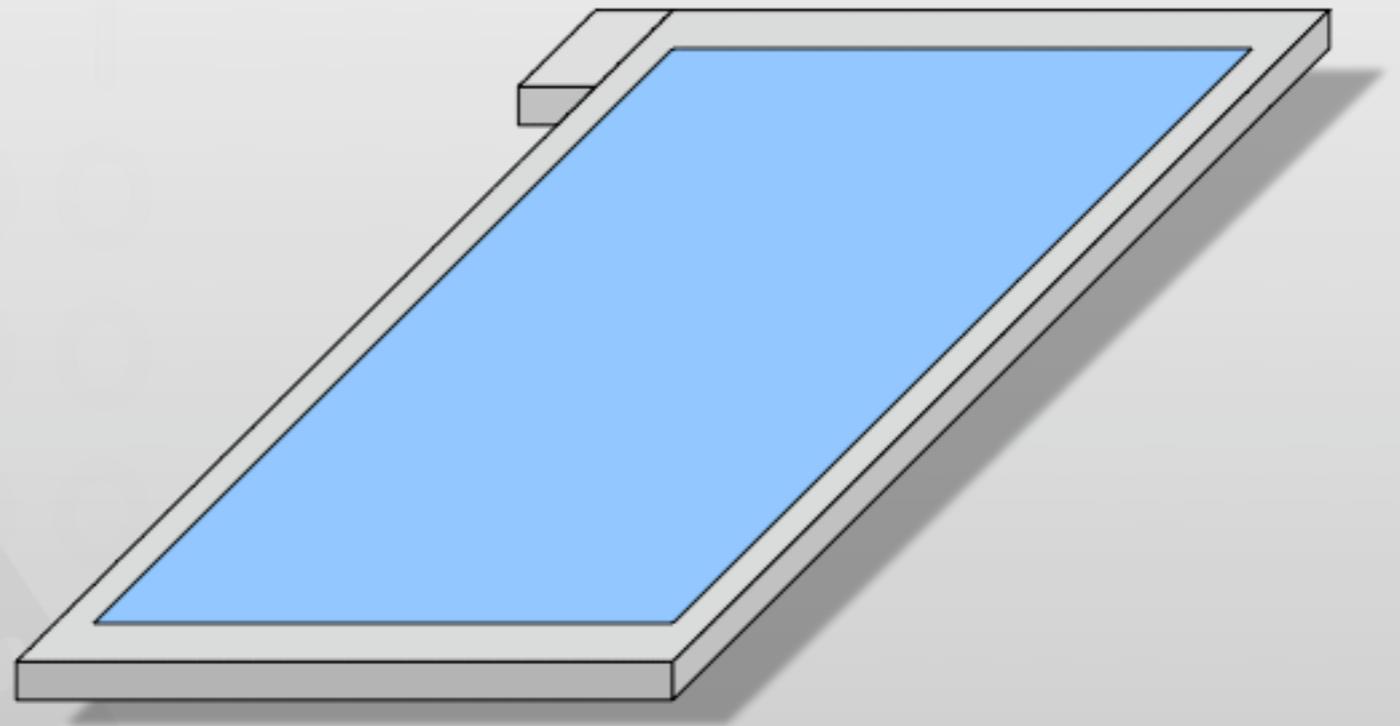
Problems

- easy-to-use
- fixed orientation - free positioning
- distraction of other users
- viewing-angle-dependency
- haptic feedback



