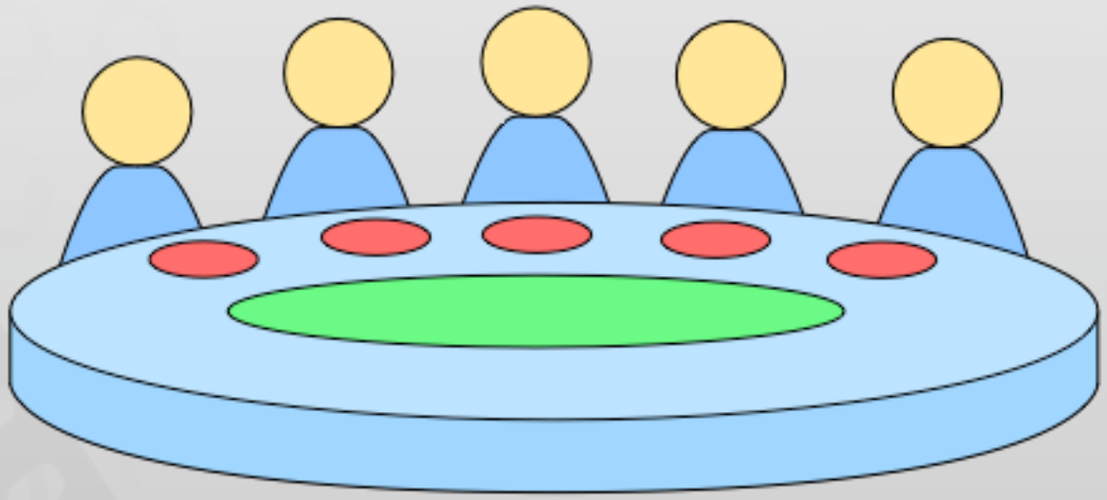
TaPS - Tangible Personal Space

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



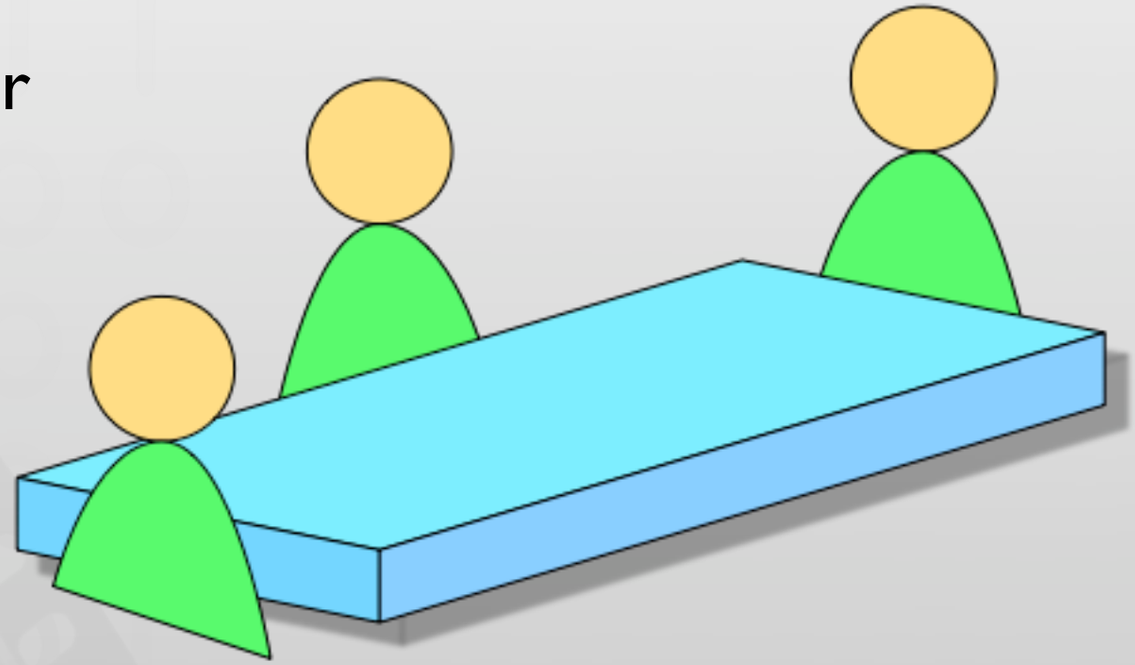
Motivation

- mostly collaborative work
- situations on tabletop ask for personal space too

