# Technische Umsetzung Fortsetzung

# Neuer Aufbau

~~Infrarotsensoren~~

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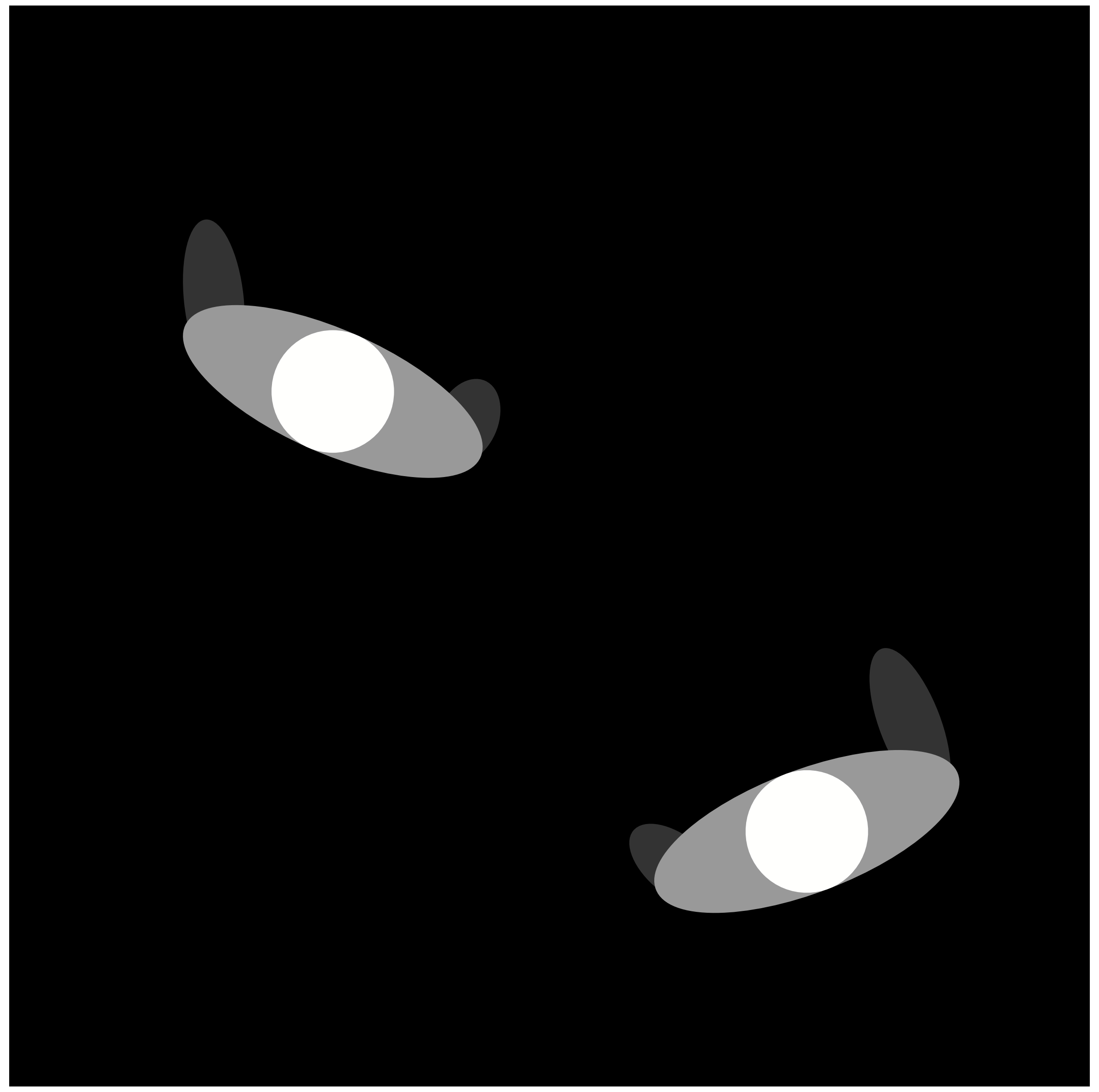
↓