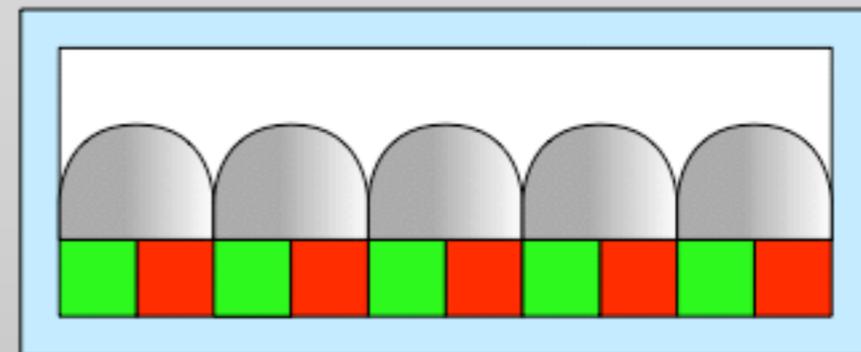
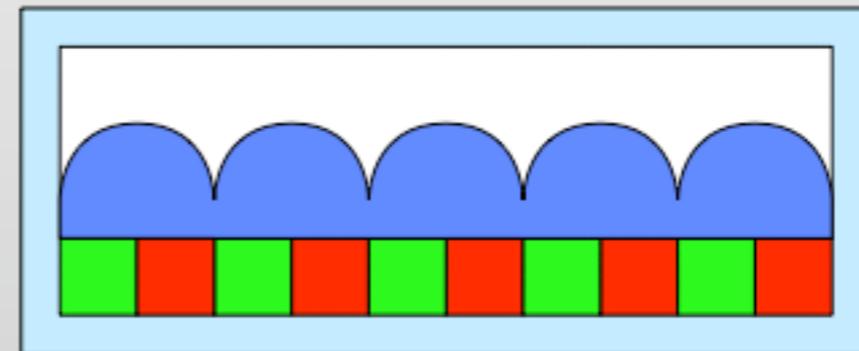
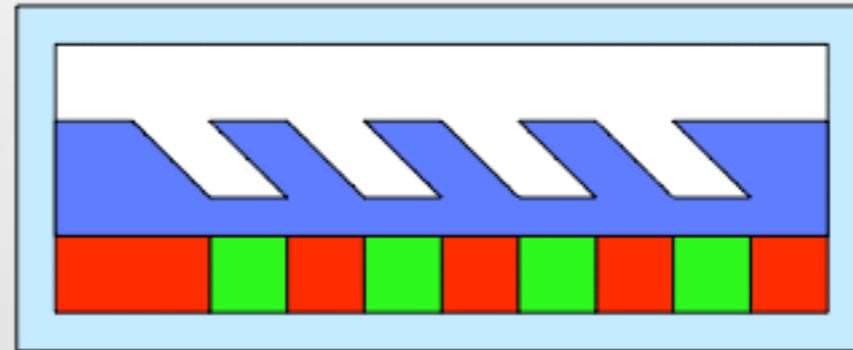
Solution: Tangible Personal Space

- using tabletop
- widget for SLAP-Table
- bound to user
- owner is only user to see content



