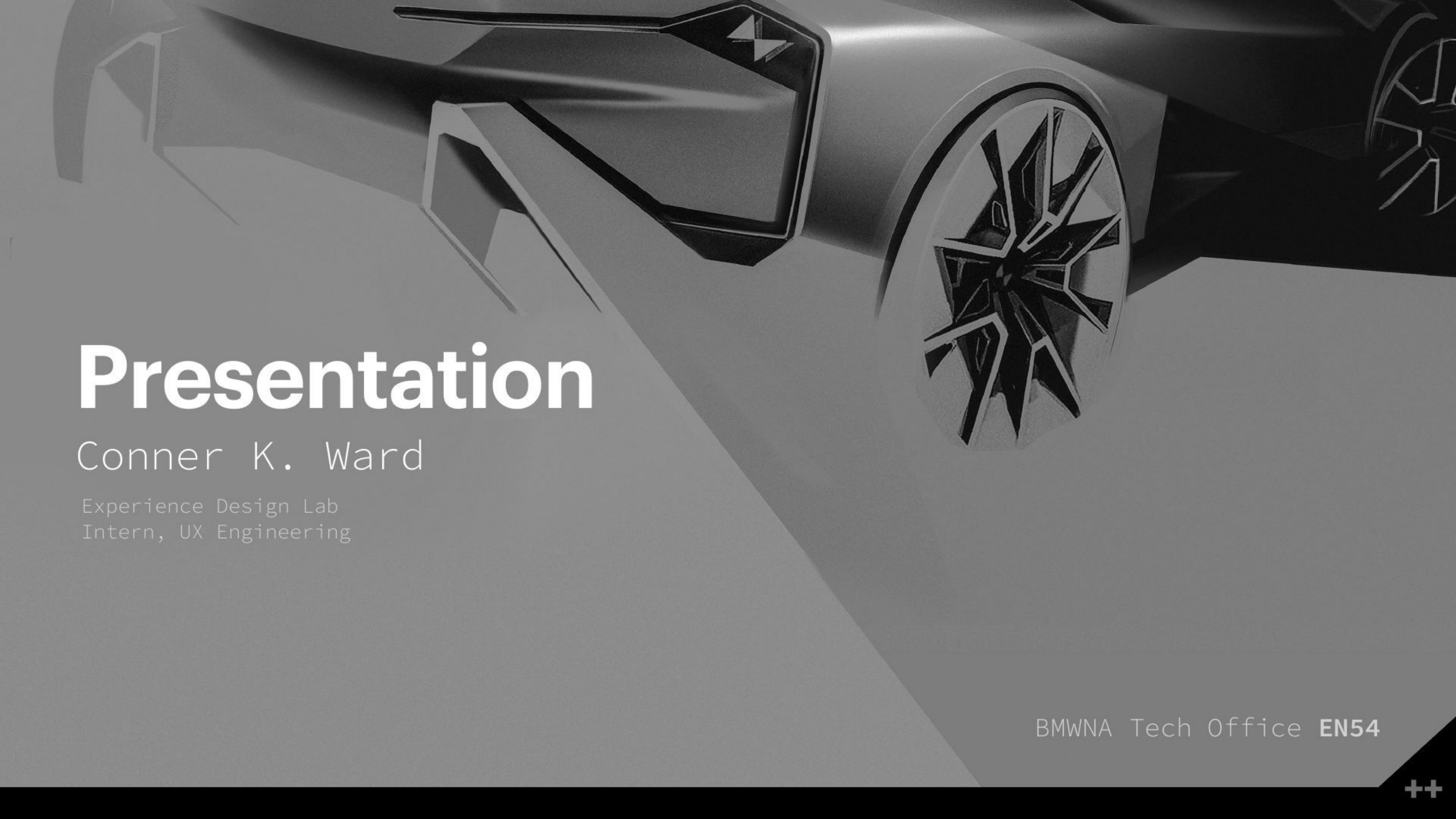




Presentation

Conner K. Ward

Experience Design Lab
Intern, UX Engineering

BMWNA Tech Office **EN54**



{ ENGINES | TOOLS }

SmartObjects



ATRIA



Raspberry Pi[®]



M.A.P.



Smart bjects

Vision Inference



- Mechanical Turk
- SageMaker
- Rekognition
- S3 Buckets



React

- Quickly adopted React.js
- Francesco XD prototypes
- Google Maps API
- Data Plumbing

 MQTT





$$detectionScore = \left(\left(\frac{5}{(1 + \Delta t)} \right) * (.8) \right) + \left((c' / c) * (.2) \right)$$