Kinect for Windows
Model 1517

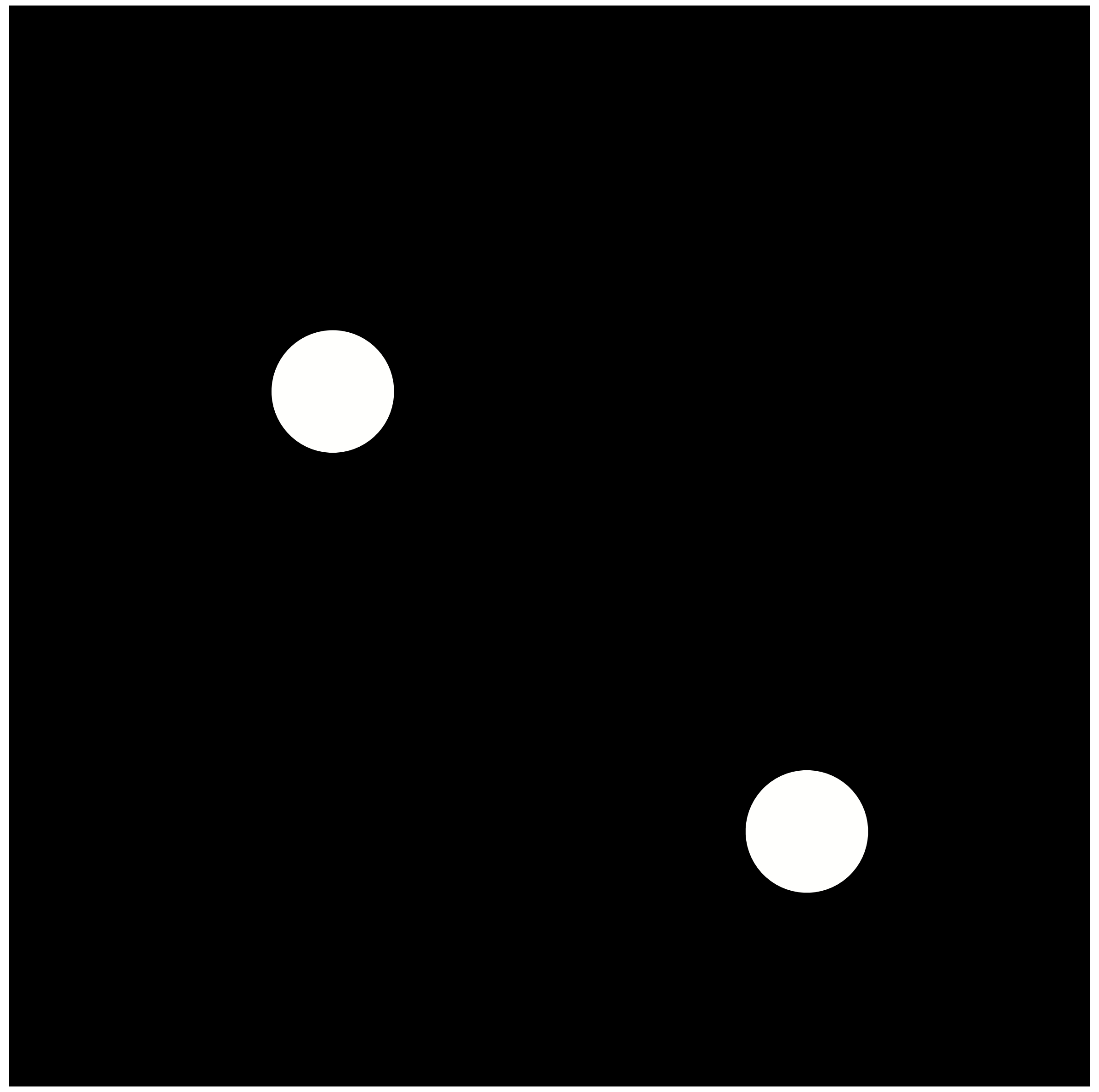
# Personenerfassung Kinect 1517

(in Progressing)

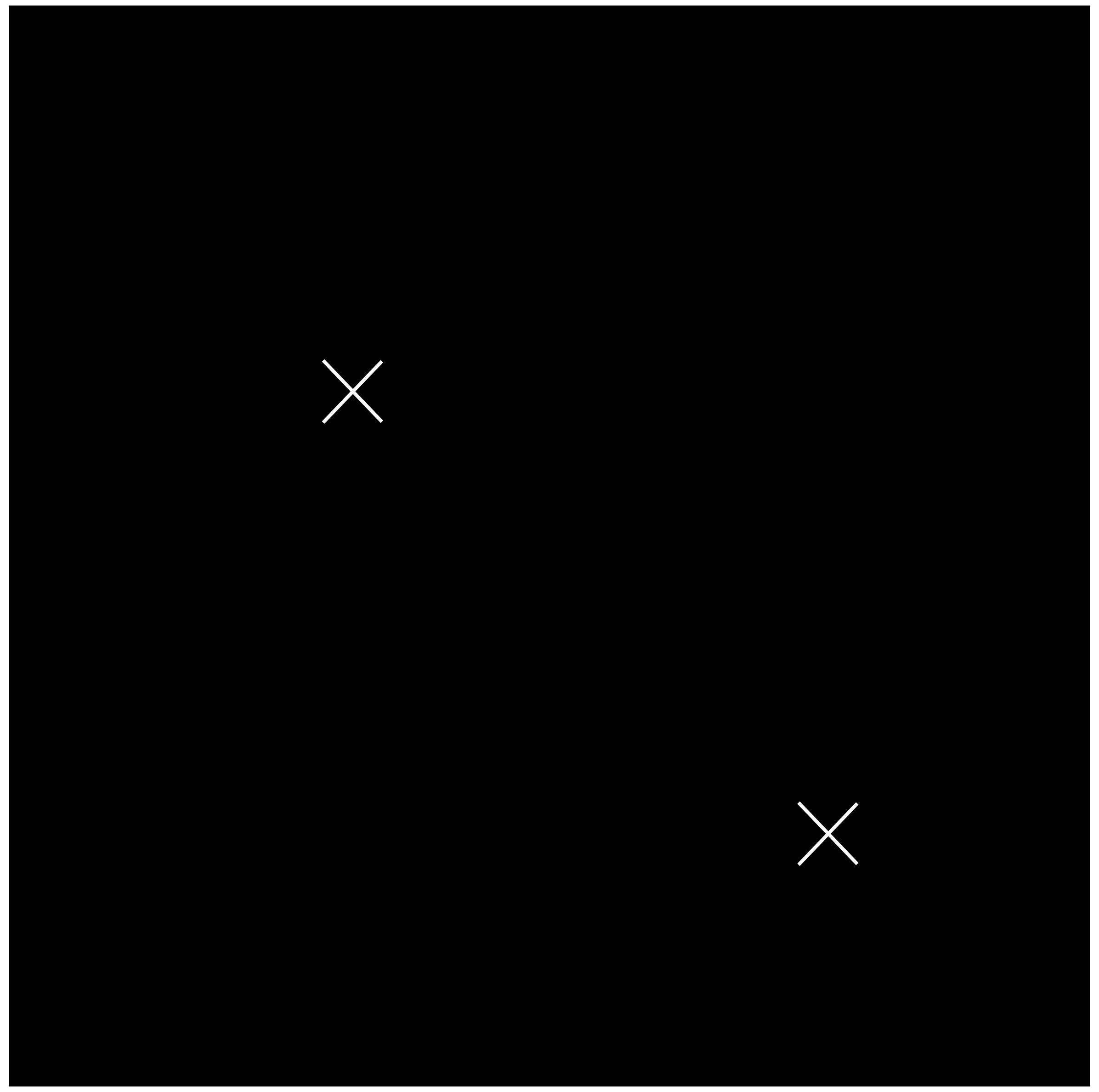
## 1
**Pixeltiefenerkennung**
Weiß nah an Kinect
Schwarz hohe Distanz zu Kincet