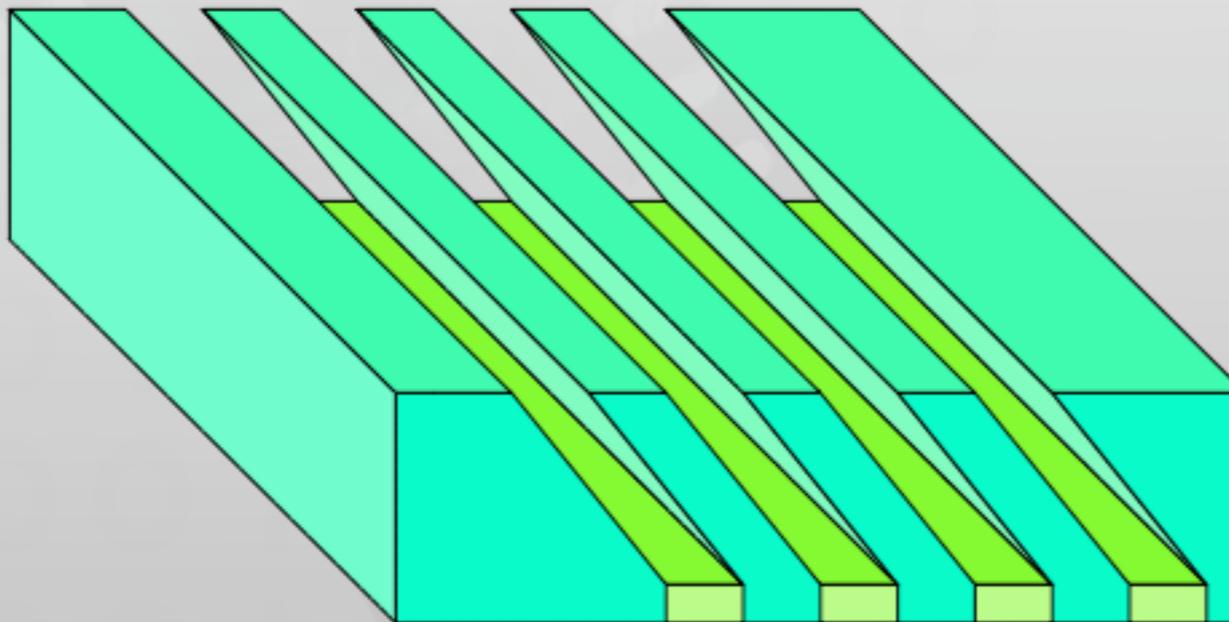
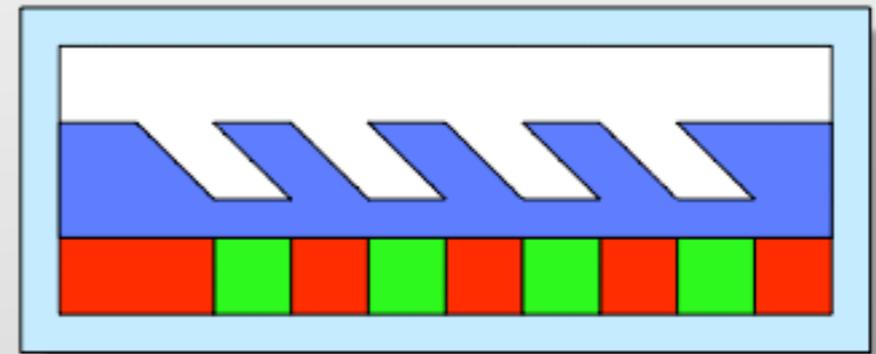
Implementations

