

"Wunderkammer 4.0 / Cabinets of Wonder" Schloss Friedenstein Gotha

Betreuung: Prof.Bernd Rudolf, Prof.Andreas Kästner, Junior-Prof.Reinhard König, Dr. Sabine Zierold, Nazar ABuhalaweh

Gastkritik: Stefan Kraus, Brian Larson Clark / Autorinnen: Katharina Fuchs, Katarina Banković

MA MediaArchitecture Wintersemester 2021/2022

Bauhaus-Universität Weimar

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research questions

presence
in daily life
and city scape

playful
learning

varying/
changing
program

connection
between a
visitor and
the object

how to gain more visitors and
make them eager to
explore baroque and gotha
universe?

offer
interactive
experiences

creating
simple rules

offer a gain in
knowledge

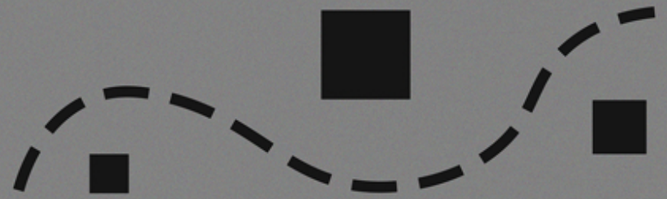
expand
and adress
target group

what do we want to achieve?

no more borders / no closed spaces
bring the collection outside
(the location)



imagine fun paths to knowledge
changing
interactive
(the concept)



create familiarity / simple
eliminate the fear
(the design)



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what kind of a game?

In the German language a game is any activity which is executed only for pleasure and without conscious purpose. In this definition every activity that brings pleasure is a game. For example, people dance, play musical instruments, act in plays, and play with dolls and model trains.

In most games, the rules are more significant than the components. But there are games where these roles are reversed: where the components are significant and the rules not very important at all.

Components and rules can be combined:

/ a set of components may be used with different rules.
/ a set of rules can be used with different components.

Here are the criteria which all games have:

/ Common experience
/ Equality
/ Freedom
/ Activity
/ Diving into the world of the game

“What is a Game?” Wolfgang Kramer, 2000

Removing or making optional the goals of games can make way for new types of player experiences. While goals provide a sense of direction and a challenge in games, they can also limit the player: A goal means that the player should work towards the goal, rather than follow his or her personal inclinations.

“Without a goal” Jesper Juul, 2007

forgeting the rules / making your own path





create your own world



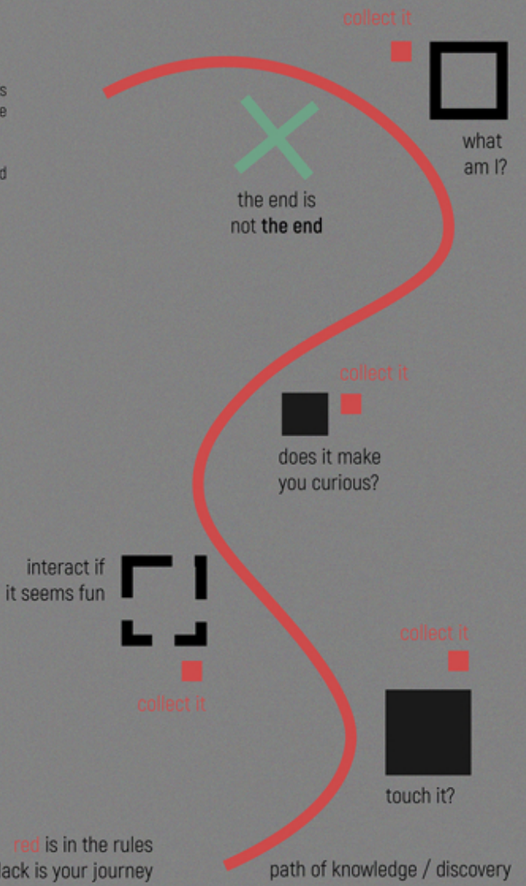
follow the path /discover / no obstacles

a child’s play

creating a simple game which is familiar to everyone, understandable to everyone and intuitive

this provides inclusivity, equality and absence of fear

a game without the obstacles



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target group/main path

communication strategy

target group

locations

playful interaction

residents | accesable for all ages | tourists

Neumarkt | Orangerie | Hauptbahnhof

Rosengarten



NEUMARKT - residents - first encounter - LEVEL 1

ORANGERIE - residents & tourists - second encounter - LEVEL 2

FORMER ROSEGARDEN - residents & tourists - third encounter - LEVEL 3

TRAINSTATION - tourists - first encounter - LEVEL 1

choosen color palette

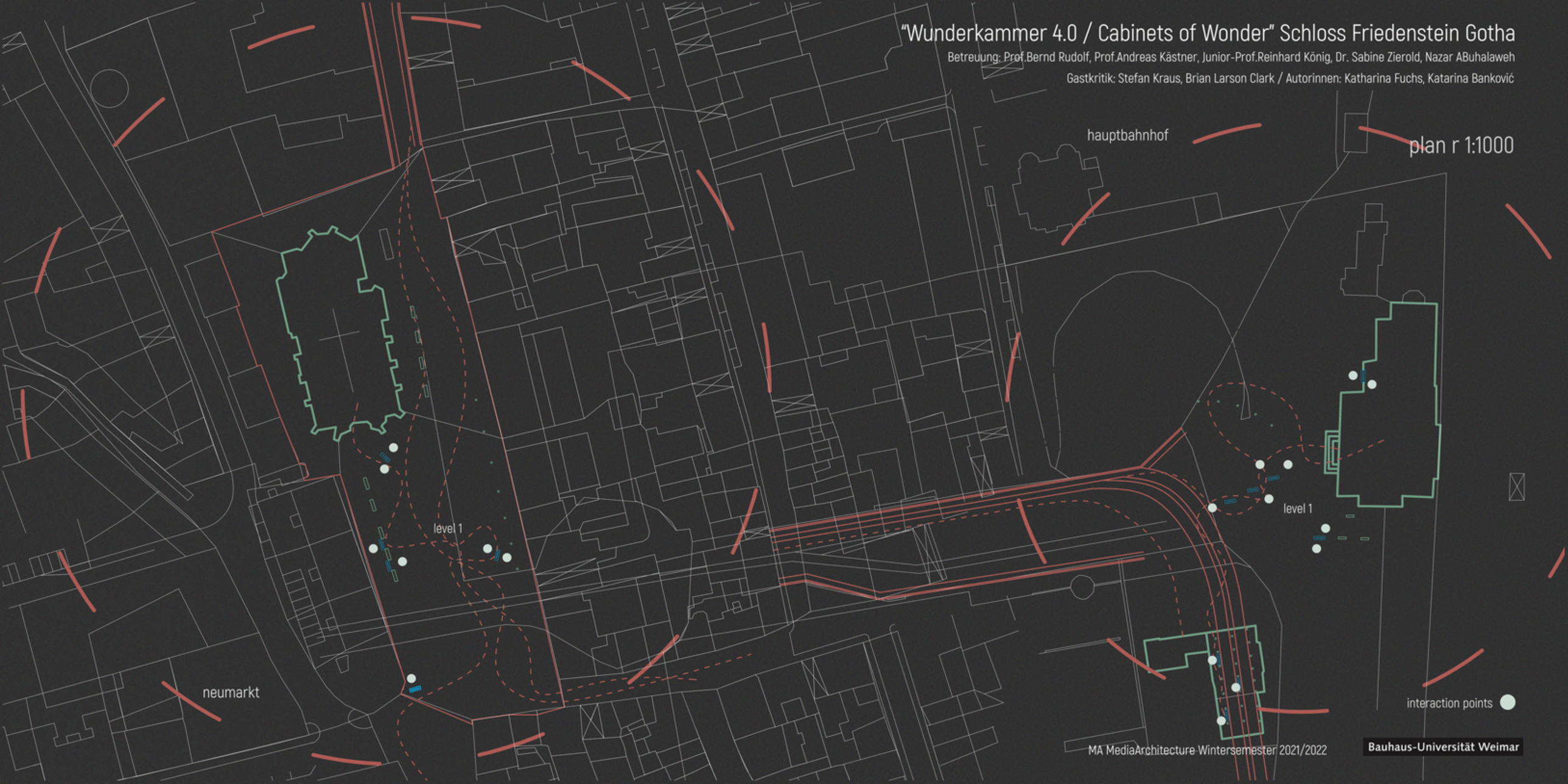
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contextual plan r 1:4000