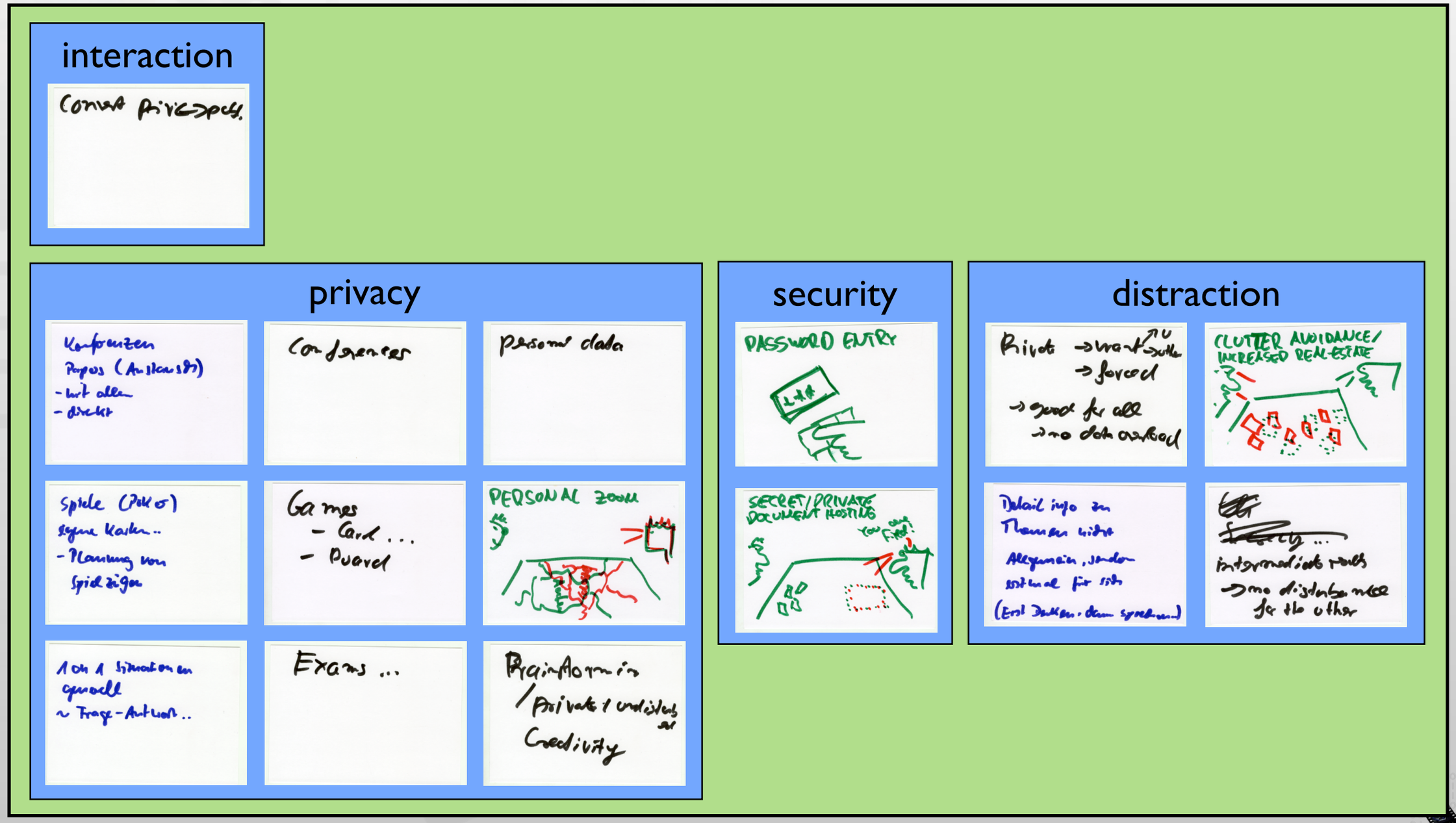
  - secured areas

  - private documents

  - non distracting areas



Brainstorming



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 visability 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