- different implementations
 - blocking
 - 2D lenticular lens
 - 3D Fly-Eye lens



Implementations

- blocking lamella



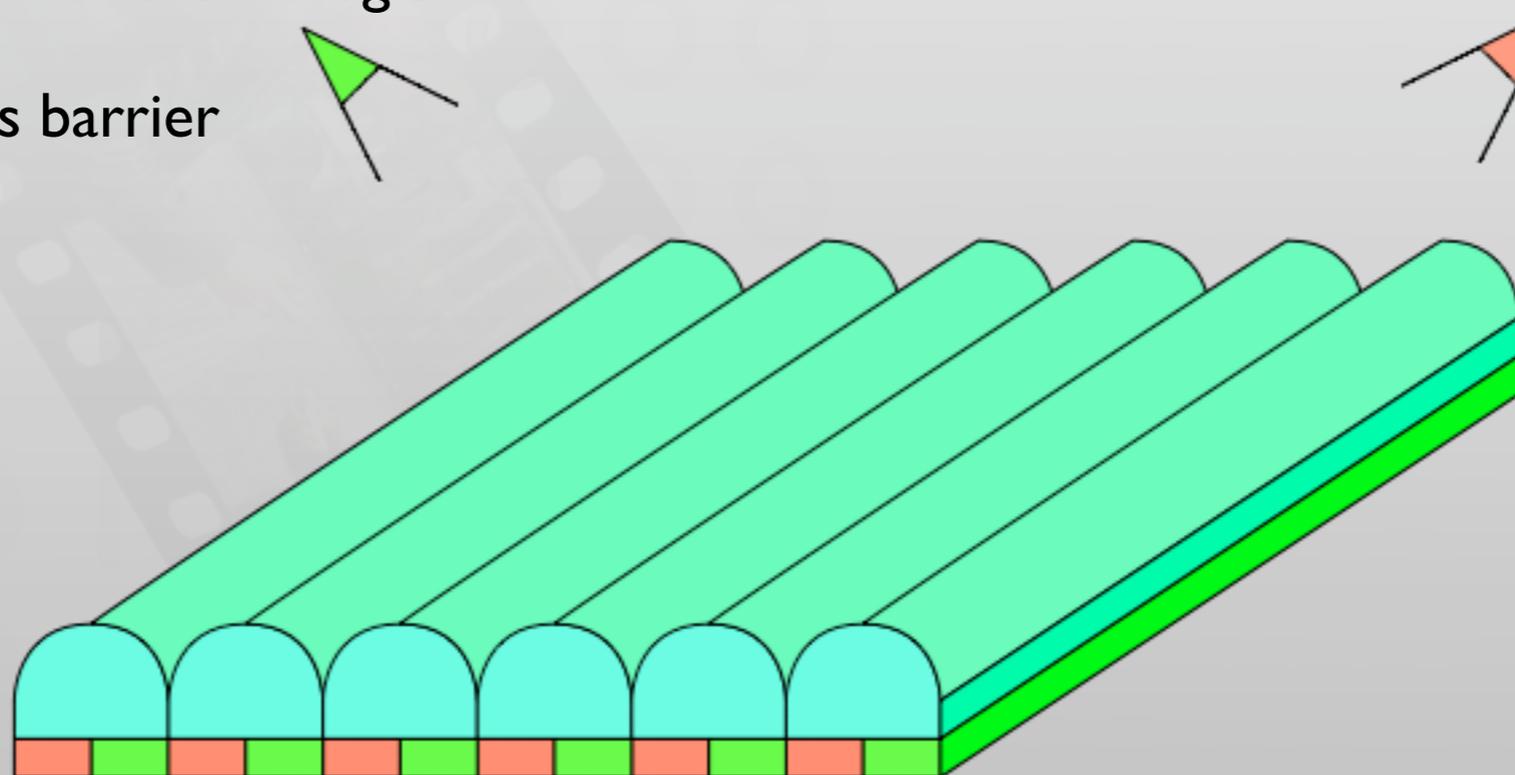
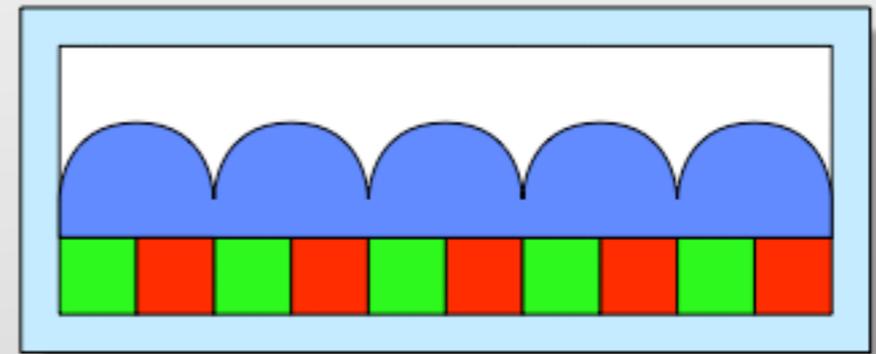
Implementations