A simple scoring algorithm

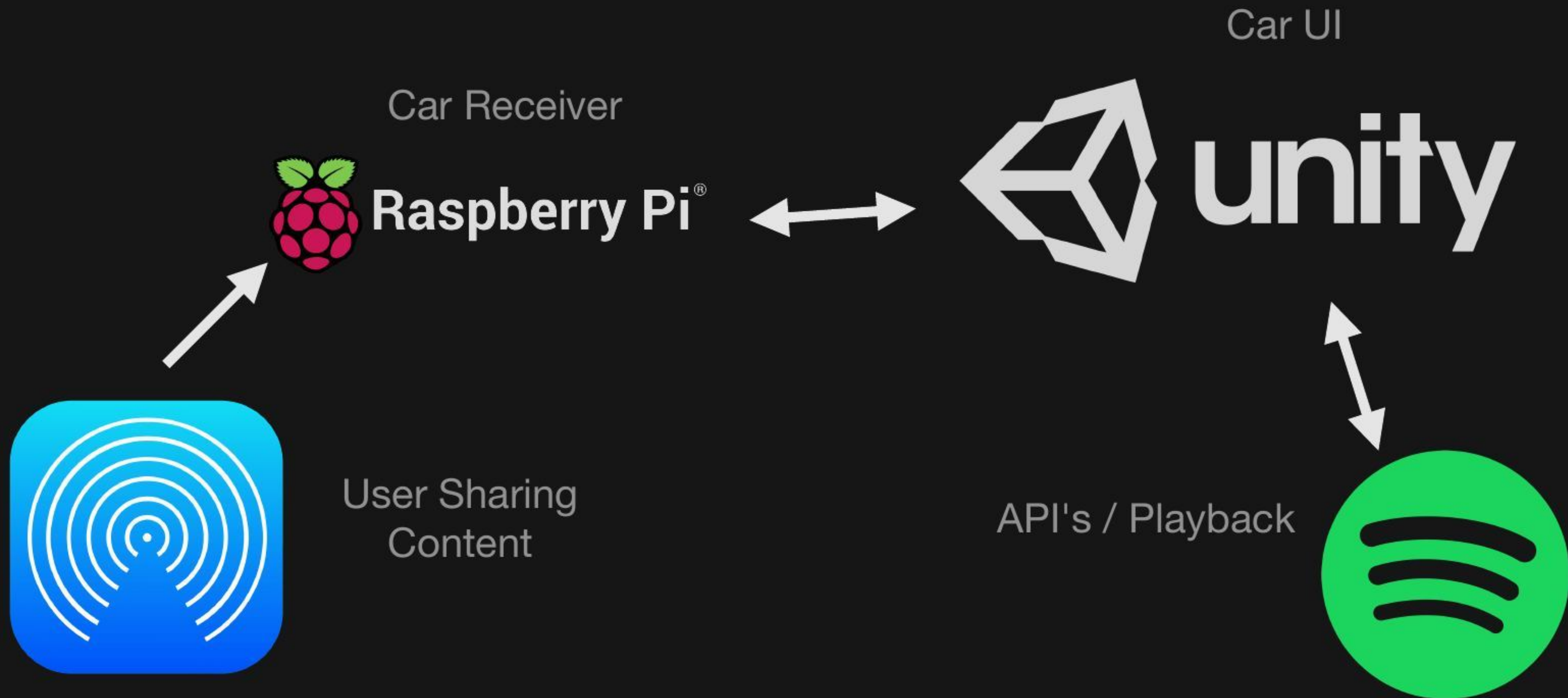
c' == cameras seen
 c == number of cameras
 Δt == change in time (s)
5 is frame interval
Weights .8 and .2 semi-arbitrary