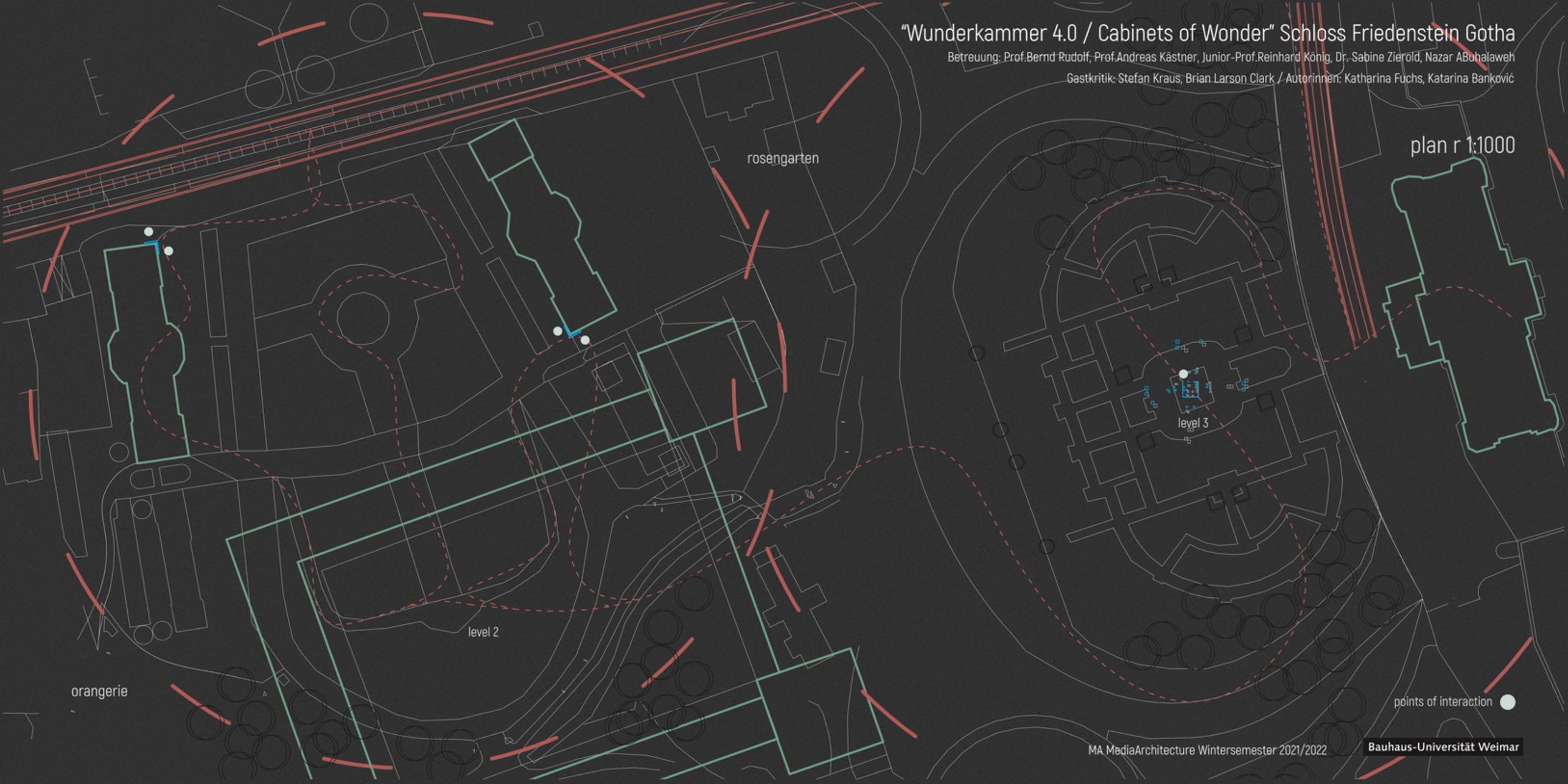



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hauptbahnhof
plan r 1:1000
level 1
level 1
neumarkt
interaction points
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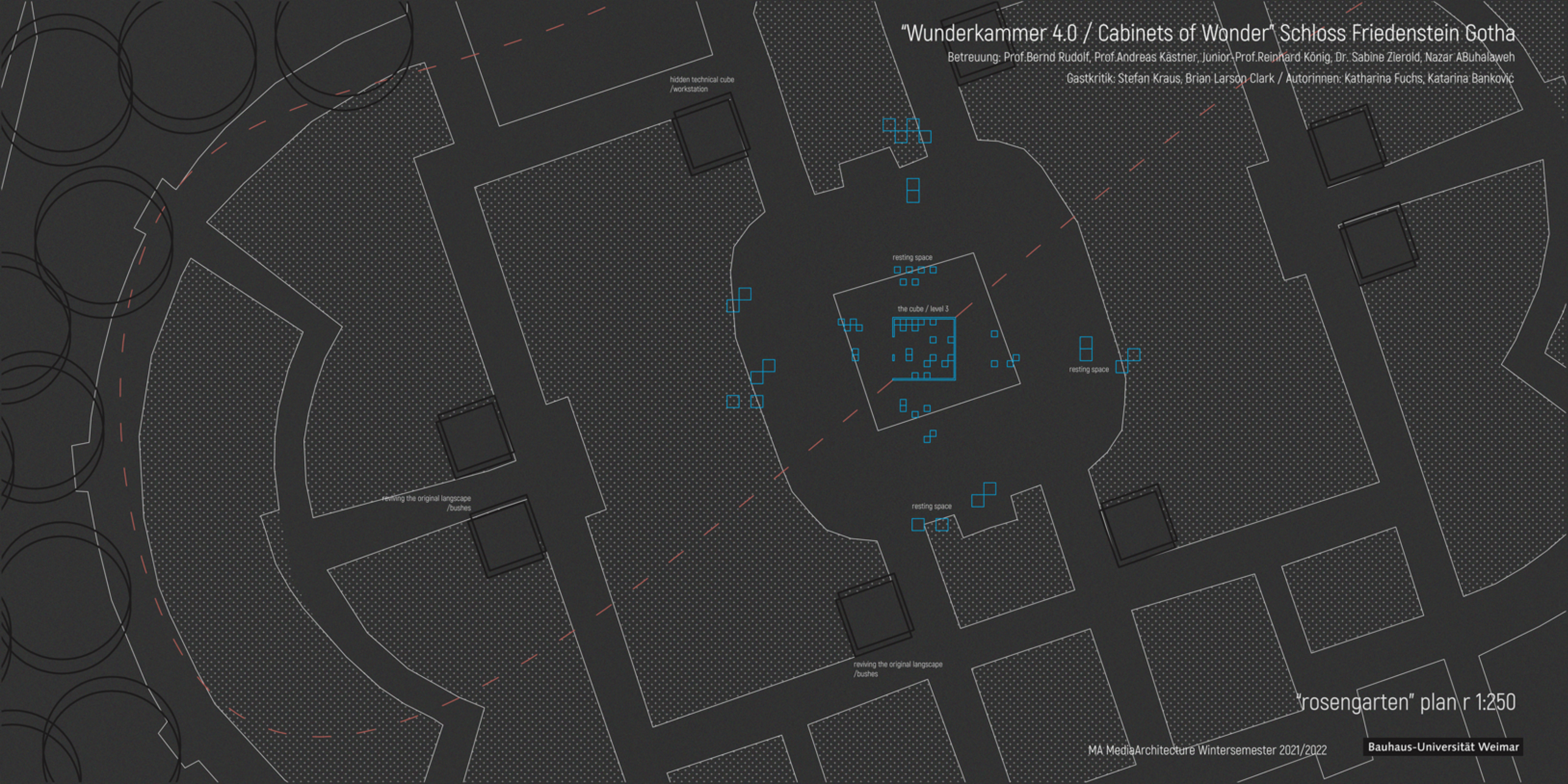
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plan r 1:1000



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"rosengarten" plan r 1:250

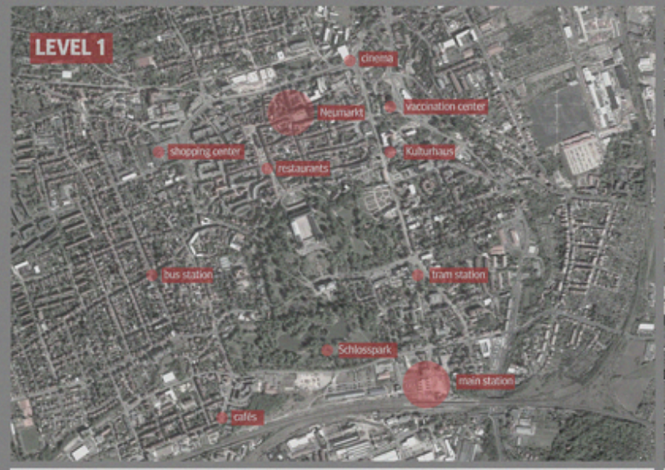
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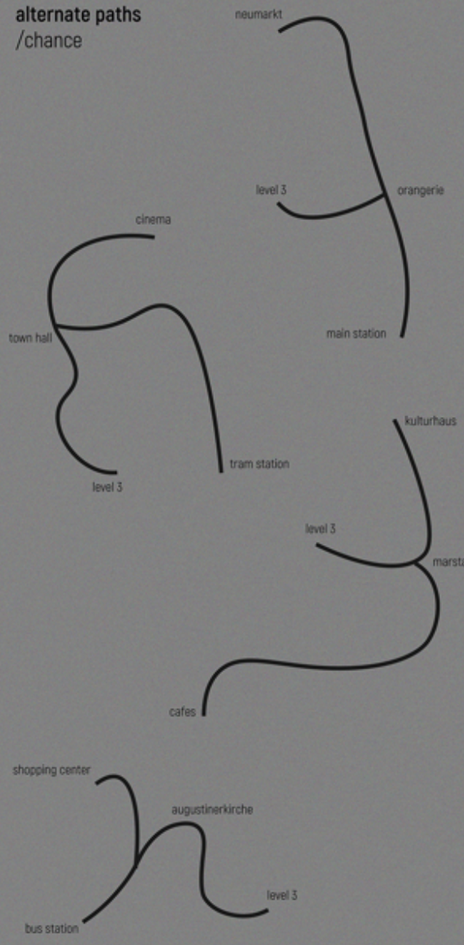
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alternate locations / wrapping in existing structure