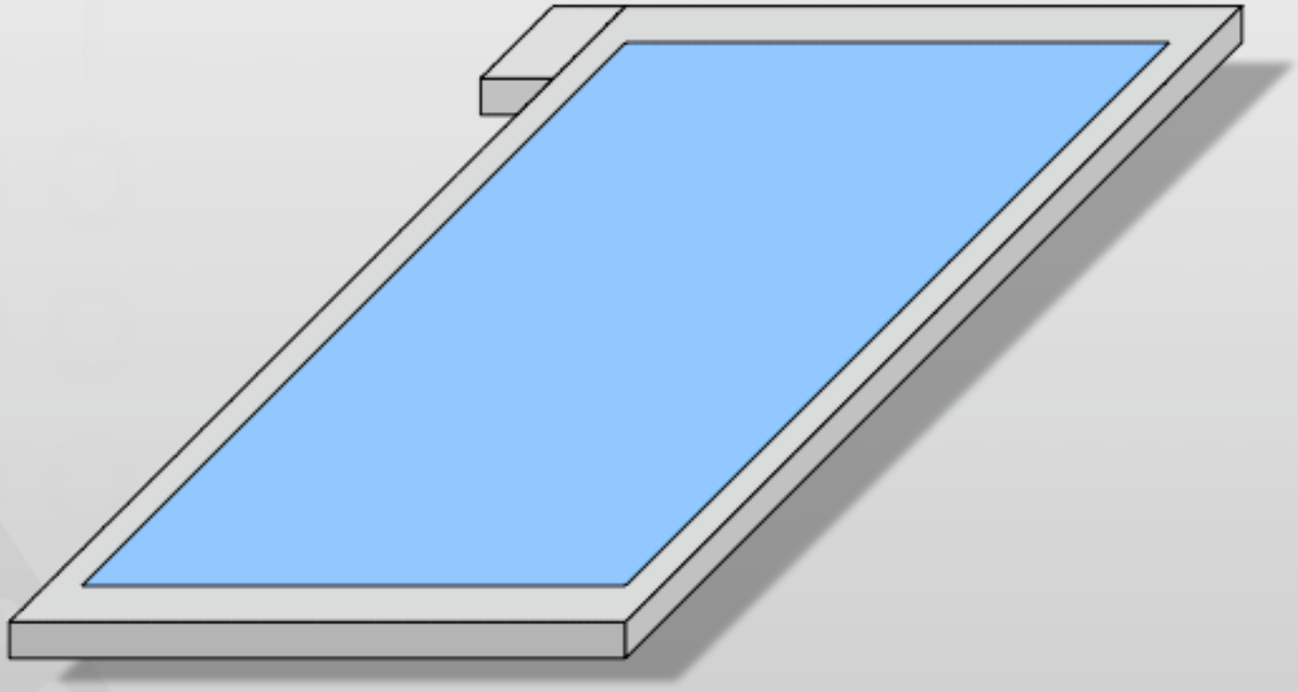
  - Public and private workspaces on tabletop displays (Dmith, Piekarski) 2008