ATRIA

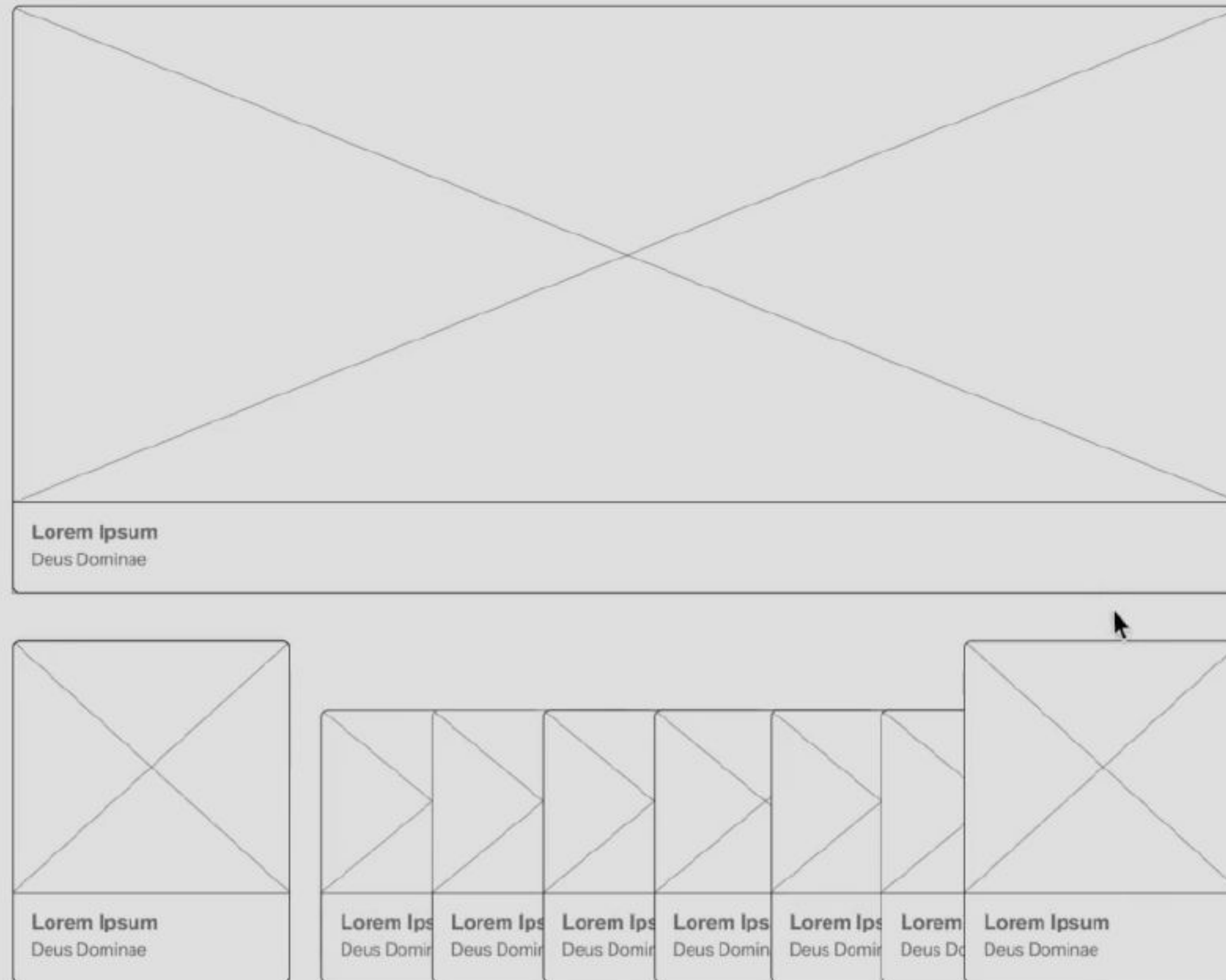
A Social Playlist



{ Application }



ATRIA { Early Sketches }

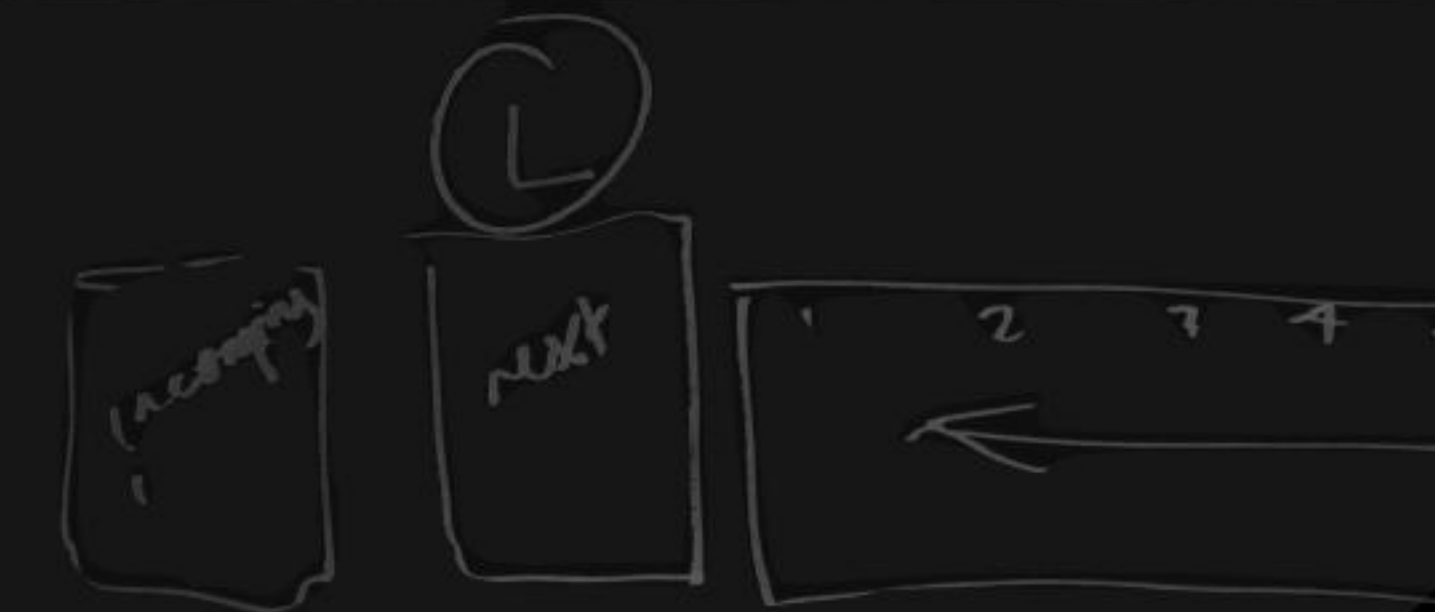
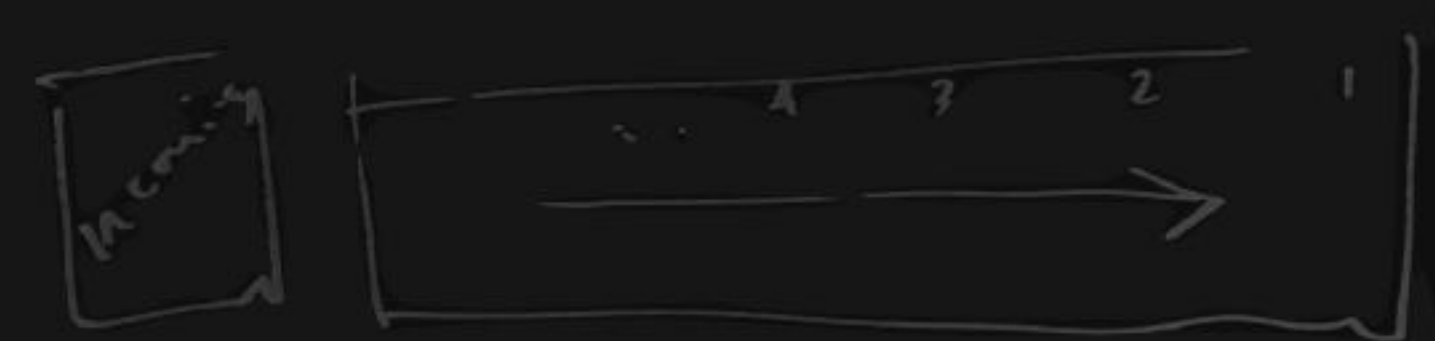