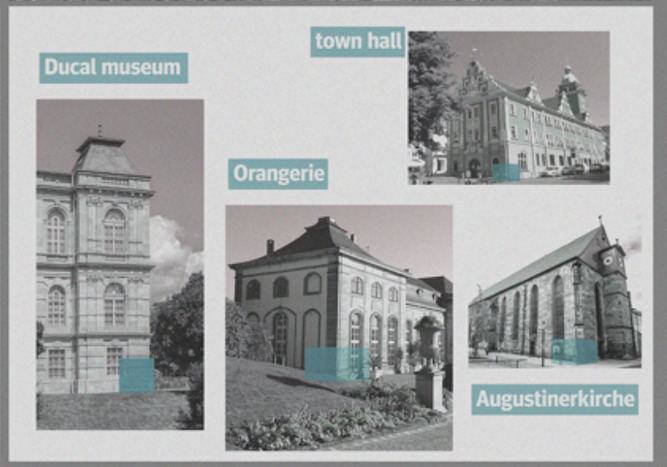












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wrapping / connection / protection



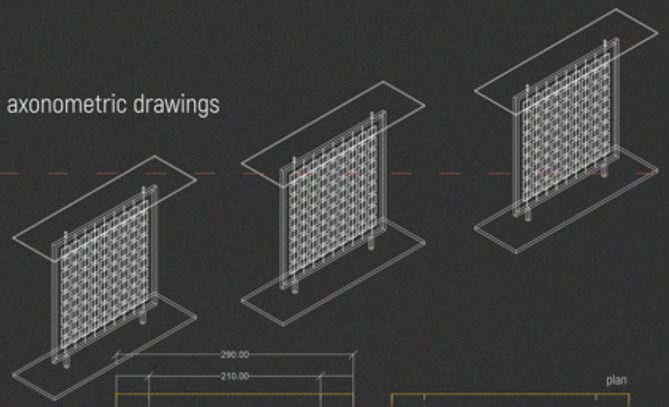
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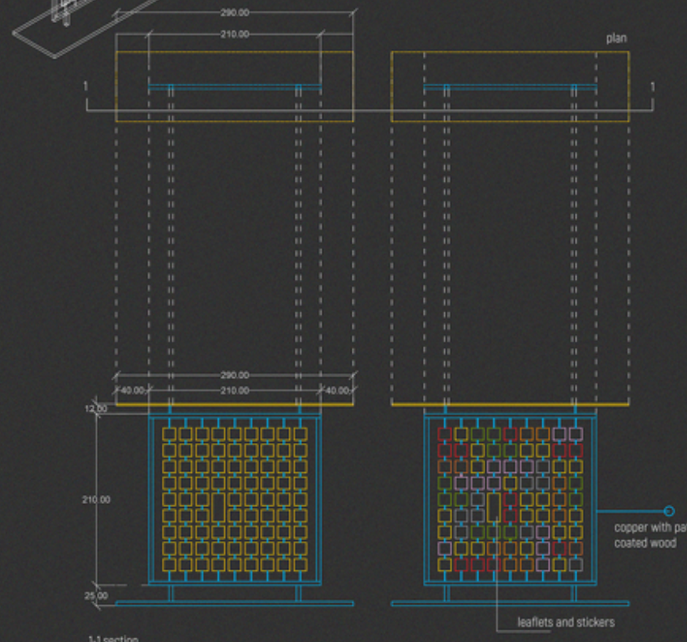
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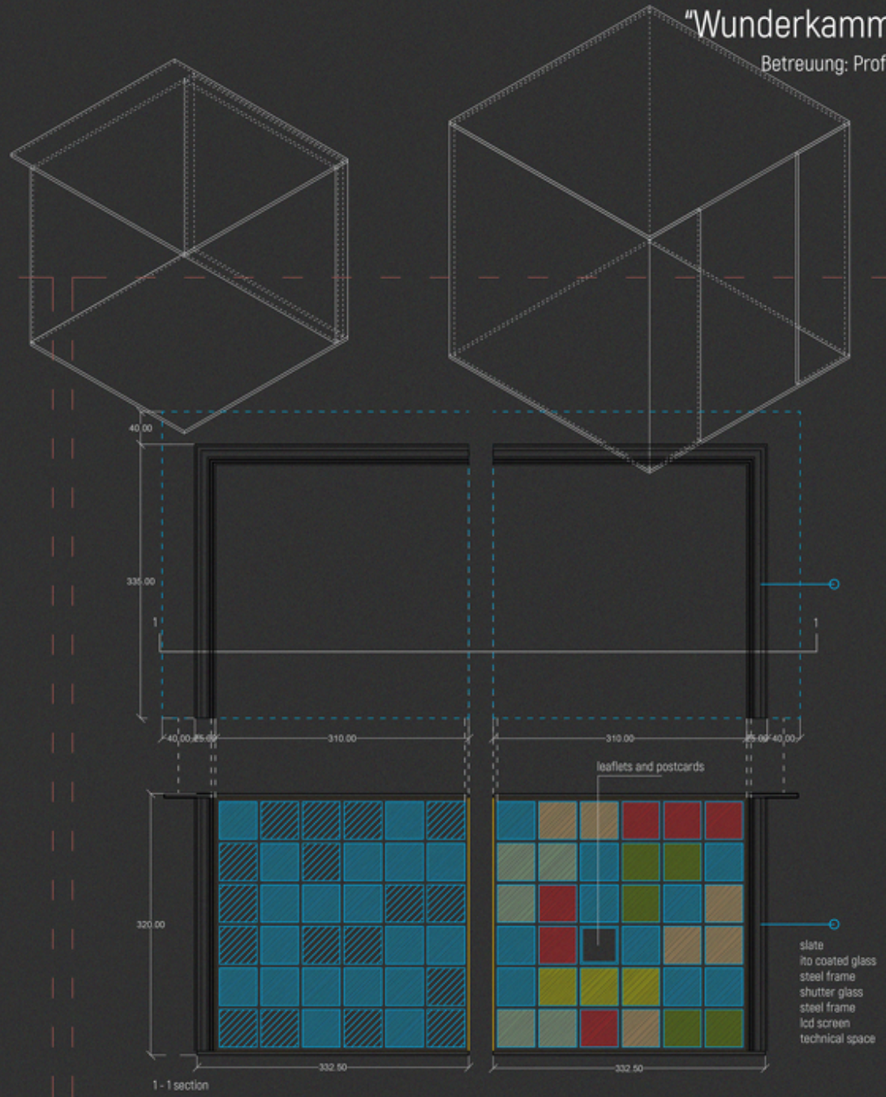
axonometric drawings

drawings r 1:75

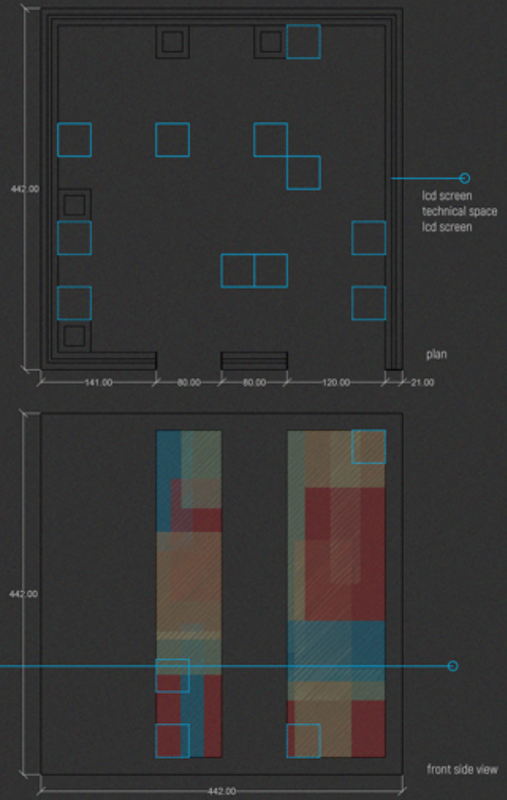




level 1 (mechanics)
scale: finger



level 2 (sensor x light)
scale: hand



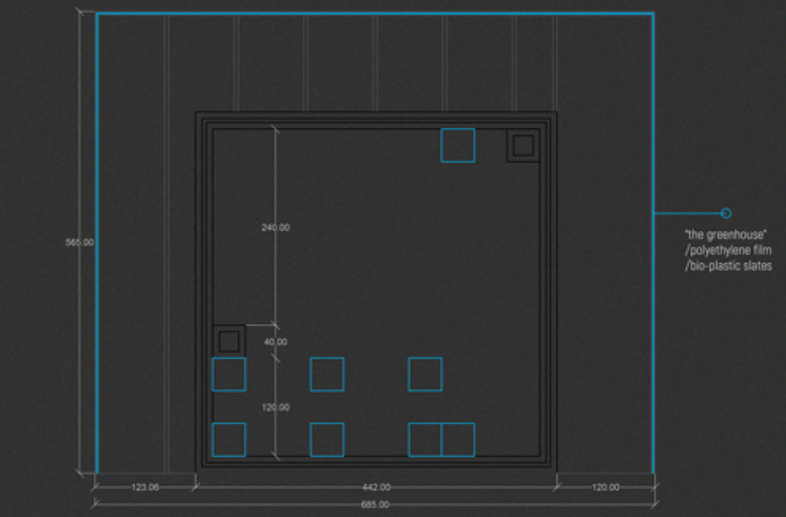
level 4 (sensor x light x audio)
scale: whole body