Problems

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

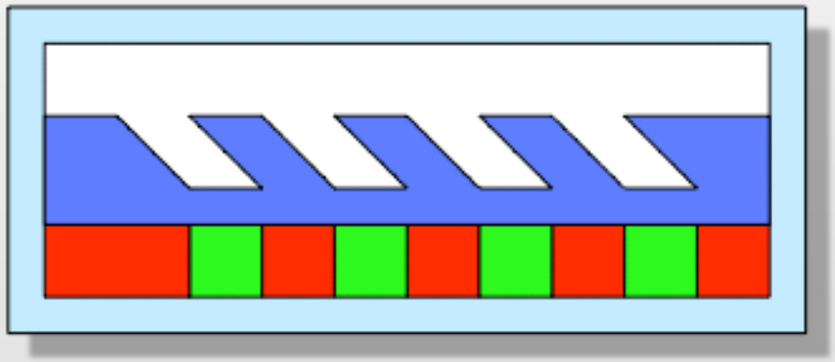
Solution: Tangible Personal Space

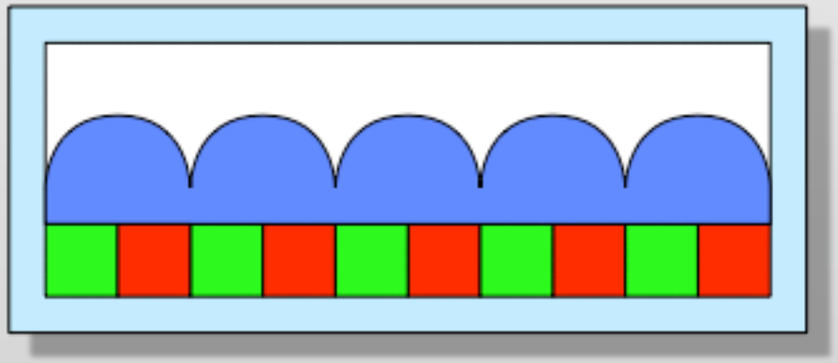
- using tabletop
- widget for SLAP-Table
- bound to user
- owner is only user to see content