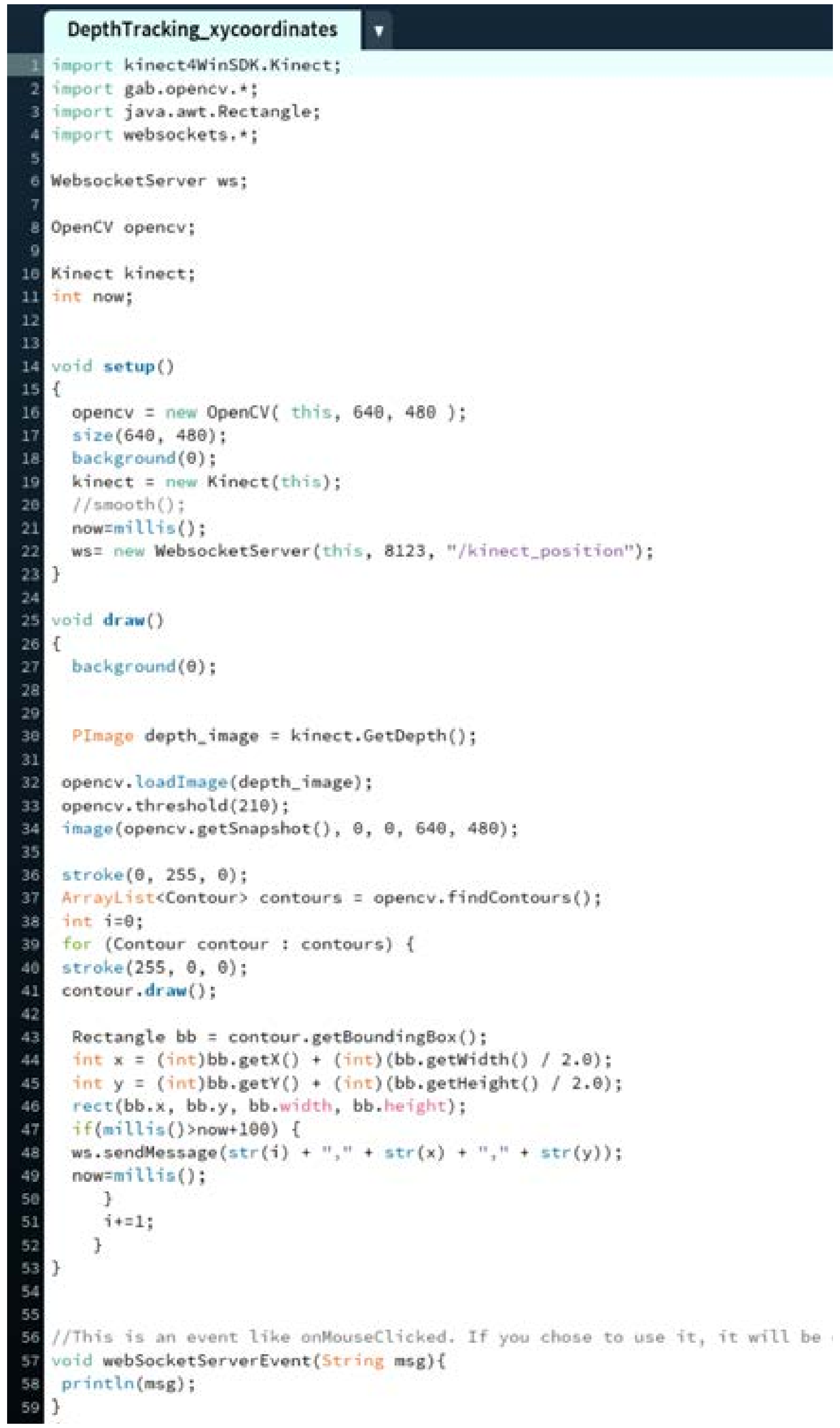


## 2
**Treshold**
Filter >
Hellste Pixel (Köpfe)



## 3
**Mittelpunktfindung**
XY Koordinatenbestimmung
> Senden an Server





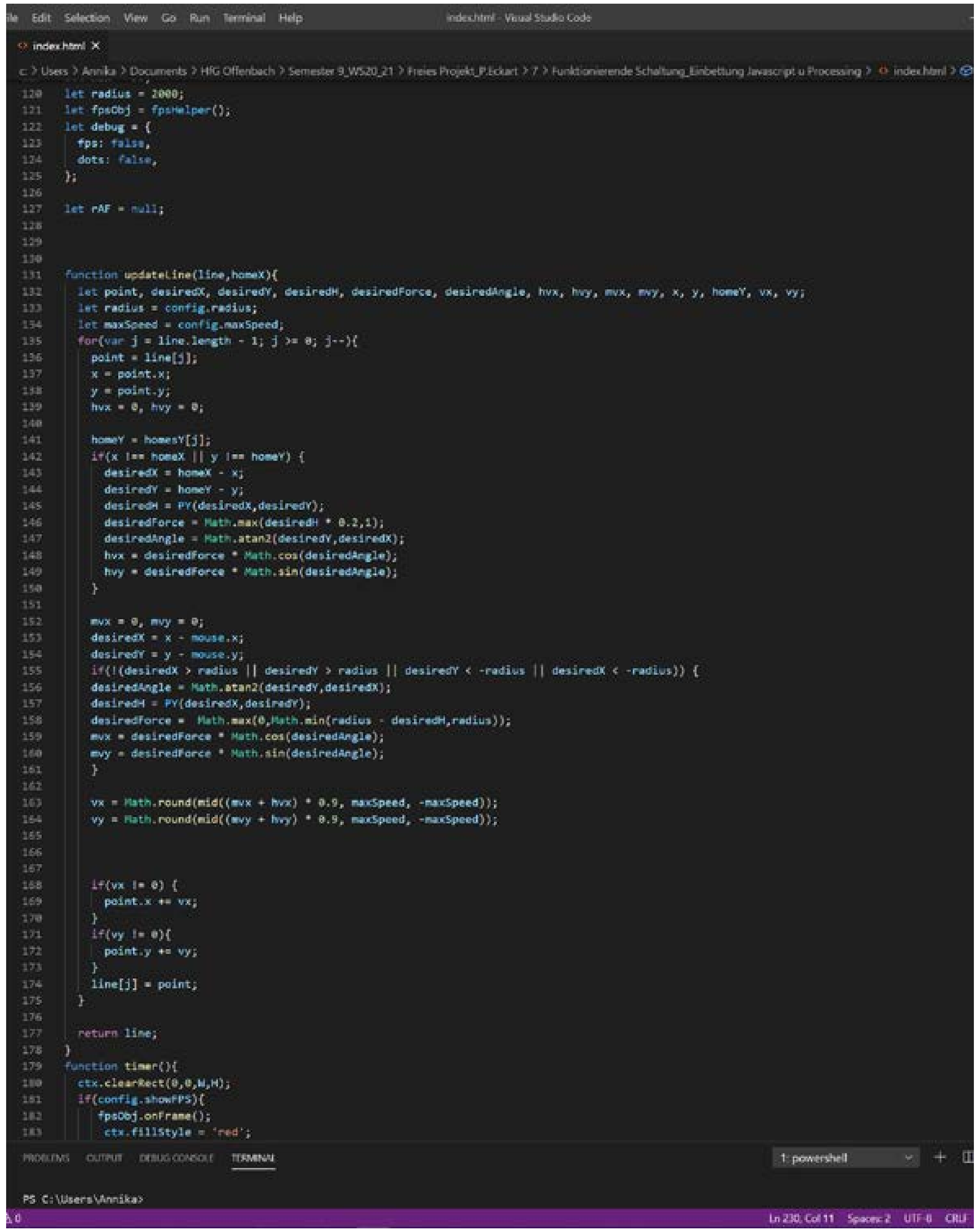
```
import kinect4WinSDK.Kinect;
import gab.opencv.*;
import java.awt.Rectangle;
import websockets.*;

WebsocketServer ws;

OpenCV opencv;

Kinect kinect;
int now;


void setup()
{
  opencv = new OpenCV( this, 640, 480 );
  size(640, 480);
  background(0);
  kinect = new Kinect(this);
  //smooth();
  now=millis();
  ws= new WebsocketServer(this, 8123, "/kinect_position");
}

void draw()
{
  background(0);


  PImage depth_image = kinect.GetDepth();

 opencv.loadImage(depth_image);
 opencv.threshold(210);
 image(opencv.getSnapshot(), 0, 0, 640, 480);

 stroke(0, 255, 0);
 ArrayList<Contour> contours = opencv.findContours();
 int i=0;
 for (Contour contour : contours) {
 stroke(255, 0, 0);
 contour.draw();

  Rectangle bb = contour.getBoundingBox();
  int x = (int)bb.getX() + (int)(bb.getWidth() / 2.0);
  int y = (int)bb.getY() + (int)(bb.getHeight() / 2.0);
  rect(bb.x, bb.y, bb.width, bb.height);
  if(millis()>now+100) {
  ws.sendMessage(str(i) + "," + str(x) + "," + str(y));
  now=millis();
     }
     i+=1;
    }
}


//This is an event like onMouseClicked. If you chose to use it, it will be
void webSocketServerEvent(String msg){
 println(msg);
}
```

# Personenerfassung
# Kinect 1517

(in Javascript/html)