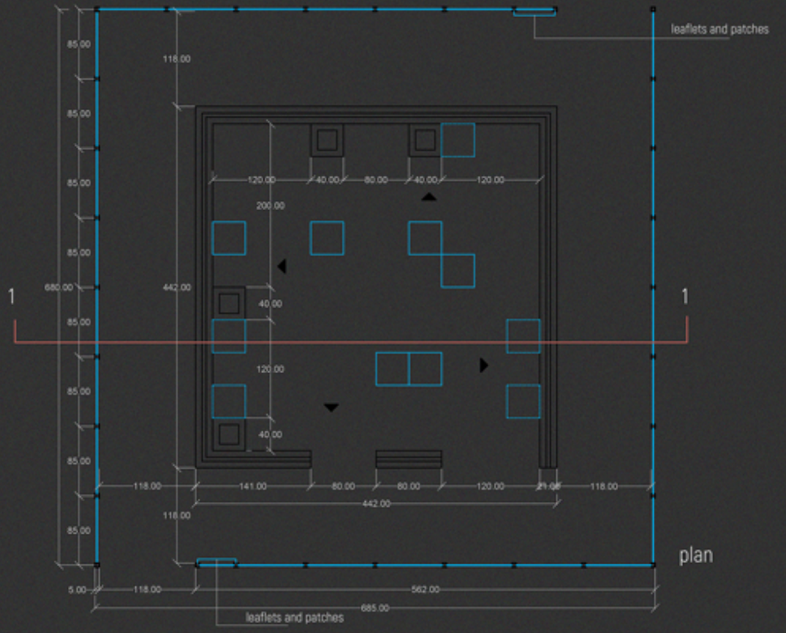
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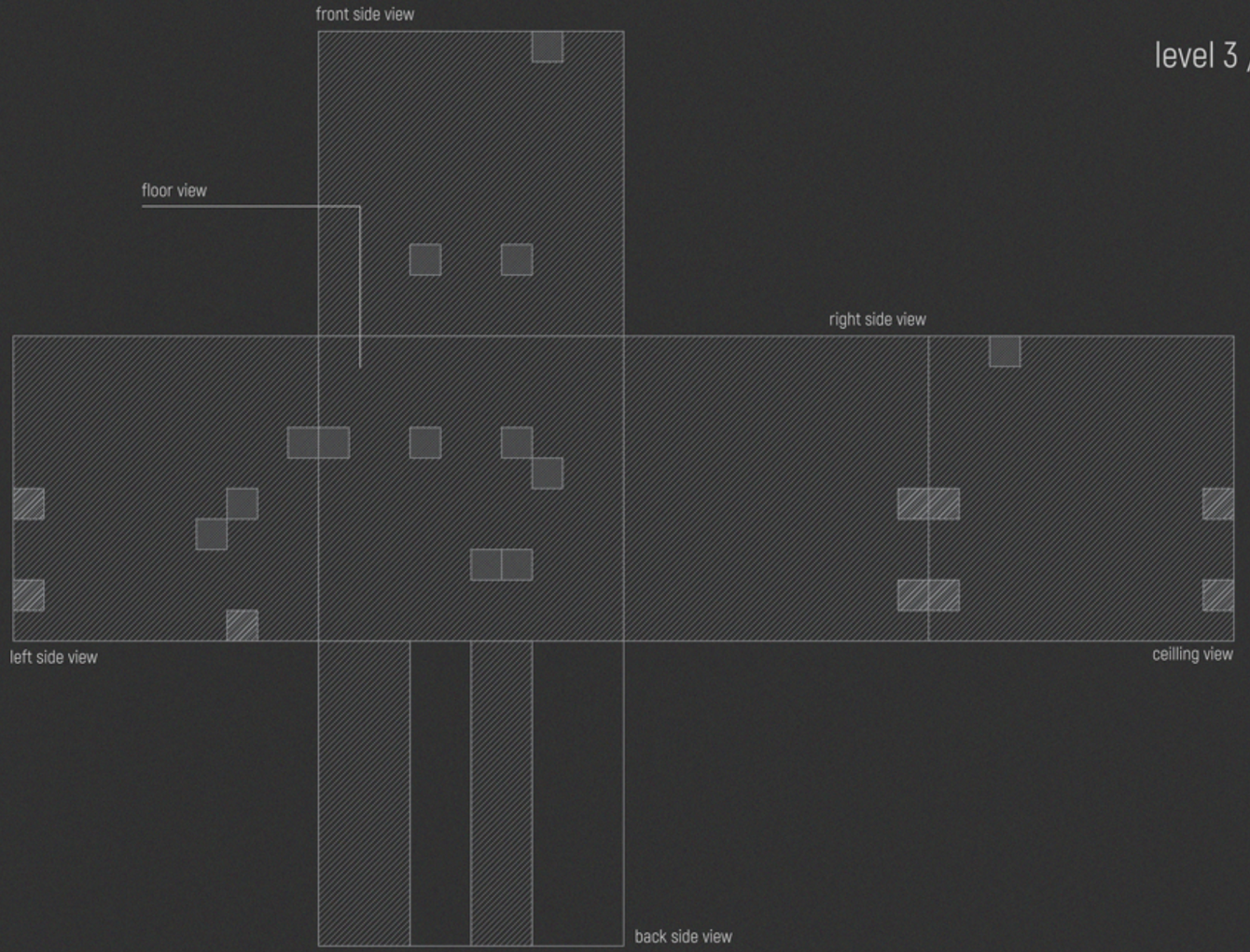
level 3 / 2d drawings r 1:75

section 1-1





plan



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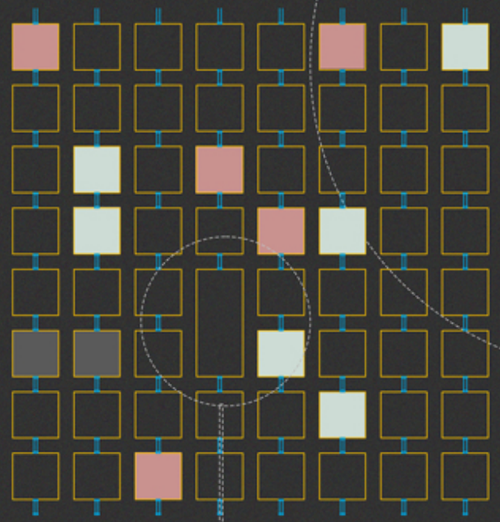
details r 1:20 / game diagram

choose the button you like

choose the button with the color you remember

arduino

level 1
6 objects



collect the sticker

level 2
2 objects



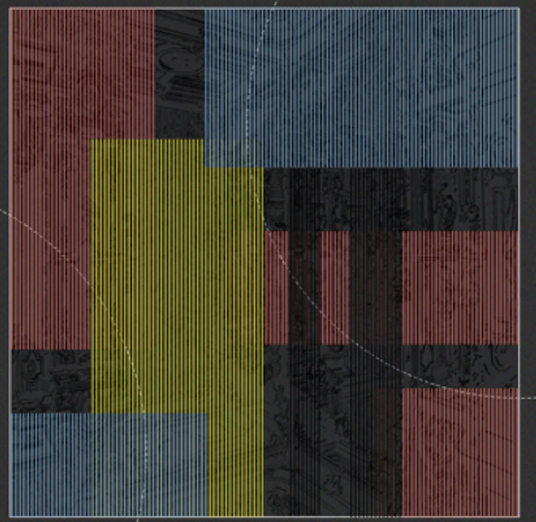
touch sensors
3 layers
transparent sensor
shutter glass
screen

a leaflet (can be found on all levels) / a guide

collect the postcard

collect the patch

immersive visual experience of the object
x instagram studio



level 3
1 object

show all three collectibles and get

a reward for playing the game

choose the button with the color you remember

touchdesigner

choose the button you like

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leaflet / walkthrough

...CABINETS OF MISCHIEF

to discover its secrets.
seine geheimnisse zu entdecken.

...interact with our cabinets of mischief
...mit unseren kabinetten des unfugs interagieren

the game has three levels...
das spiel hat drei level...