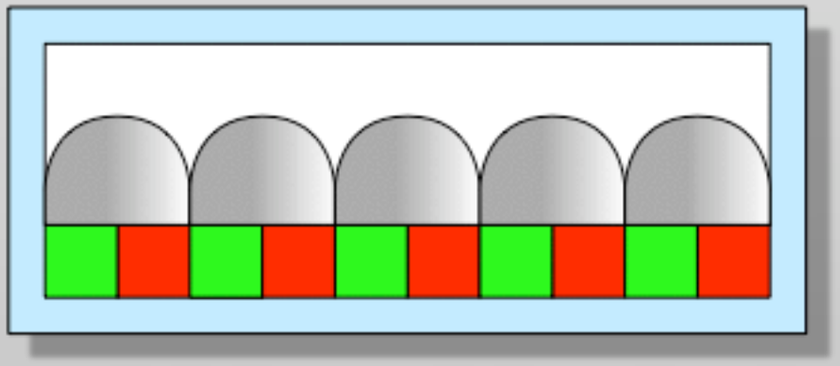


Implementations

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

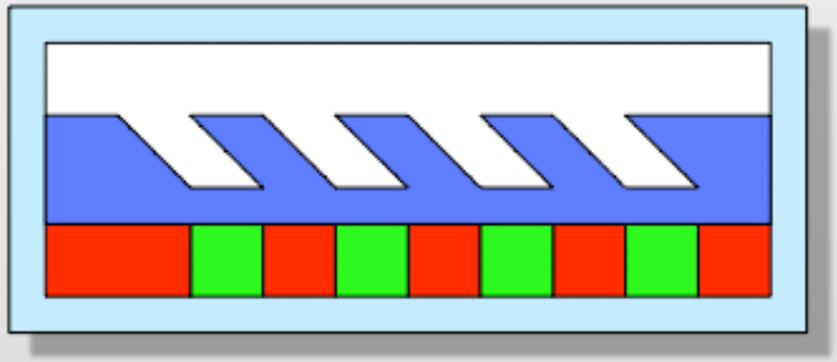


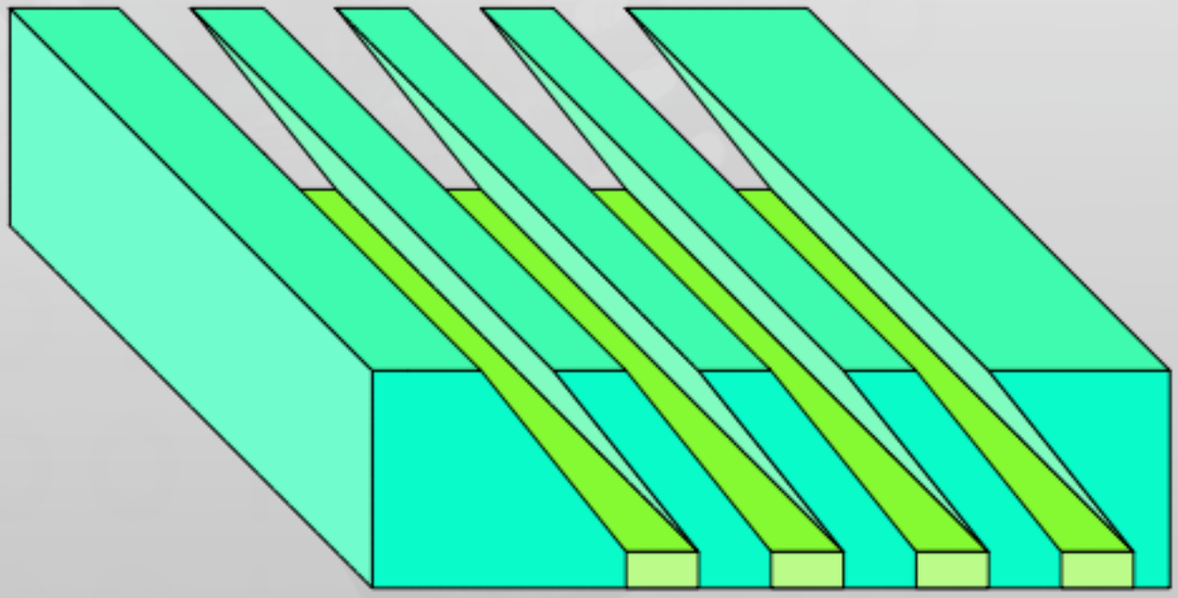




Implementations

- blocking lamella





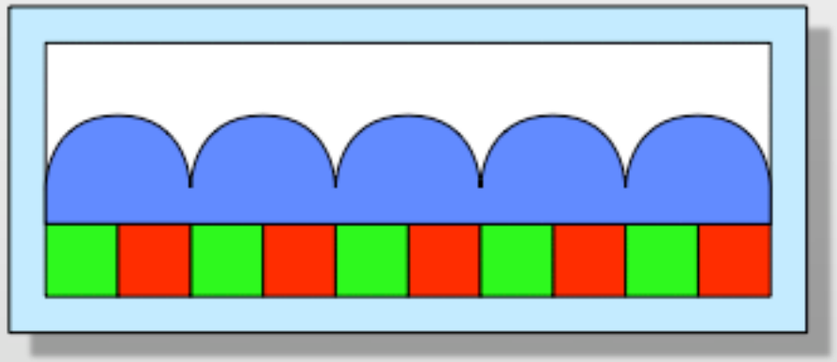
Implementations