① TAP = ② PAUSE

④ TIMER OUT IN 1 sec

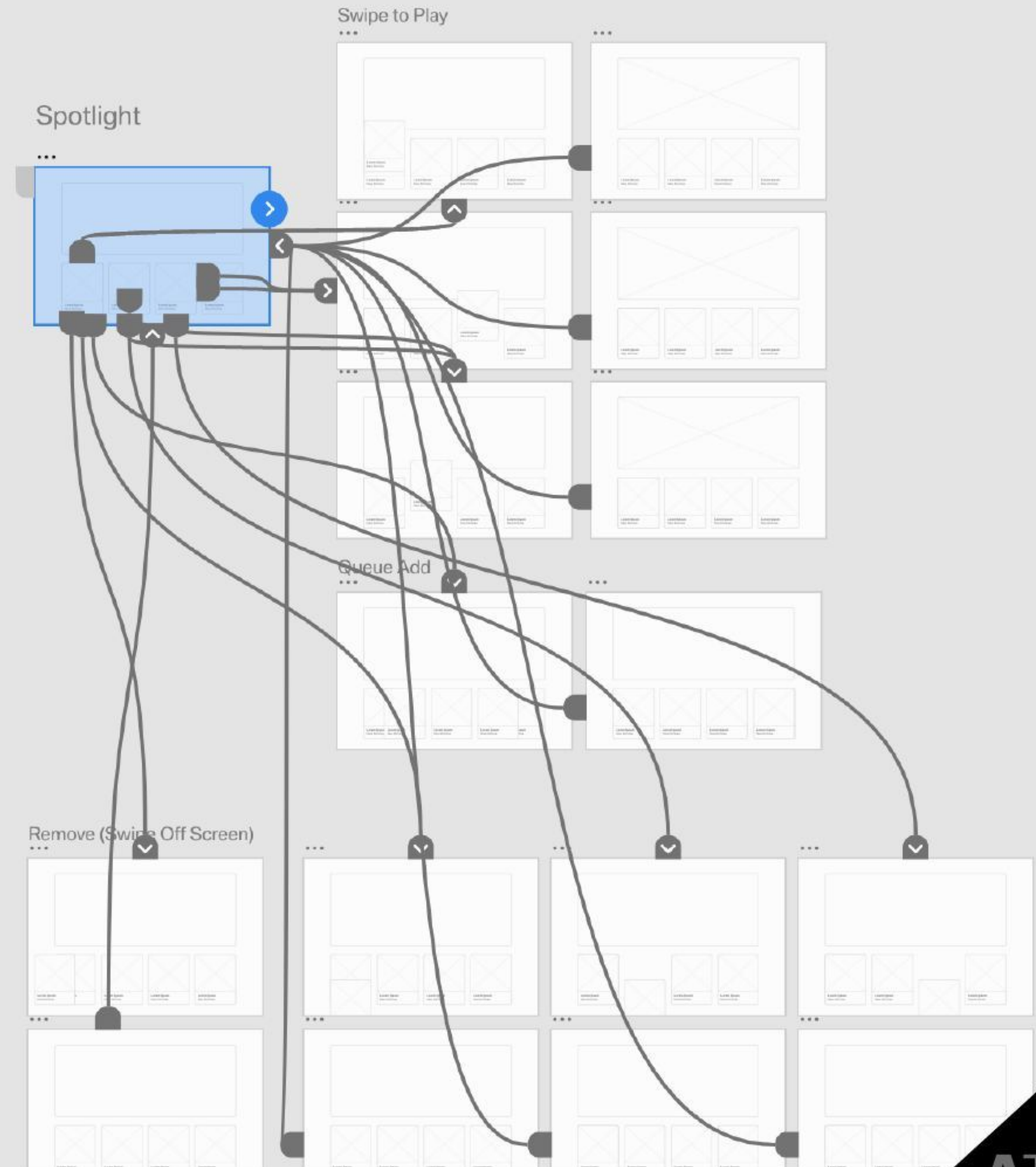
⑤ Full Brightness (no gray layer)