- lenticular lens

- barrier-technology developed by painter Gaspard A. Bois-Clair 1692

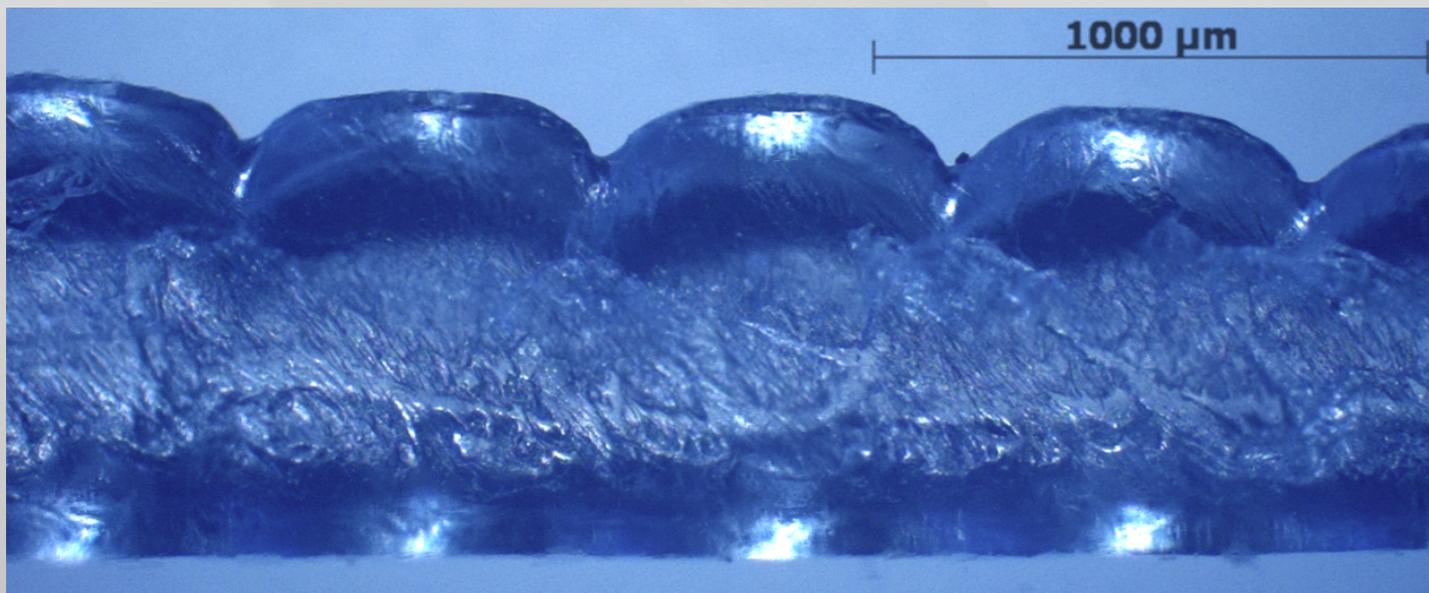
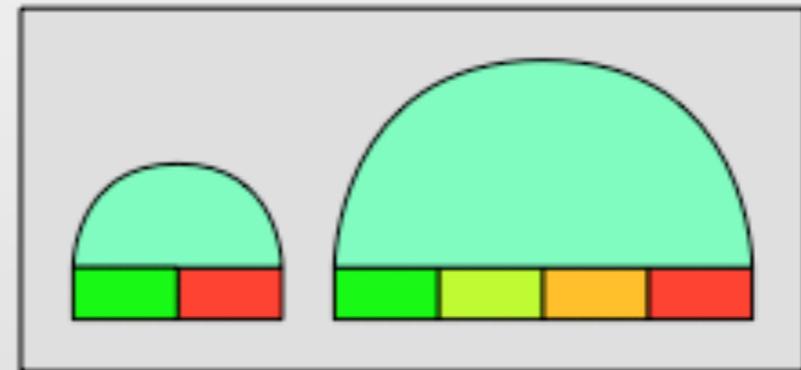
- 1903 patent of parallax-stereogram using parallax-barrier-technologie