...finish all three to get **free audio guide** or **photography bracelet**
*...beende alle drei, um den **audioguide oder das fotoarmband kostenlos zu bekommen***

and play the game of cubes,
und spiele das würfelspiel,

explore the universe of gotha and baroque...
erkunde das universum von gotha und barock...

the journey of discovery just begins...
die entdeckungsreise beginnt gerade erst...

pick up your award at the museum/castle
hol dir deinen award im museum/schloss ab

how to play the game?

go from level 1, to level 2 and level 3
gehe von level 1 zu level 2 und level 3

collect all the collectibles
sammle alle sammlerstücke

level 1: choose your artifact
level 1: wähle dein artefakt

level 2: learn what your artifact is made of
level 2: erfahre, woraus dein artefakt besteht

level 3: play the puzzle of memories
level 3: spiele das puzzle der erinnerungen

pick up your award at the entrance
hol dir deinen award am eingang ab

find your artifact in the museum/castle
finde dein artefakt im museum/schloss

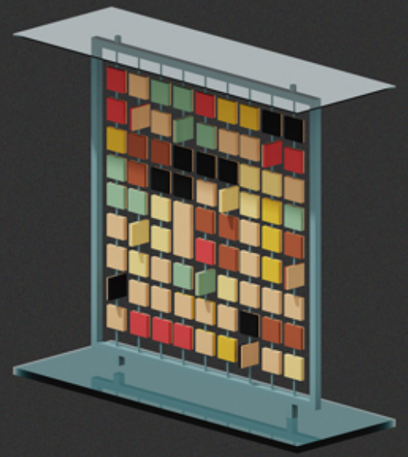


https://vimeo.com/manage/videos/655903428

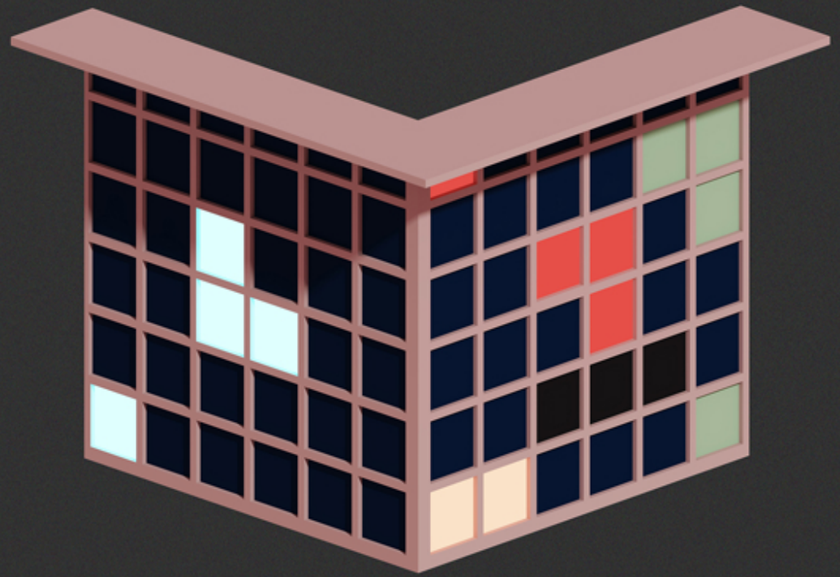
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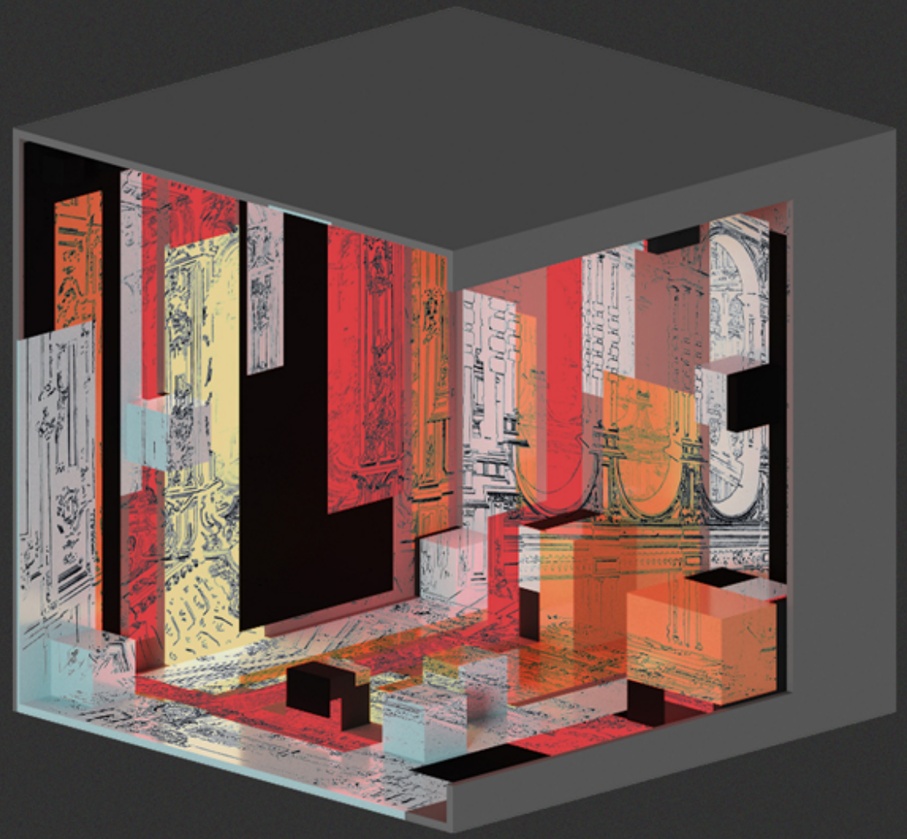
3d models / diagrams



level 1 (mechanics)



level 2 (touch sensors x light)



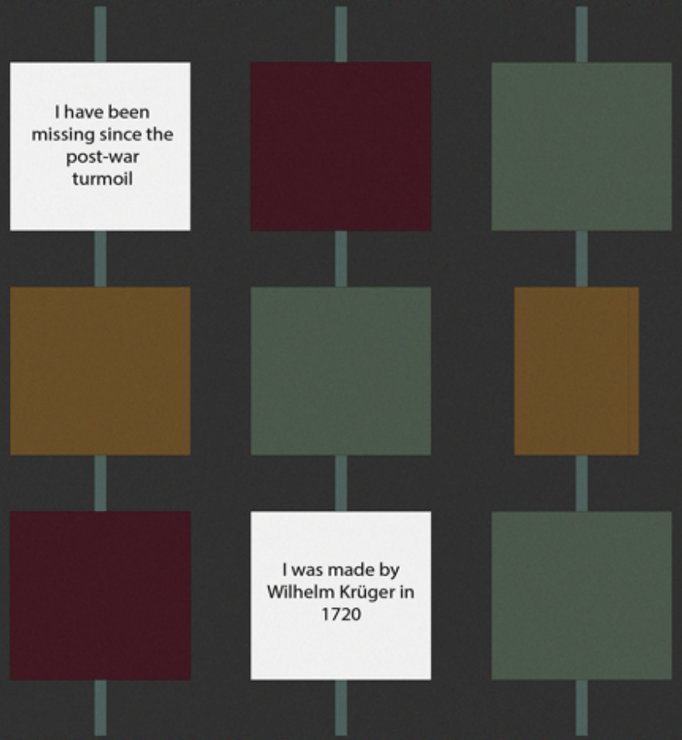
level 3 (motion sensors x light x immersion)

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visuals

color coding / level 1



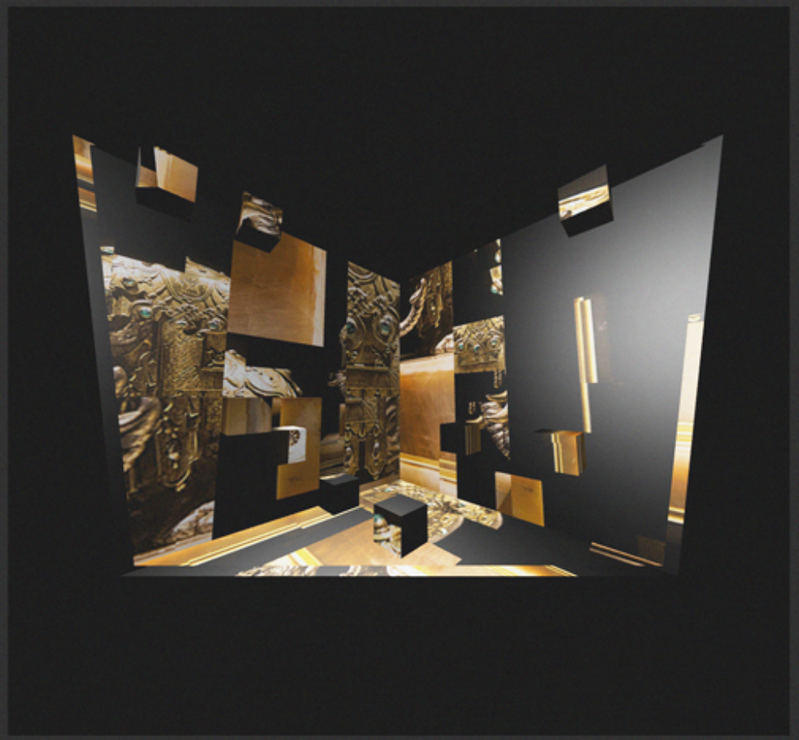
https://media.giphy.com/media/oP9uHEZkw3XB3jIJKD/giphy.gif