QUEUE DIRECTION



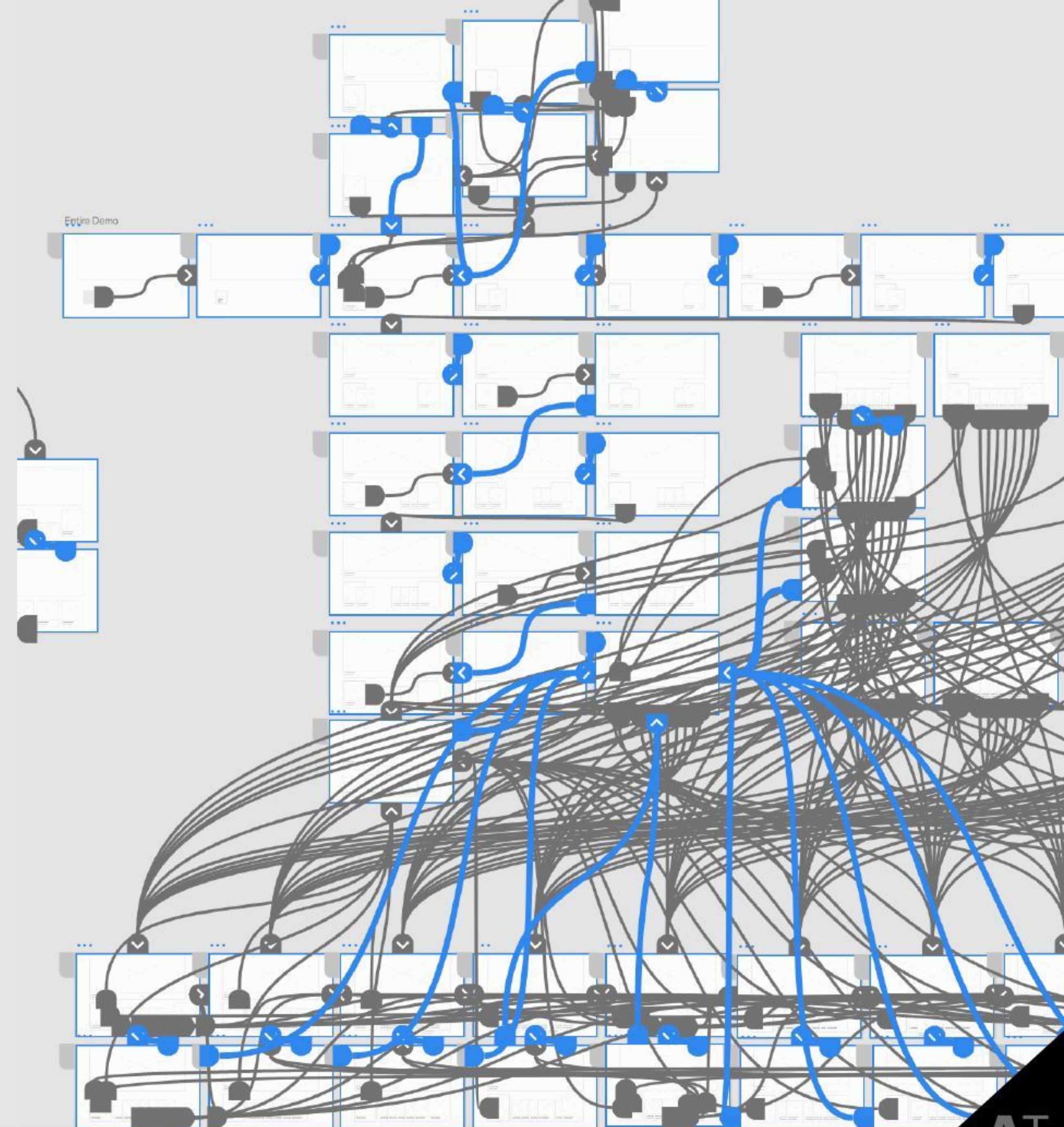


Adobe XD



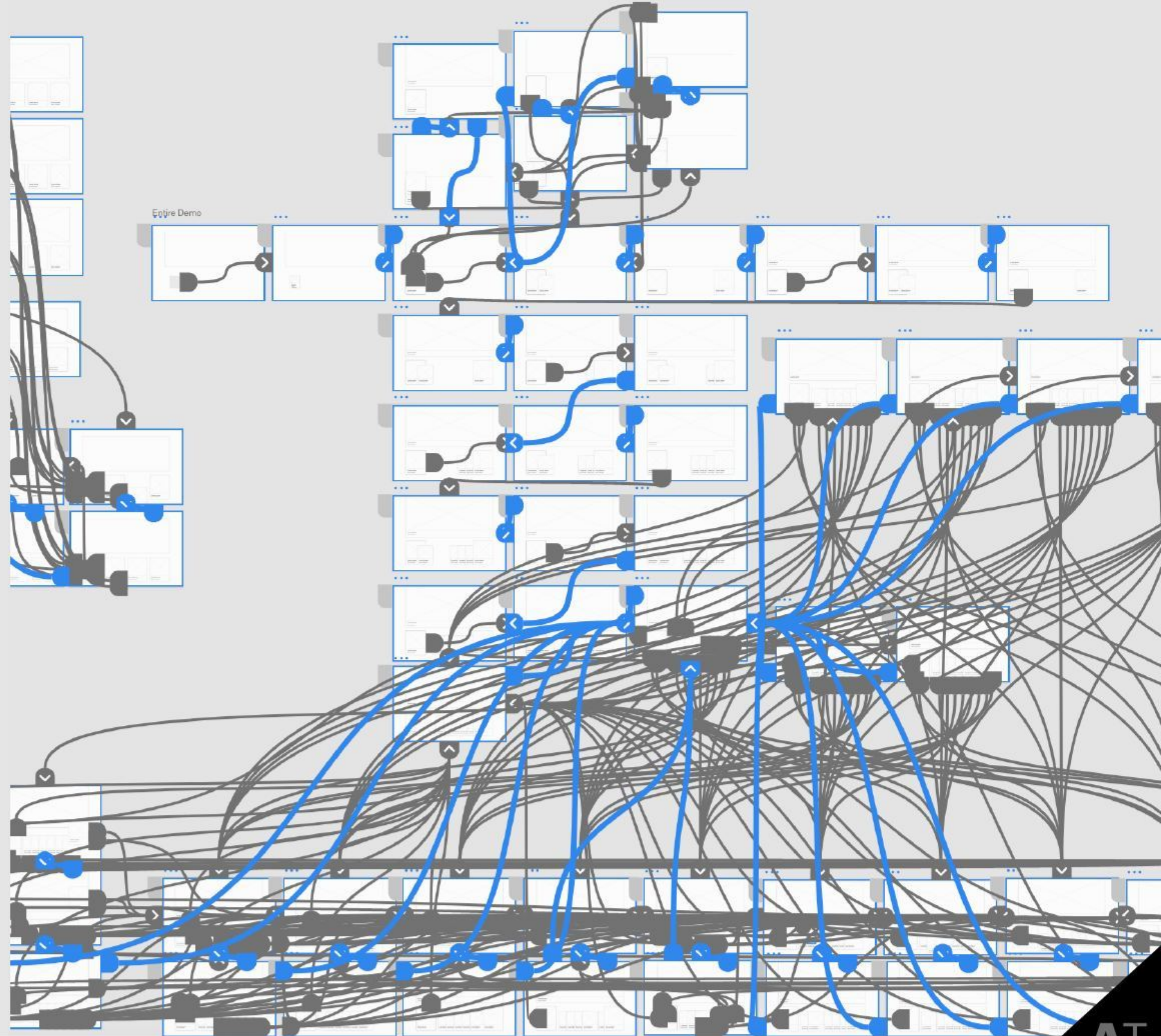


Adobe XD