## 4
**Erstellung Raster**
(Zurzeit nur mit einer Person möglich)

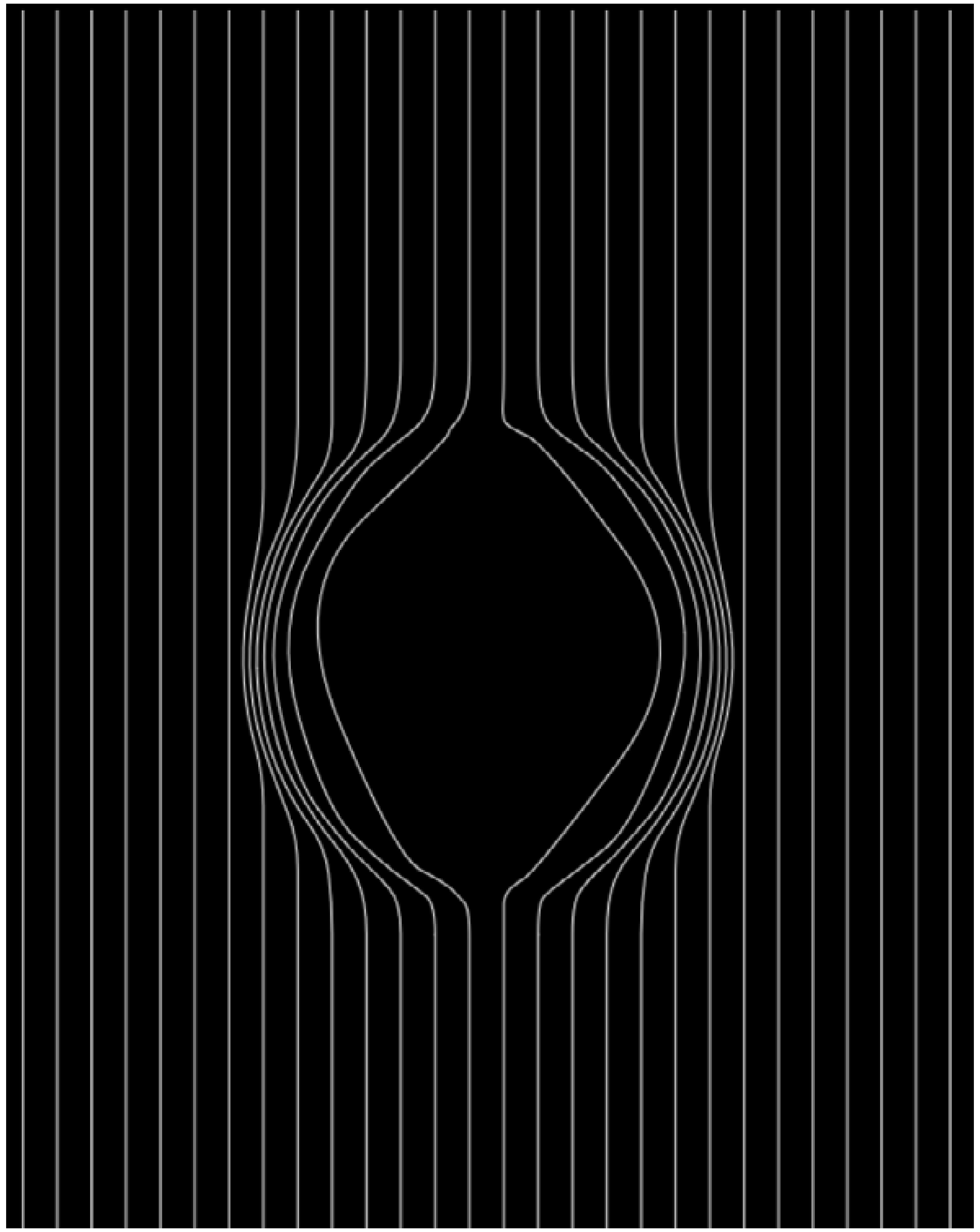
**1.** empfängt X,Y
**2.** einbetten in html Code
**3.** gibt Raster aus



File Edit Selection View Go Run Terminal Help
index.html - Visual Studio Code
index.html ×
c: > Users > Annika > Documents > HfG Offenbach > Semester 9_WS20_21 > Freies Projekt_P.Eckart > 7 > Funktionierende Schaltung_Einbettung Javascript u Processing > index.html

```
let radius = 2000;
let fpsObj = fpsHelper();
let debug = {
  fps: false,
  dots: false,
};

let rAF = null;



function updateLine(line,homeX){
  let point, desiredX, desiredY, desiredH, desiredForce, desiredAngle, hvx, hvy, mvx, mvy, x, y, homeY, vx, vy;
  let radius = config.radius;
  let maxSpeed = config.maxSpeed;
  for(var j = line.length - 1; j >= 0; j--){
    point = line[j];
    x = point.x;
    y = point.y;
    hvx = 0, hvy = 0;

    homeY = homesY[j];
    if(x !== homeX || y !== homeY) {
      desiredX = homeX - x;
      desiredY = homeY - y;
      desiredH = PY(desiredX,desiredY);
      desiredForce = Math.max(desiredH * 0.2,1);
      desiredAngle = Math.atan2(desiredY,desiredX);
      hvx = desiredForce * Math.cos(desiredAngle);
      hvy = desiredForce * Math.sin(desiredAngle);
    }

    mvx = 0, mvy = 0;
    desiredX = x - mouse.x;
    desiredY = y - mouse.y;
    if(!(desiredX > radius || desiredY > radius || desiredY < -radius || desiredX < -radius)) {
    desiredAngle = Math.atan2(desiredY,desiredX);
    desiredH = PY(desiredX,desiredY);
    desiredForce =  Math.max(0,Math.min(radius - desiredH,radius));
    mvx = desiredForce * Math.cos(desiredAngle);
    mvy = desiredForce * Math.sin(desiredAngle);
    }

    vx = Math.round(mid((mvx + hvx) * 0.9, maxSpeed, -maxSpeed));
    vy = Math.round(mid((mvy + hvy) * 0.9, maxSpeed, -maxSpeed));



    if(vx != 0) {
      point.x += vx;
    }
    if(vy != 0){
      point.y += vy;
    }
    line[j] = point;
  }

  return line;
}
function timer(){
  ctx.clearRect(0,0,W,H);
  if(config.showFPS){
    fpsObj.onFrame();
     ctx.fillStyle = 'red';
```