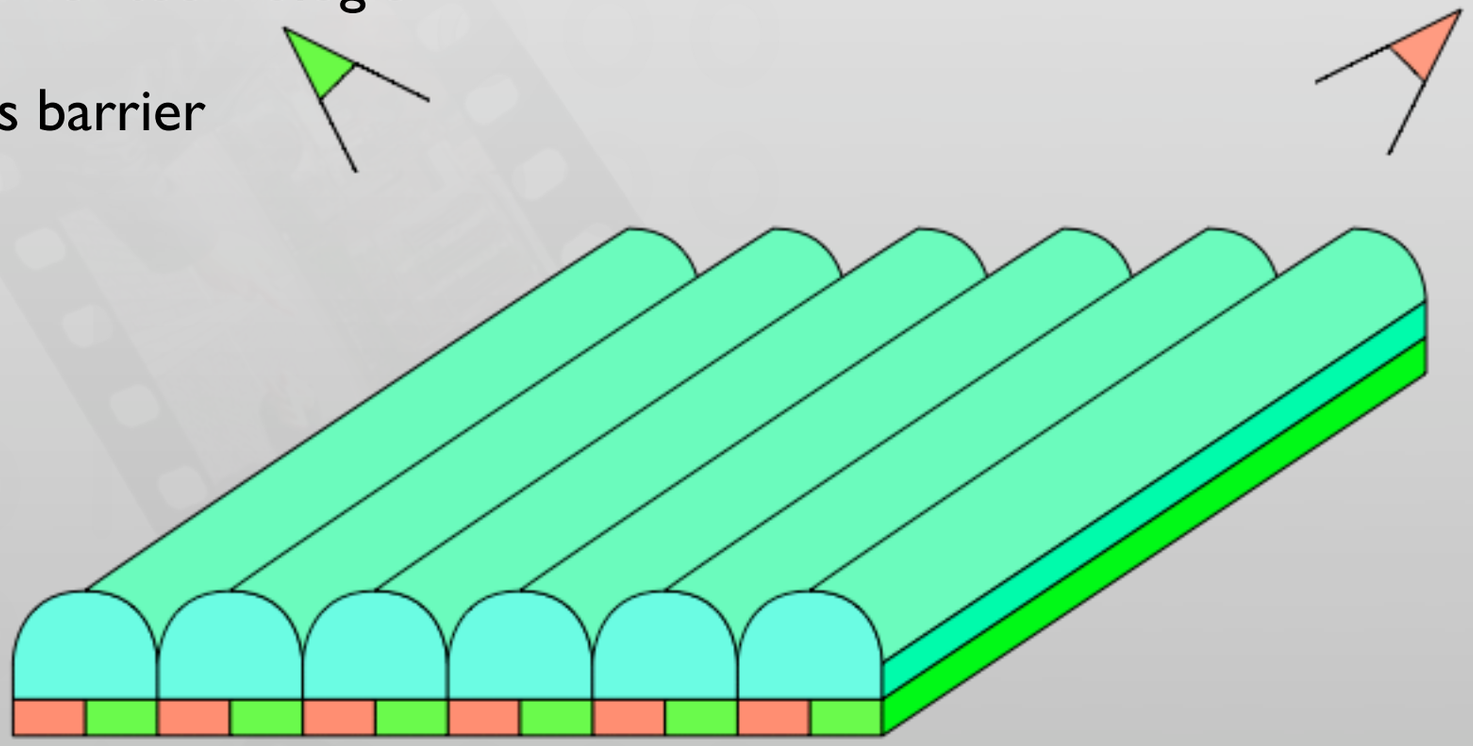
- lenticular lens

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

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

  - lens act as barrier





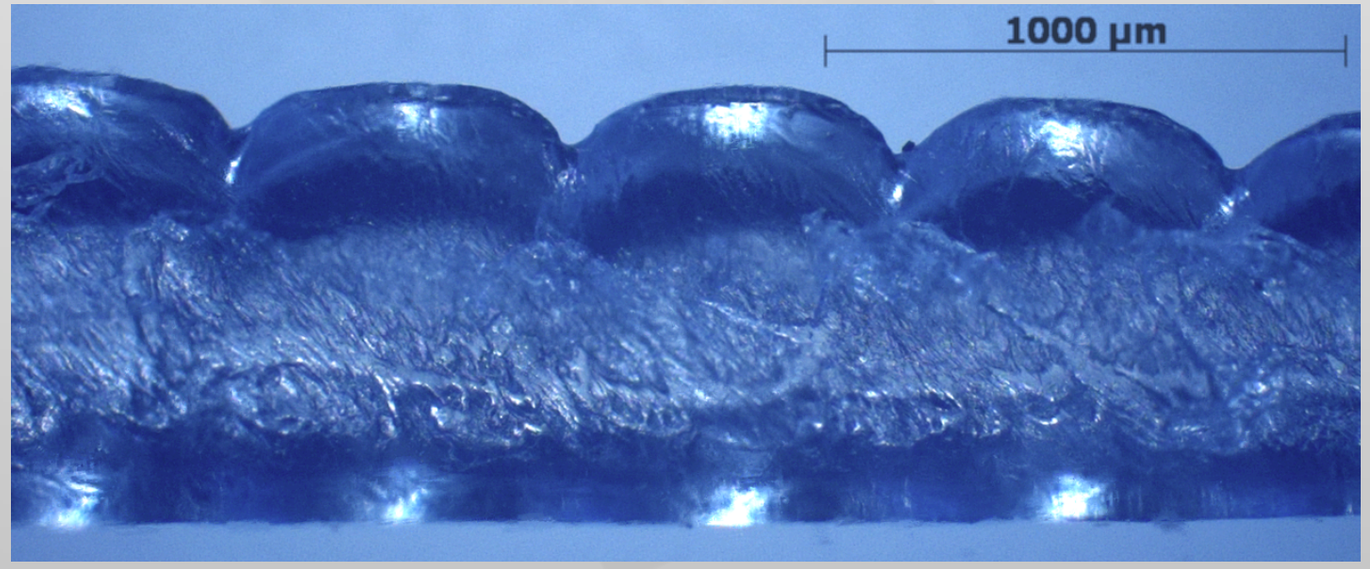
Implementations

- Resolution

  - more lines, smaller angles

- Angle