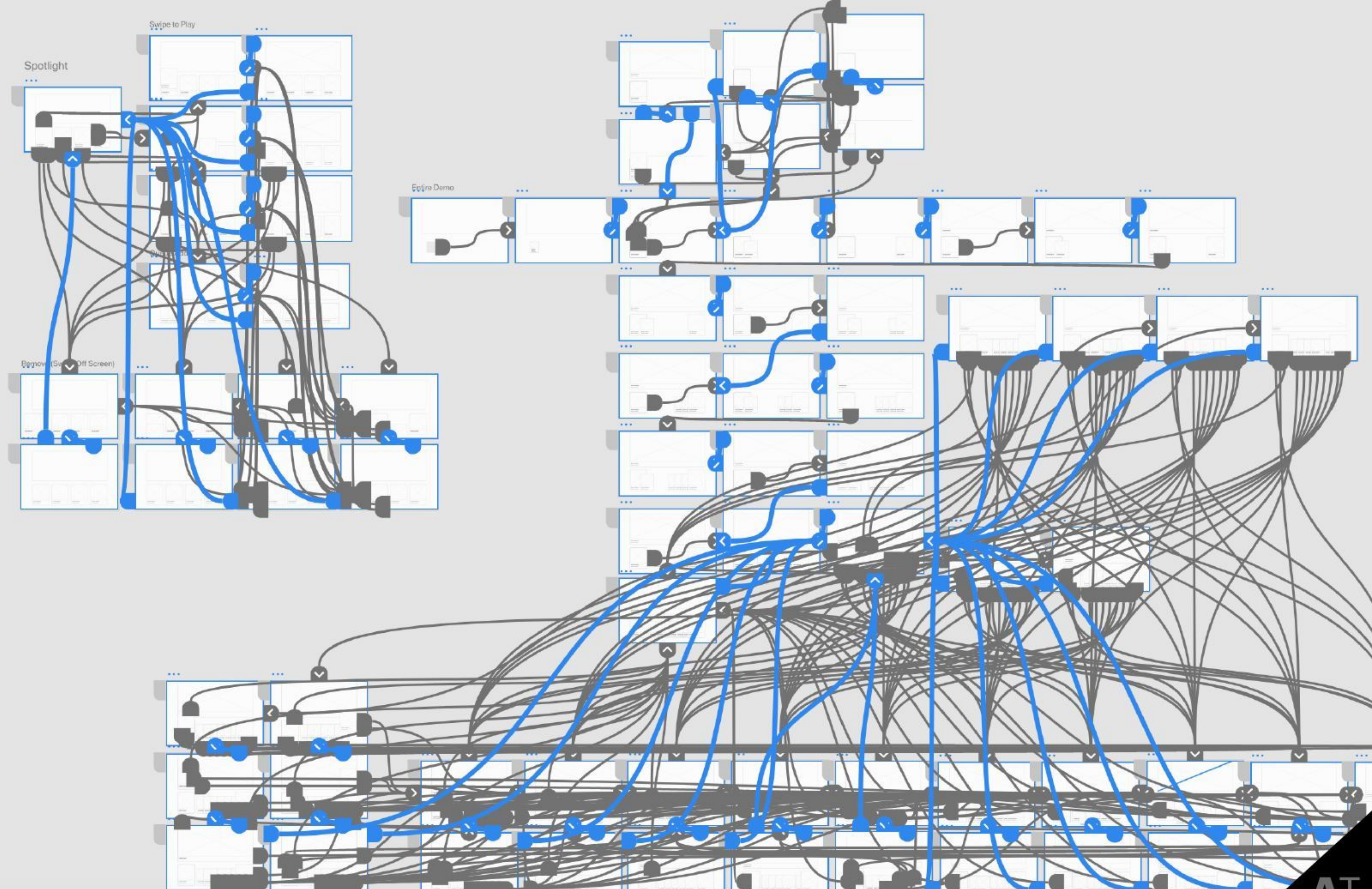




Adobe XD



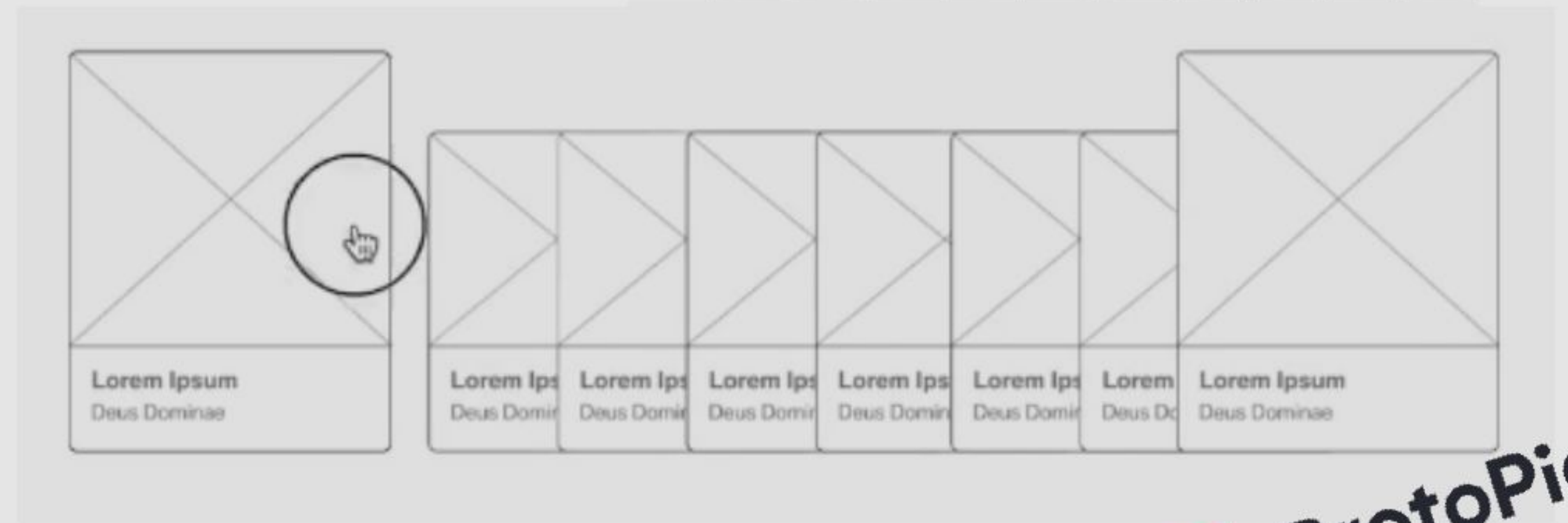
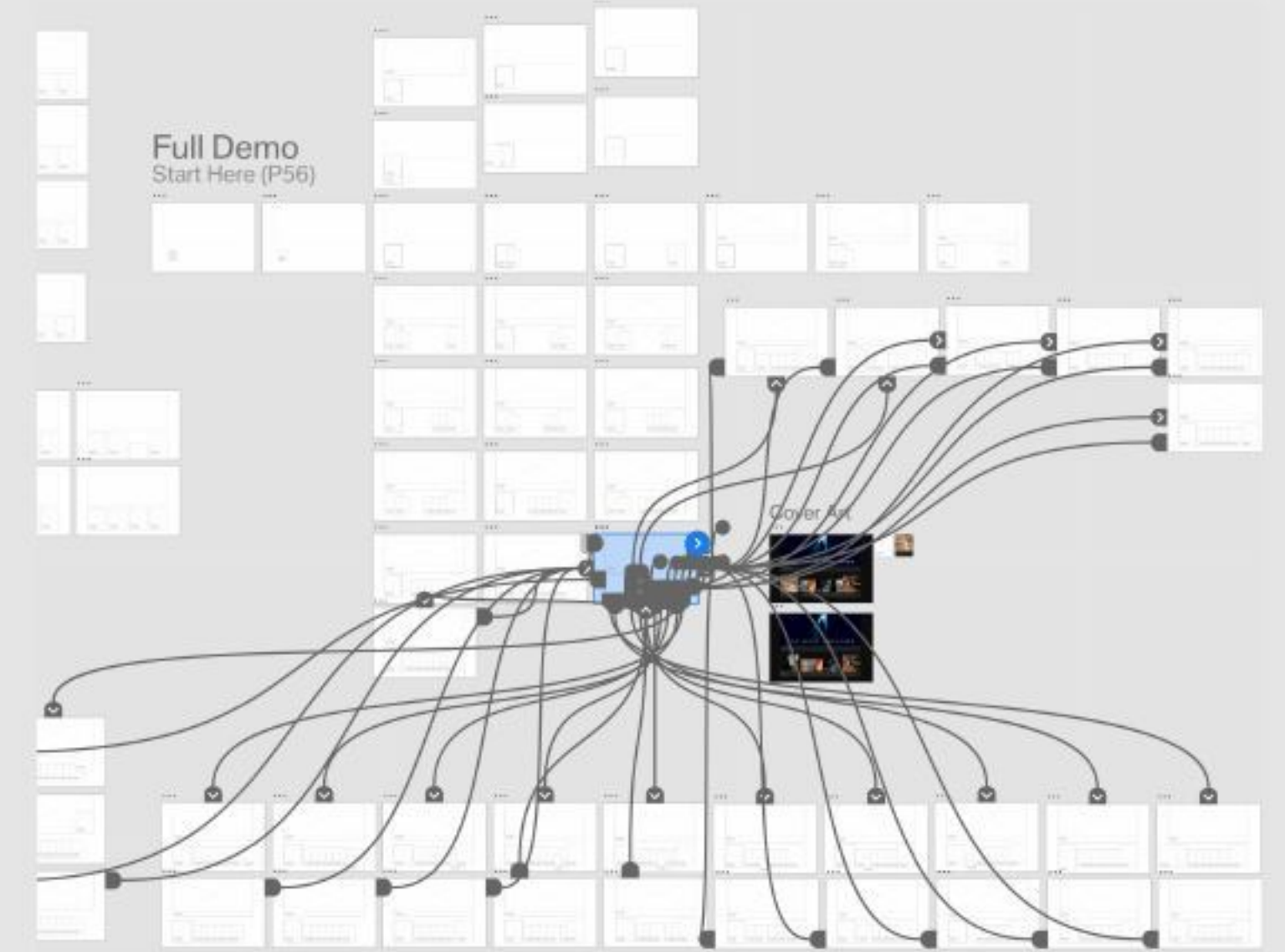
e XD