screen visual / level 2



https://media.giphy.com/media/Dz8WVqy4MirpZL3Tmt/giphy.gif

screen mapping visual / level 3

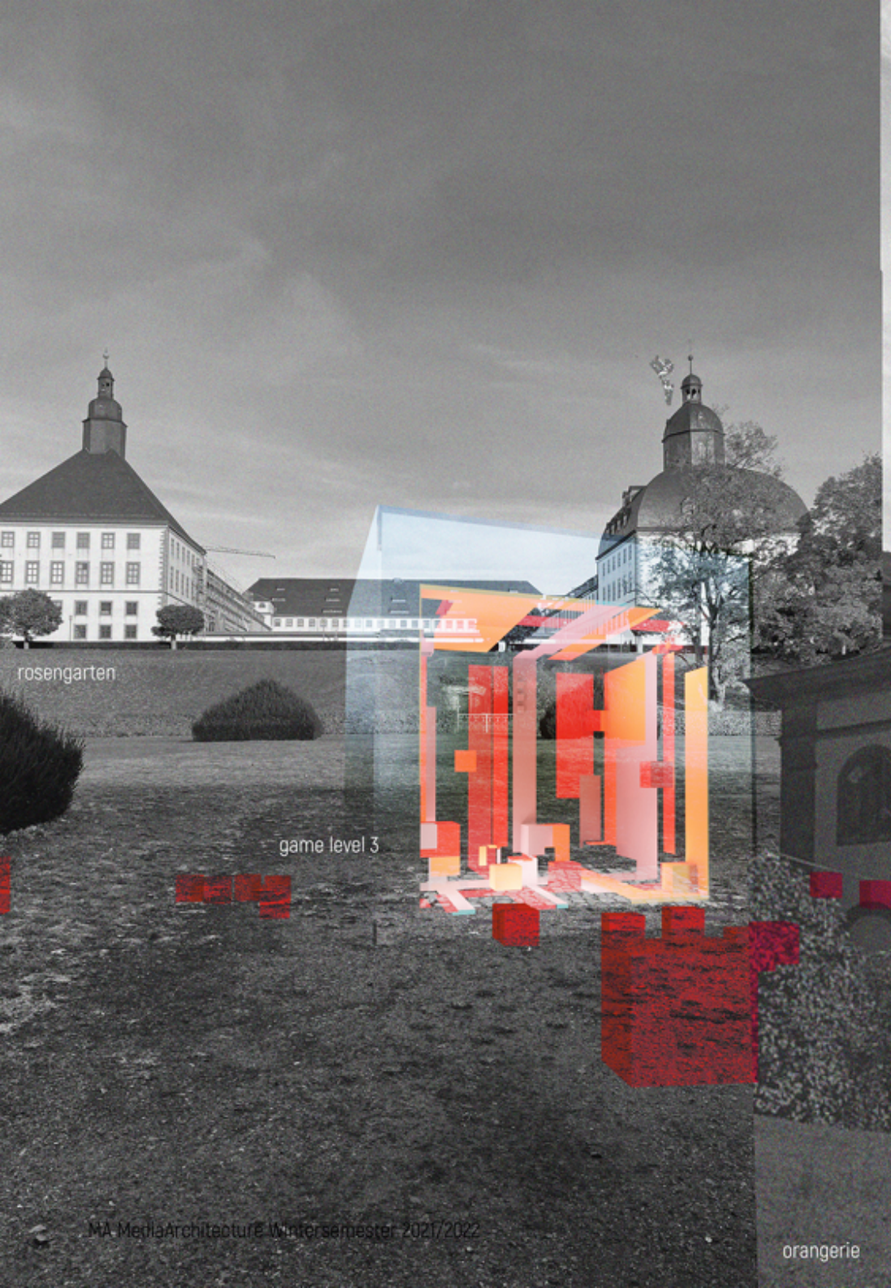


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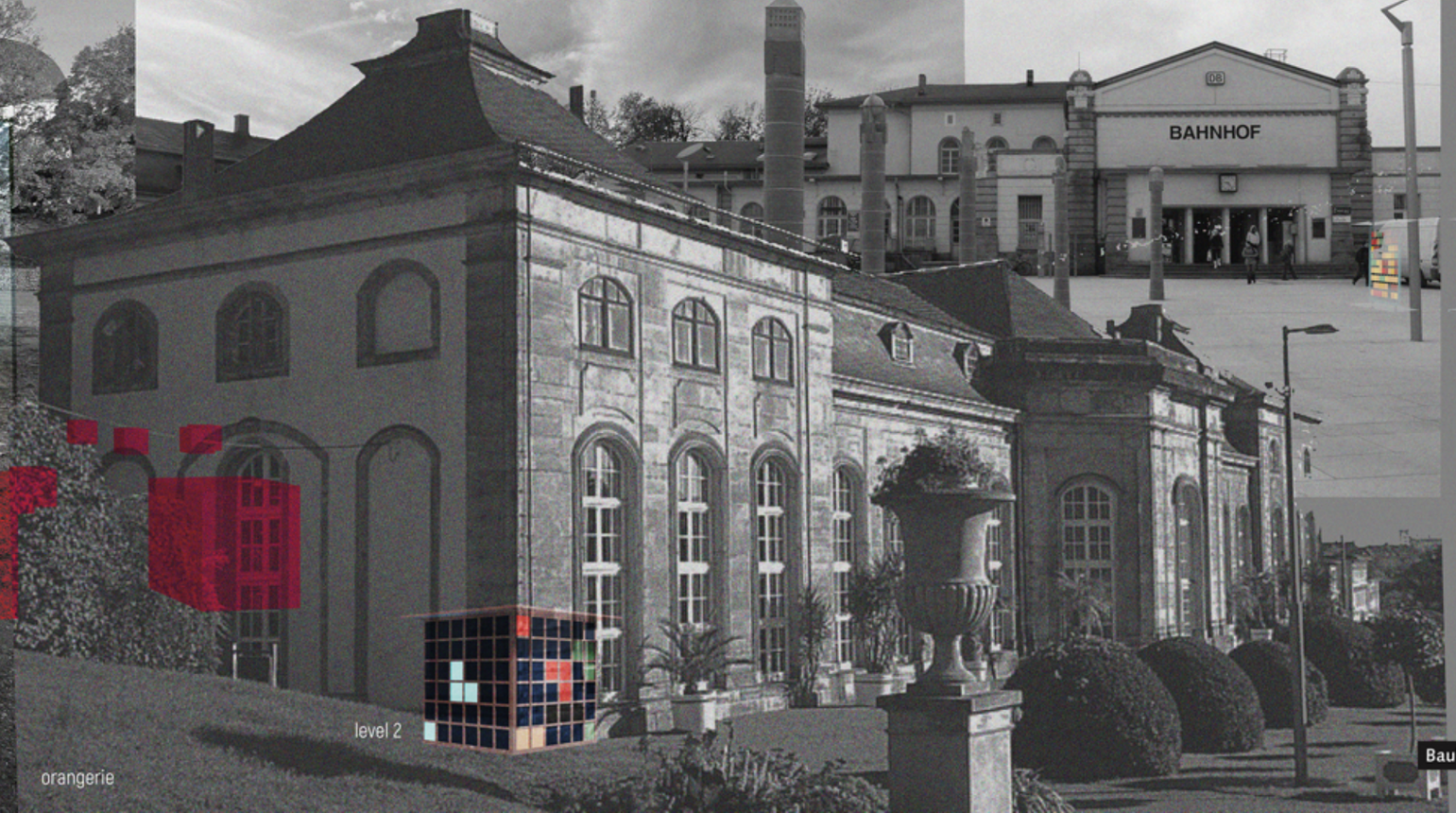
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ambiences





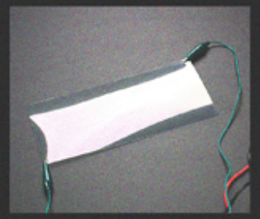




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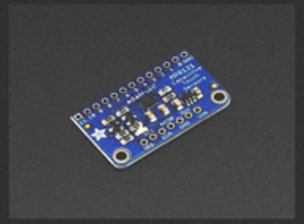


ITO Coated Plastic

ITO = Indium Tin Oxide

ITO is a clear, conductive liquid/film as a coating on a flexible plastic sheet

the plastic sheet is connected to the capacitive sensor, so when touched on the conductive side the sensor will recognize

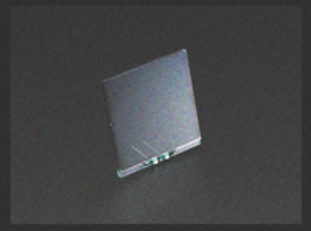


Touch sensor mpr 121

12-Key Capacitive Touch Sensor

can handle up to 12 individual touch pads

Senses the touch of the finger / hand and transfers the signal to the shutter glass