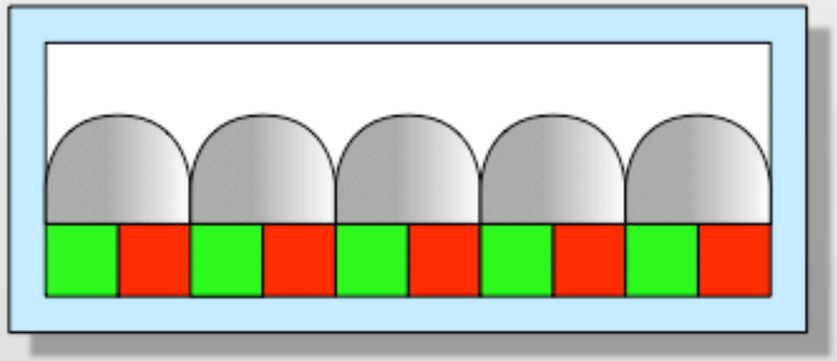
  - viewing angle depends on lens

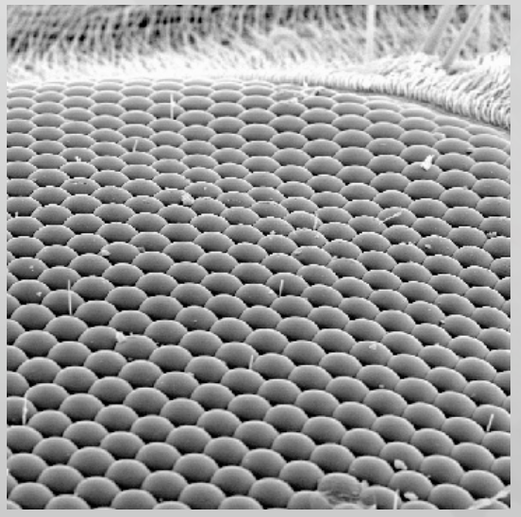


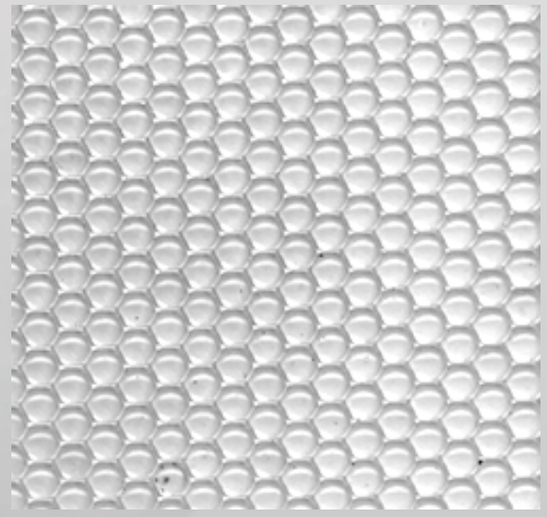
Implementations

- Fly Eye

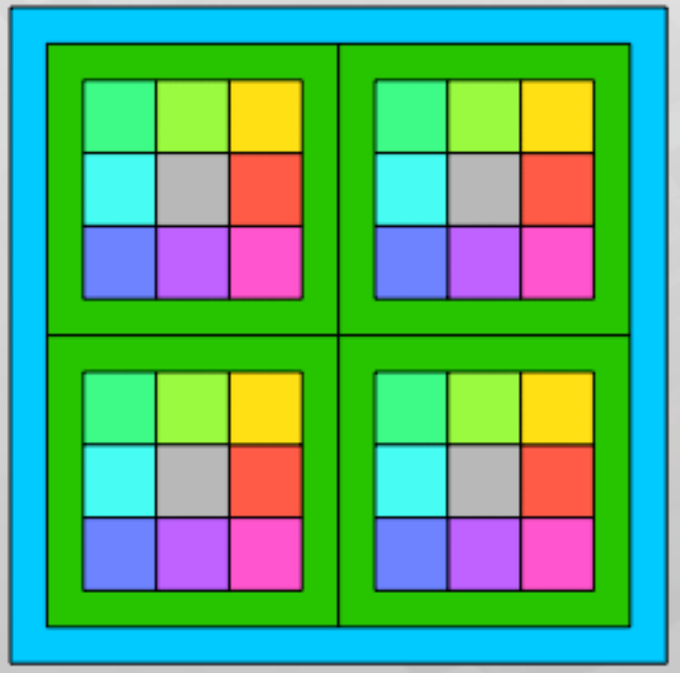
  - developed 1908 by Prof. Gabriel Lippmann
  received Nobel-Price