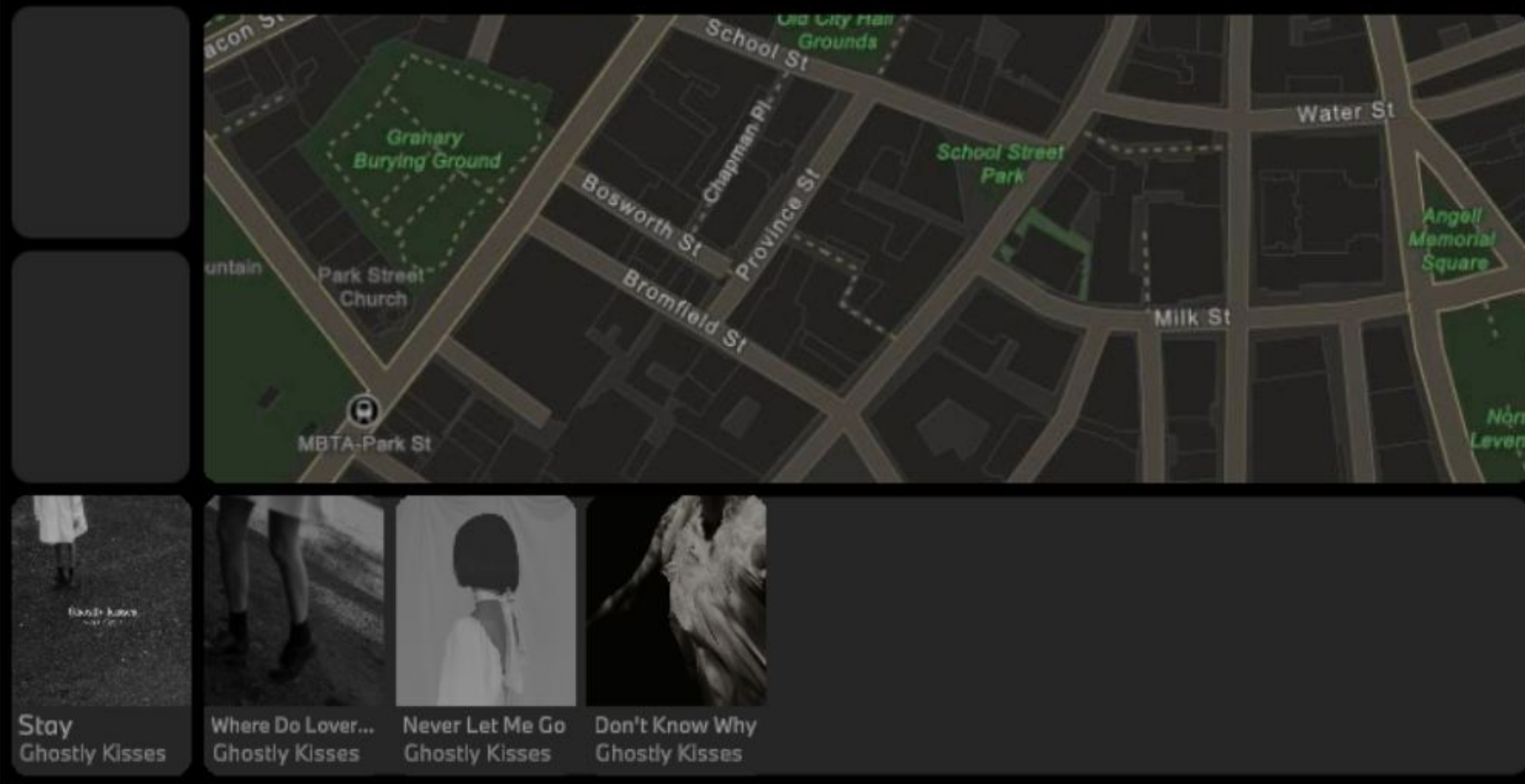
Adobe XD

- Fugetabatit!
- Easy to use, powerpoint
- Limited functionality
- Really designed for standard web/mobile interfaces
- Don't forget about Protopie!