Shutter glass

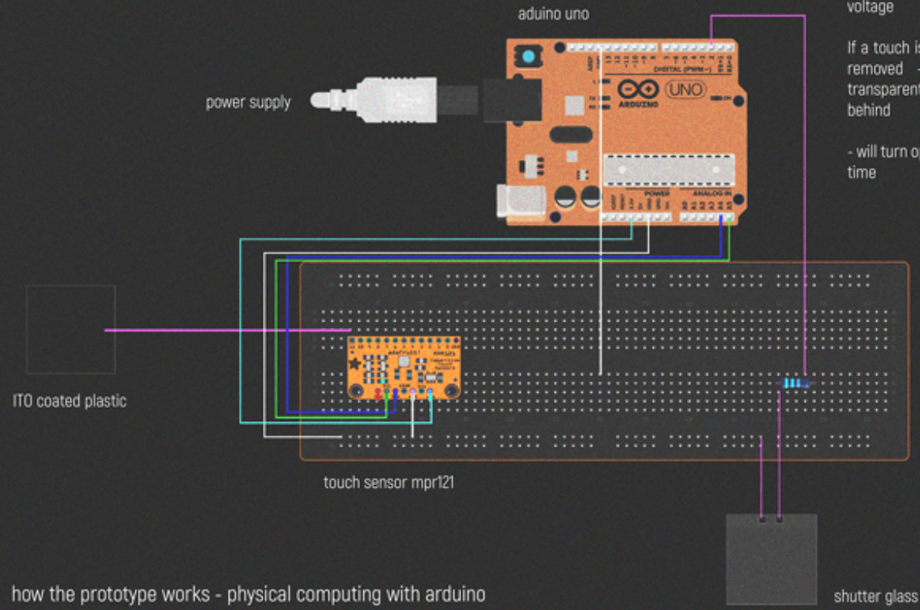
Liquid Crystal Light Valve Controllable Black-out Panel Reveal effect

A Liquid Crystal Light Valve (LCLV) is a device that uses the properties of liquid crystals to control the level of illumination passing through an optical system.

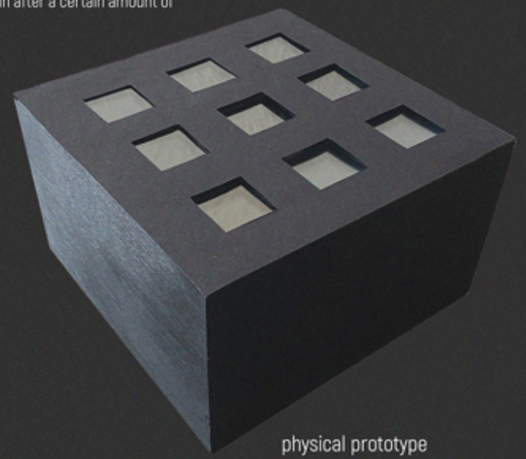
By changing the voltage applied, it will block light more and more - until opaque at highest voltage

If a touch is detected - the voltage is getting removed - the shutter glass will turn transparent - revealing the information behind

- will turn opal again after a certain amount of time



how the prototype works - physical computing with arduino



physical prototype

arduino workflow

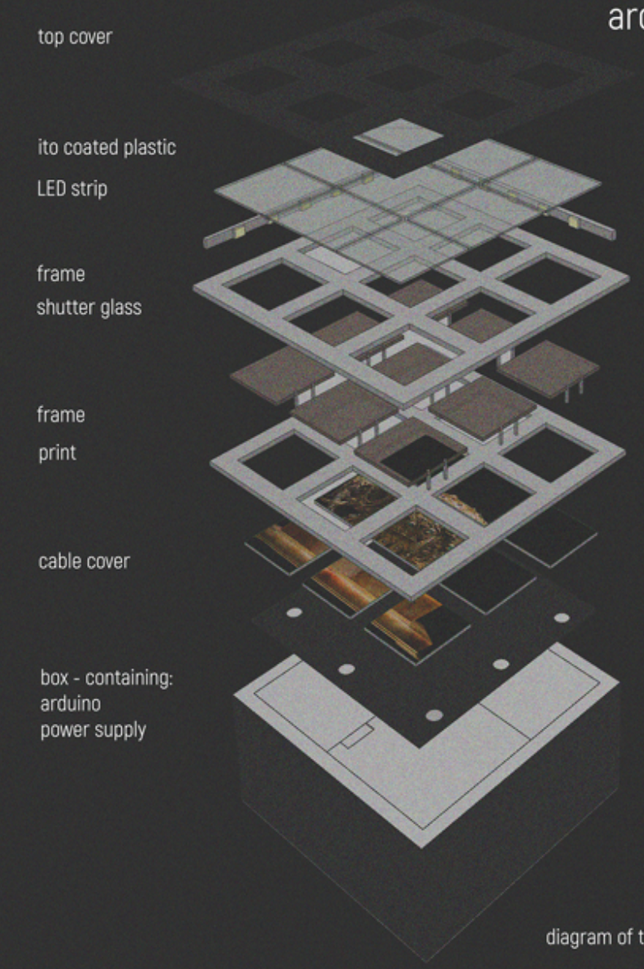


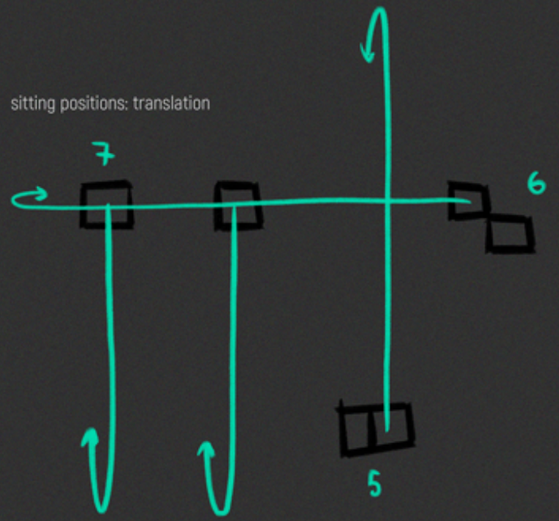
diagram of the prototype

“Wunderkammer 4.0 / Cabinets of Wonder” Schloss Friedenstein Gotha

Betreuung: Prof.Bernd Rudolf, Prof.Andreas Kästner, Junior-Prof.Reinhard König, Dr. Sabine Zierold, Nazar ABuhalaweh

Gastkritik: Stefan Kraus, Brian Larson Clark / Autorinnen: Katharina Fuchs, Katarina Banković