Implementations

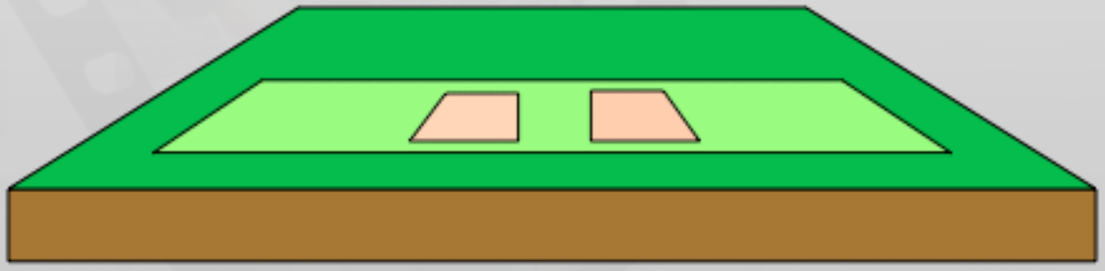


Methods

- 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

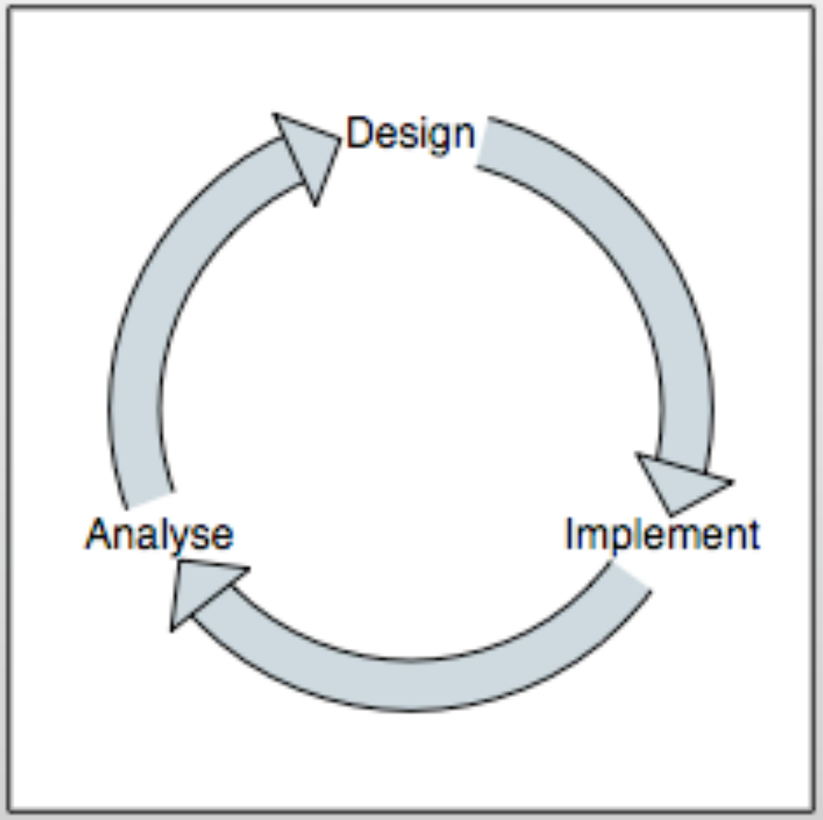
  (1 month)

- Implementation - Soft- and Hardware

  (4 months)

- Evaluation and analysis using user studies

  (1 month)



Questions?