- lens act as barrier



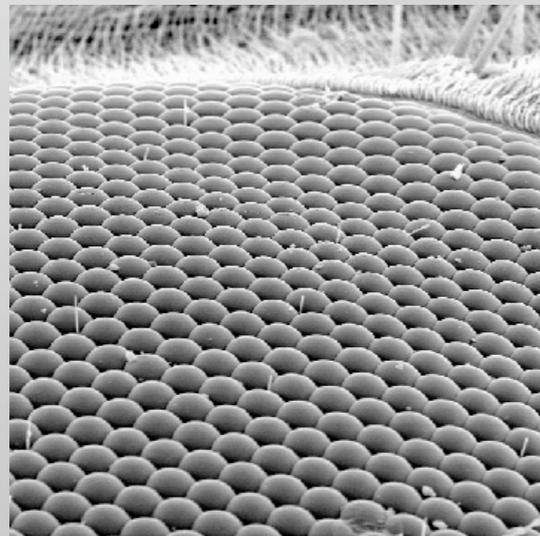
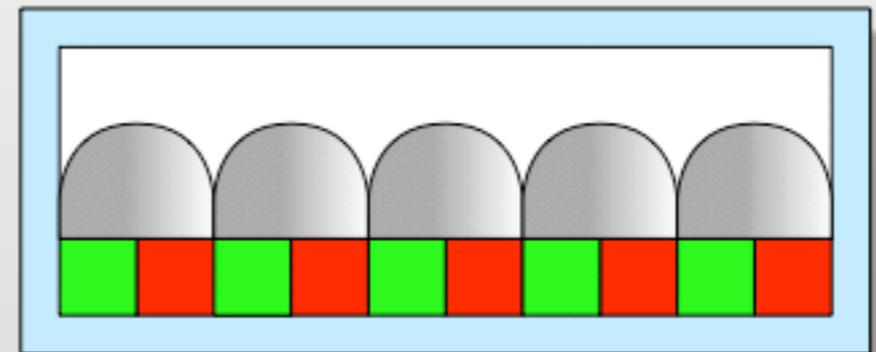
Implementations

- Resolution
 - more lines, smaller angles
- Angle
 - viewing angle depends on lens

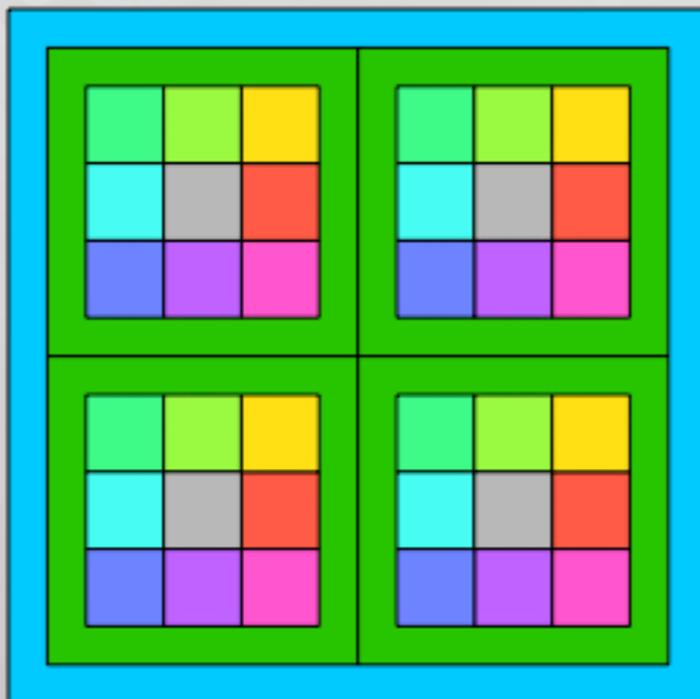
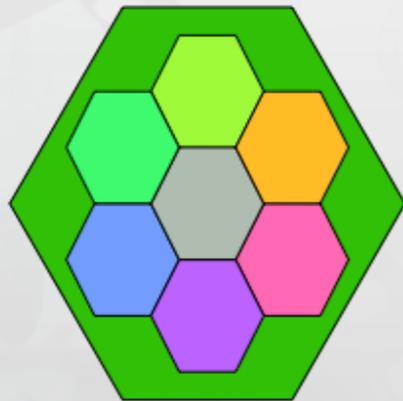