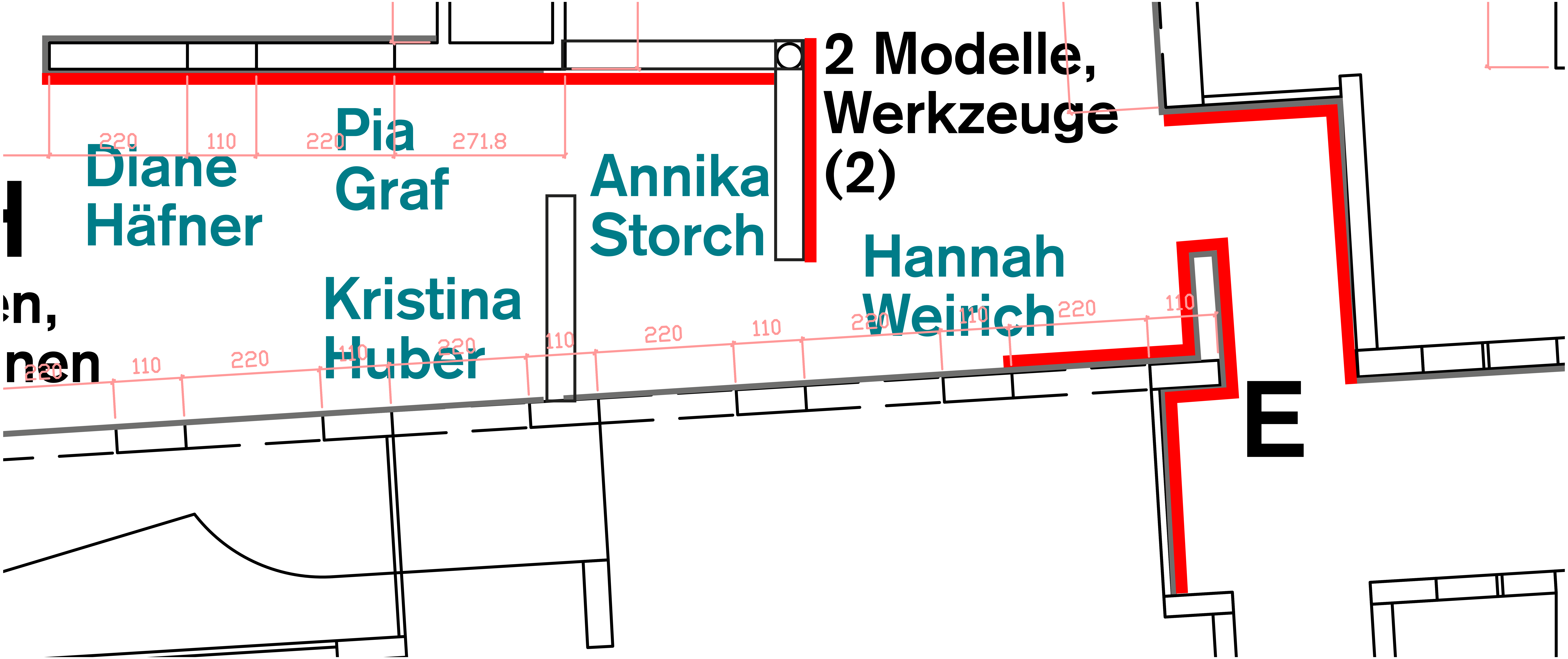
```
PS C:\Users\Annika>
```



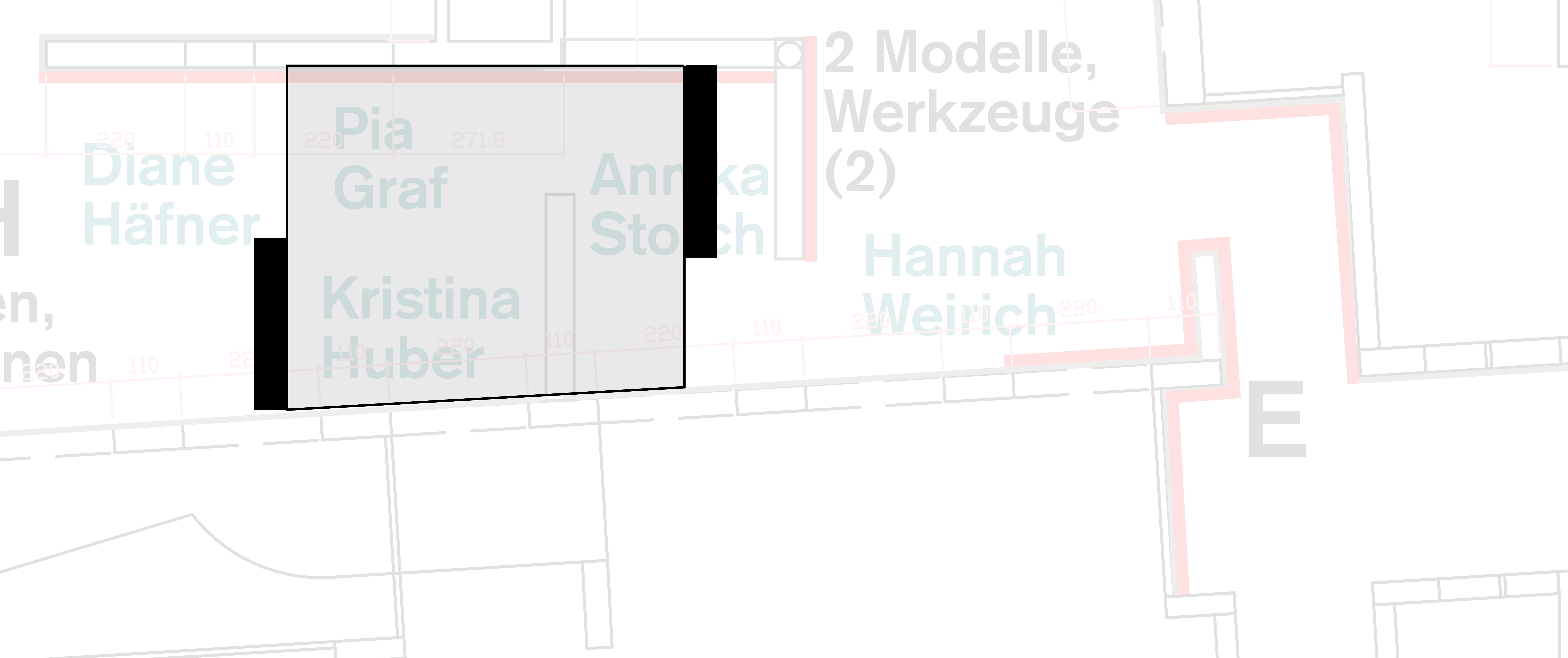
# Personenerfassung Kinect 1517

Erste Tests