sitting positions: translation



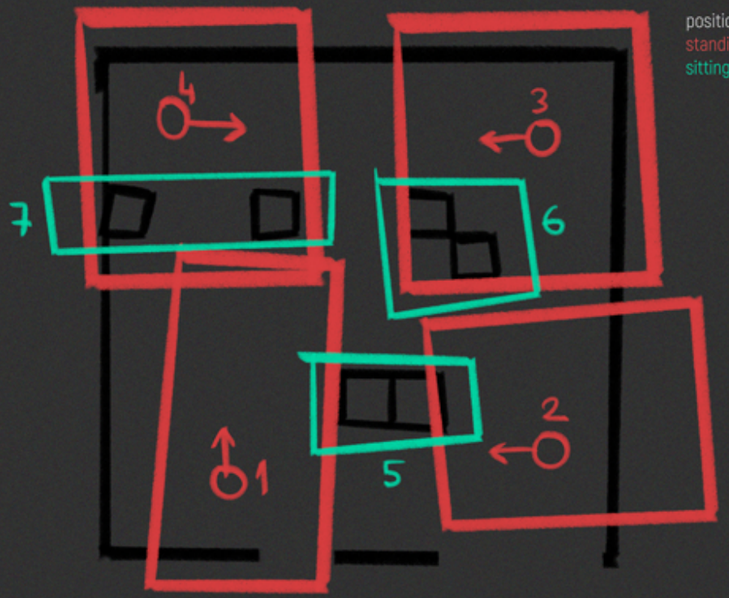
software: touchdesigner

interaction: camera tracking

triggers: different positions

effects: mirroring / translation

other: zoom in effect created by UV map



positions inside of the cube
standing positions
sitting positions

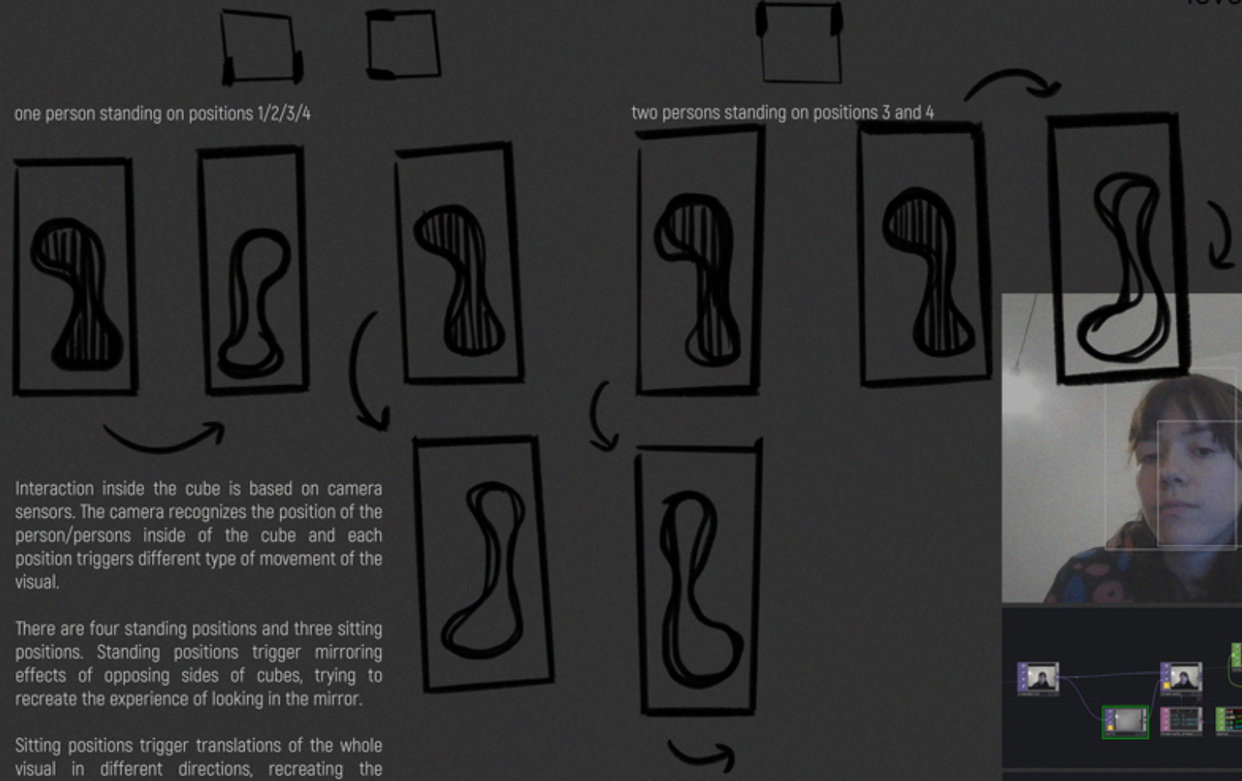
level 3 triggers

2/1 1/4

one person standing on positions 1/2/3/4

4/3 and 3/4

two persons standing on positions 3 and 4

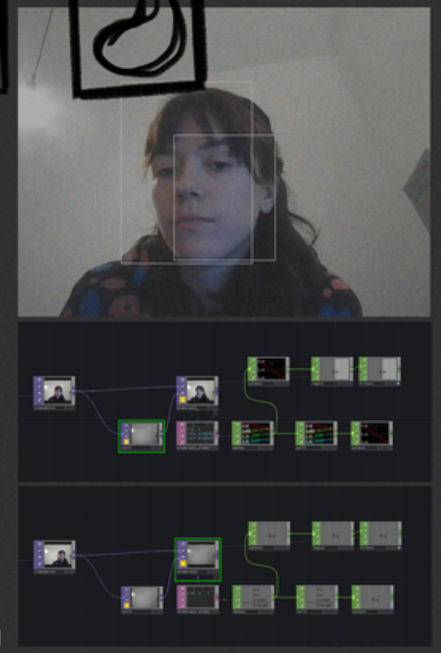


Interaction inside the cube is based on camera sensors. The camera recognizes the position of the person/persons inside of the cube and each position triggers different type of movement of the visual.

There are four standing positions and three sitting positions. Standing positions trigger mirroring effects of opposing sides of cubes, trying to recreate the experience of looking in the mirror.

Sitting positions trigger translations of the whole visual in different directions, recreating the movement of the head of a child who looks up.

Depending on the number of people present inside of the cube, triggers add up or cancel each other, replicating the influence people generally have on each other and the space.



simple motion tracking in td (experimentally)

“Wunderkammer 4.0 / Cabinets of Wonder” Schloss Friedenstein Gotha

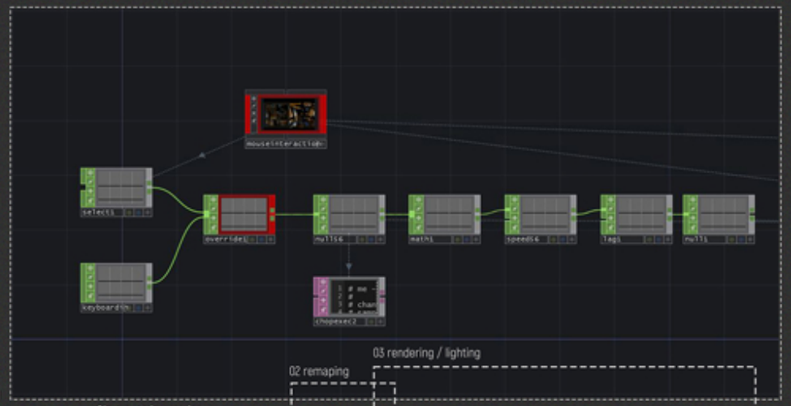
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touchdesigner workflow



02



01

02 remaping

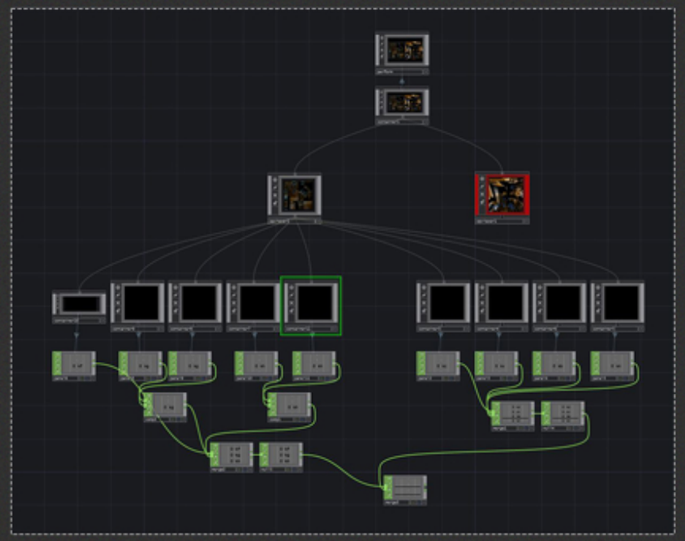
03 rendering / lighting



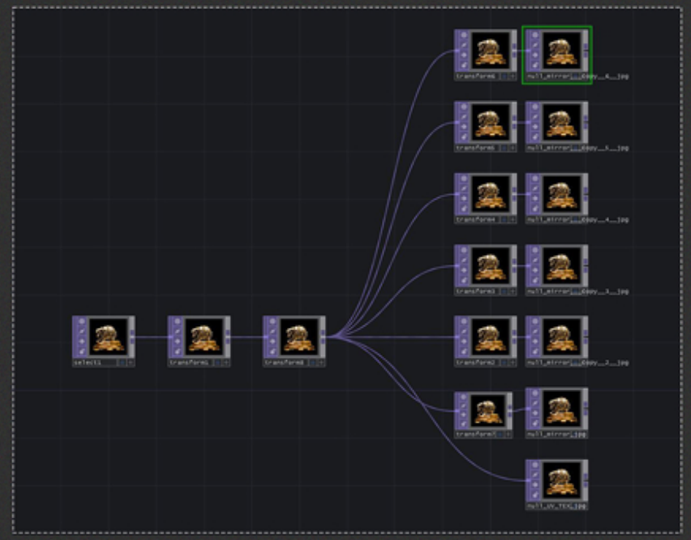
01a mouse interaction

01 mouse/keyboard interactions

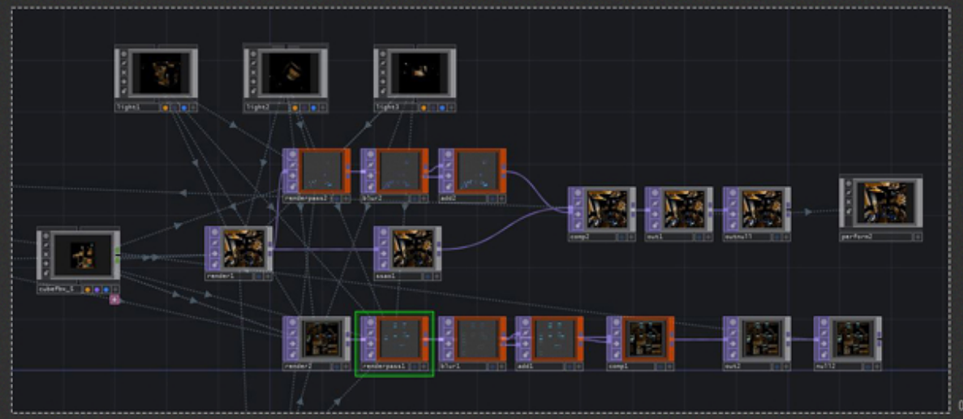
03 camera blend /cameras



01a



textures / translations



04



03