Implementations

- Fly Eye
 - developed 1908 by Prof. Gabriel Lippmann received Nobel-Price



Implementations



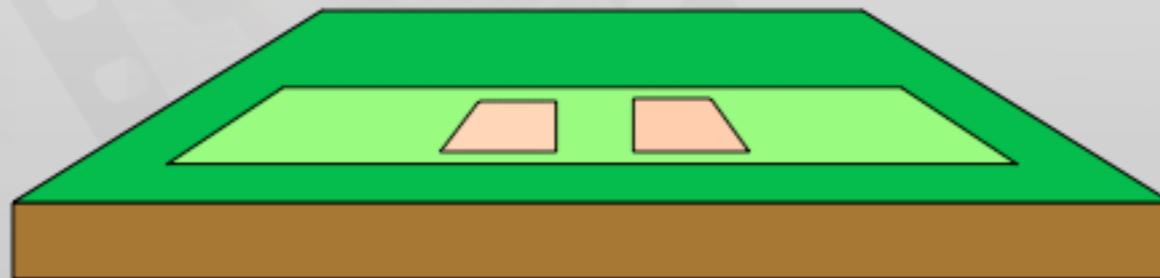
Methods

- Handling of documents
 - sharing with publicity
 - handing over to other users
- Using of widget
 - put on table, remove from table



Applications

- Password entry
- Games
 - Poker, Mah-Jongg, Scrabble
- Information / Help



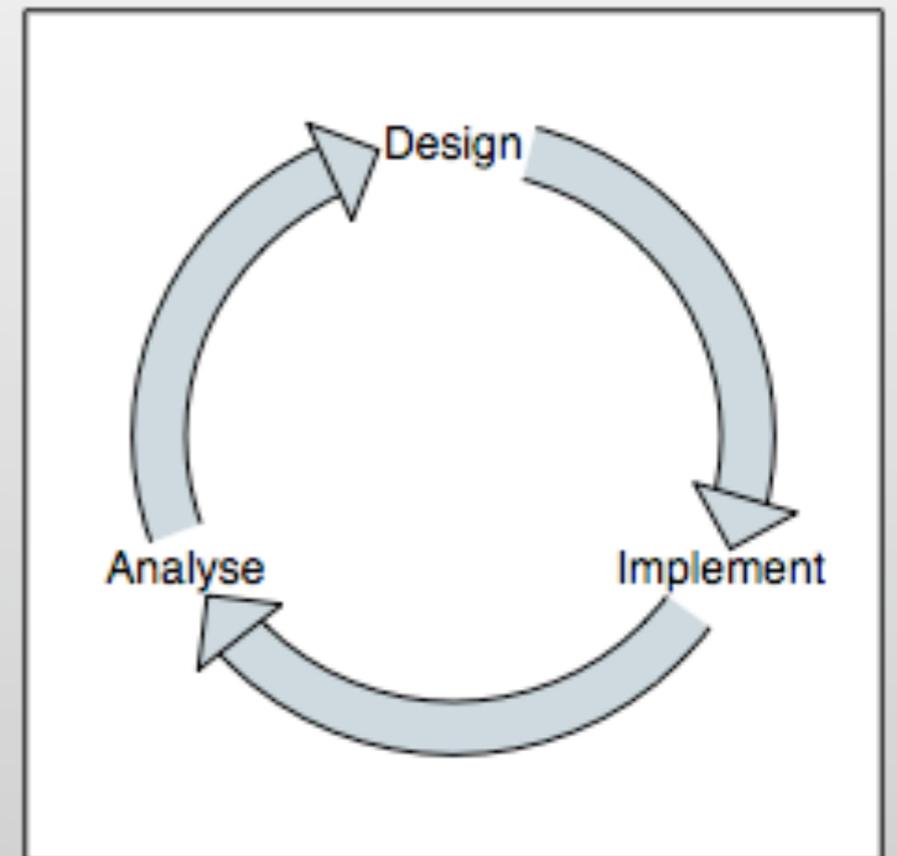
User studies

- Check user-private area-binding
- Check different implementations
 - usability, touch
- Check security
 - using special tasks for different approaches (text, pictures, 3d)
- using real life scenarios
 - conference situations, playing games



Project schedule

- Literatur review and technical research
(1 month)
- Implementation - Soft- and Hardware
(4 months)
- Evaluation and analysis using user studies
(1 month)



Questions?