# MAK
alte Positionierung



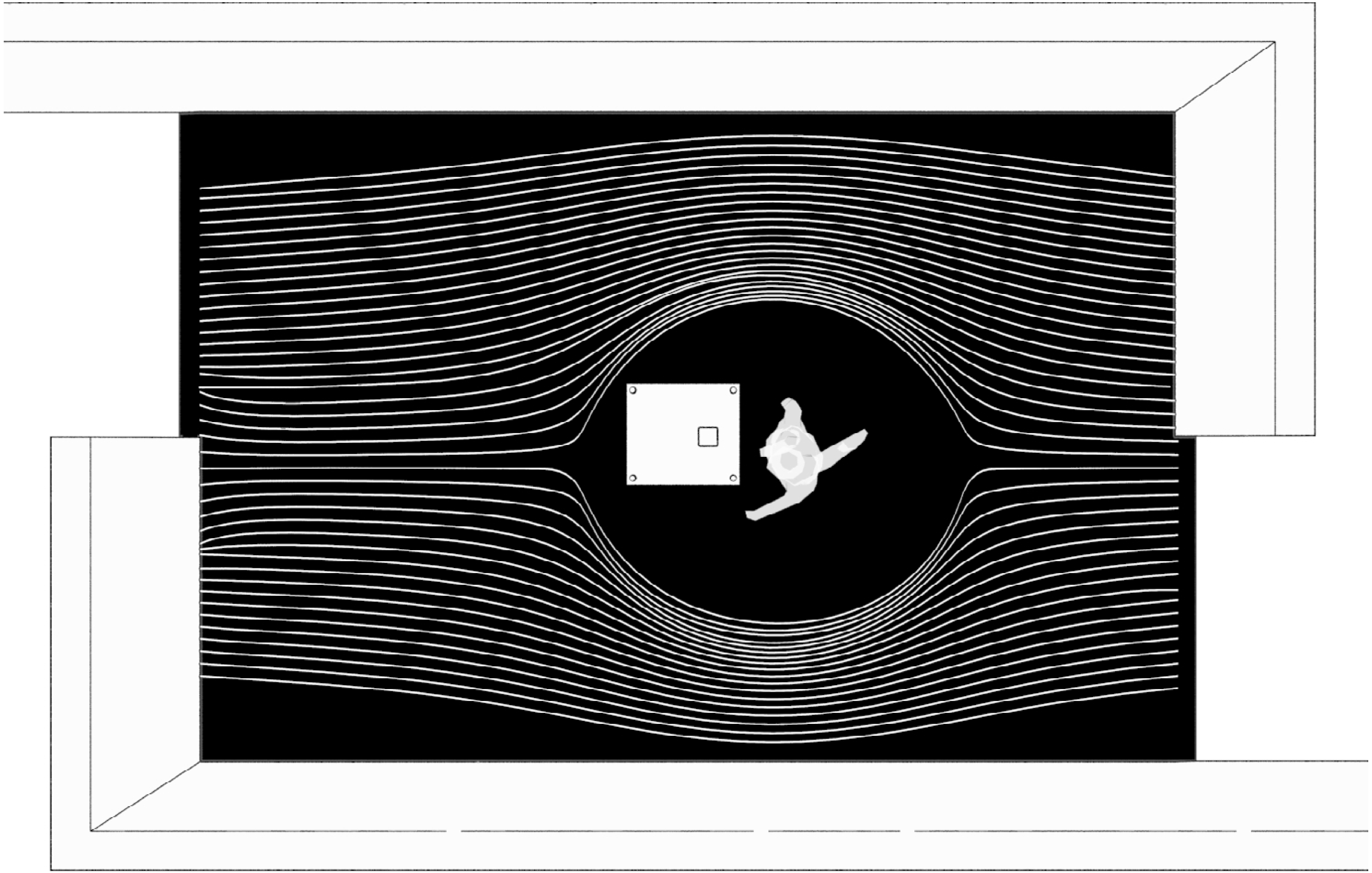
# MAK
# neue Positionierung
# 2.0



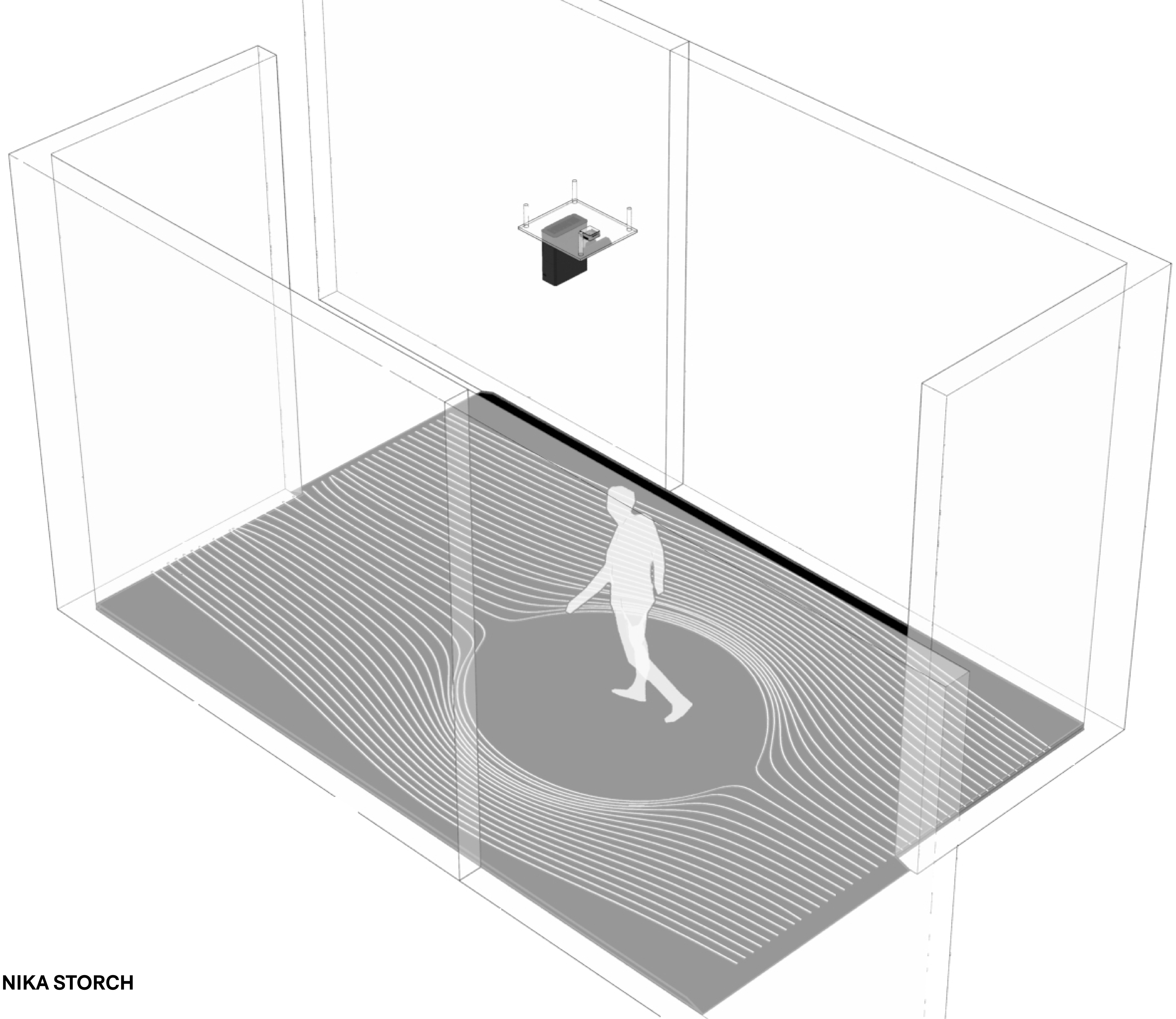
# Aufbau

NUC
Kinect 1517
Beamer
Canon XEED
WUX450ST

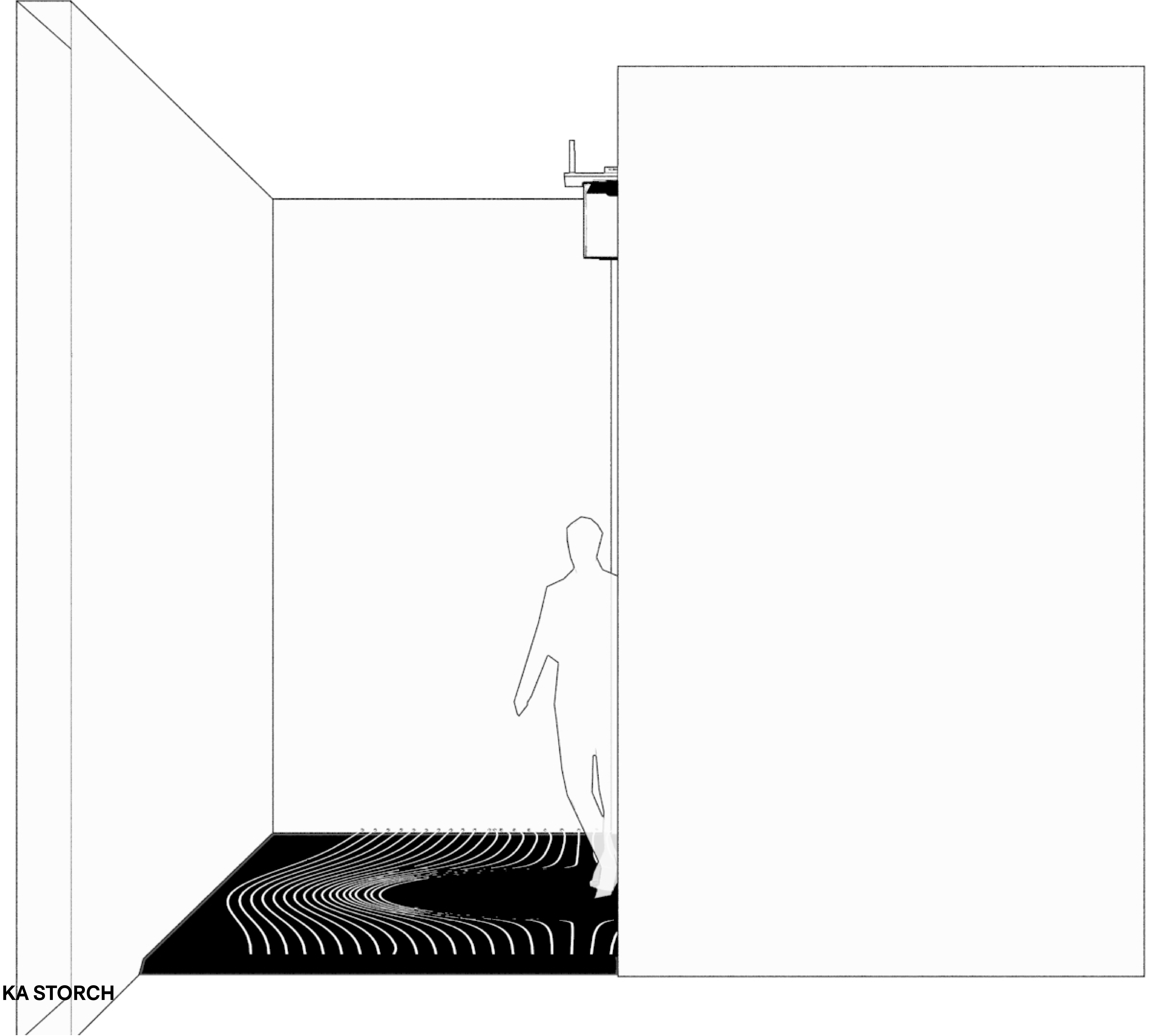
# Aufbau



# Aufbau



# Aufbau



# Bodenmaterial

Tageslicht

Projektion