{Early Prototypes}

ATRIA



ATRIA



Don't Know Why
Ghostly Kisses

Queue

Nearby



ATRIA



Don't Know Why
Ghostly Kisses

Queue



- Multi threaded Python application
- Kernel flashing issues -> network dependent
- Won many battles against the Innovations router

```

q530496 — pi@mycar: ~/w-atria — ssh pi@10.204.40.150 — 102x45
mon0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    unspec B8-27-EB-39-C6-96-30-30-00-00-00-00-00-00-00 txqueuelen 1000 (UNSPEC)
    RX packets 548 bytes 58591 (57.2 KiB)
    RX errors 0 dropped 548 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 169.254.62.191 netmask 255.255.0.0 broadcast 169.254.255.255
    inet6 fe80::c8d:76ee:d50b:7ee7 prefixlen 64 scopeid 0x20<link>
    ether b8:27:eb:39:c6:96 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 29 bytes 5559 (5.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[pi@mycar:~/w-atria $ sudo nexutil -k6
[pi@mycar:~/w-atria $ sudo owl -i mon0 -N -D
.oOXWMMMMWXOx:
.o000x:'::::::::::::':000x:
oX0o' ..... ':OXx.
.o000'::::::::::::'000o.
oX0o' ..... 'o00:
:o0000XXXXX0000o:.
oX0:' ':OXo
.:xOXXXXXX0x:.
.xXMMMMMMMMMMMMMMMMMXx.
'XWwwWWwMMMMMMMMMMMMMMMMMMMMMMMMWWWwWX'
oWMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMWo
OMMMMMMWwMMMMMMMMMMMMMMMMMMMMWWMMMMMO
OMMwx' 'xWMMMMWx' 'oXMMO
:MW: oMMx 'WM:
XM' .x00o. :o .x00o. WX
WX :MMMMMX :MMMMMX xW
XW 'WMMMMX .xx. 'WMMMwX XX
'Wx 'xWmx' OMMO 'xWmx' xM'
'XX: 'XX' :XX'
'xX0x:.....:xXWx'
'xXMMMMMMMMMMMMMMMMMMMMWO'

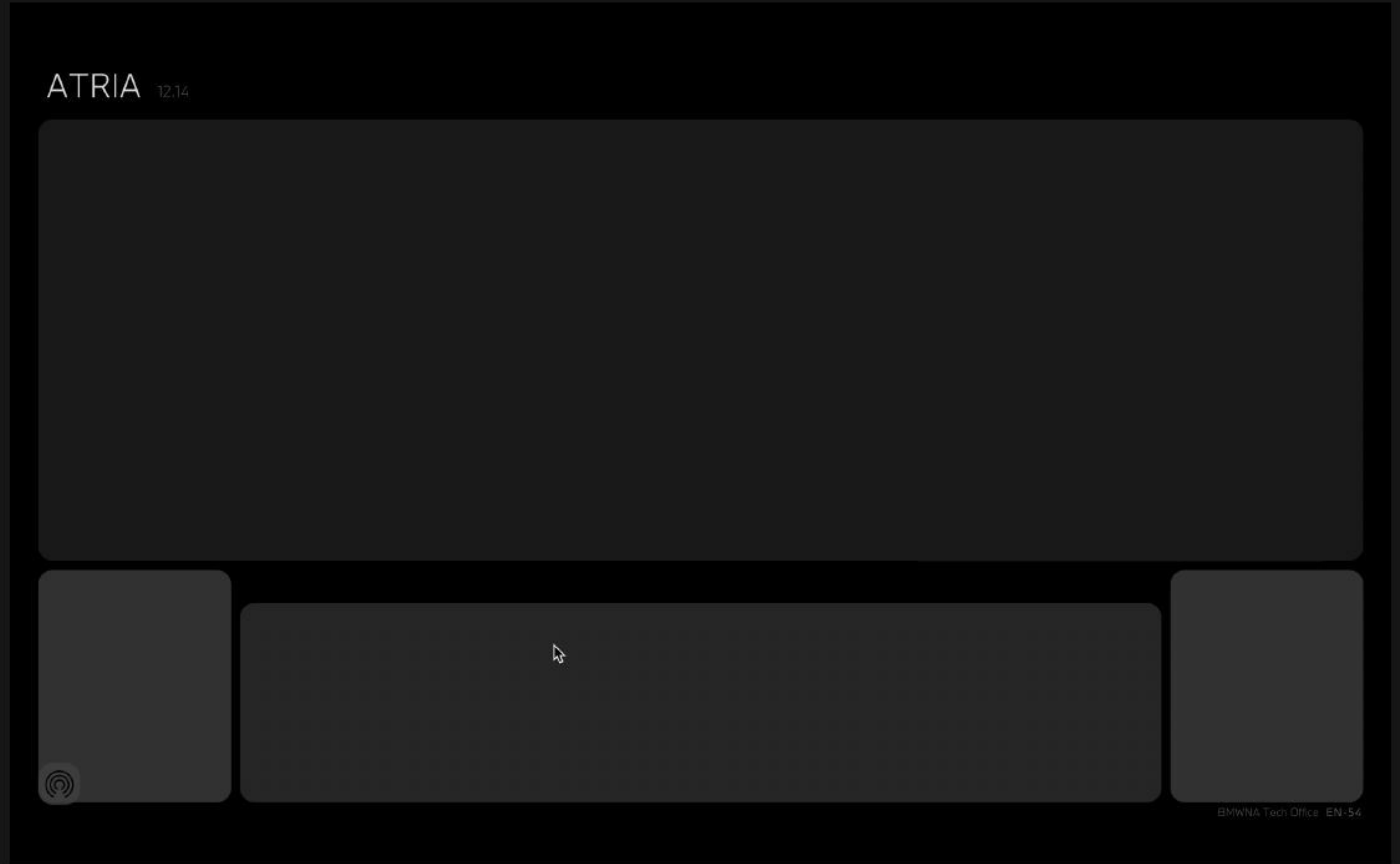
Open Wireless Link

https://owlink.org

pi@mycar:~/w-atria $
```

{Final Prototype}

- Technical incrementalism is hard
- Define more **potential** requirements early -> easier to future-proof technical



logischer Schluss

{ What I've Learned }

- Projects live or die by
 - Existing technical infrastructure
 - Business strategy
 - End user
- Technical presentation -> magic show



{ Opportunities } (Presumptuous Intern Has Some Ideas)

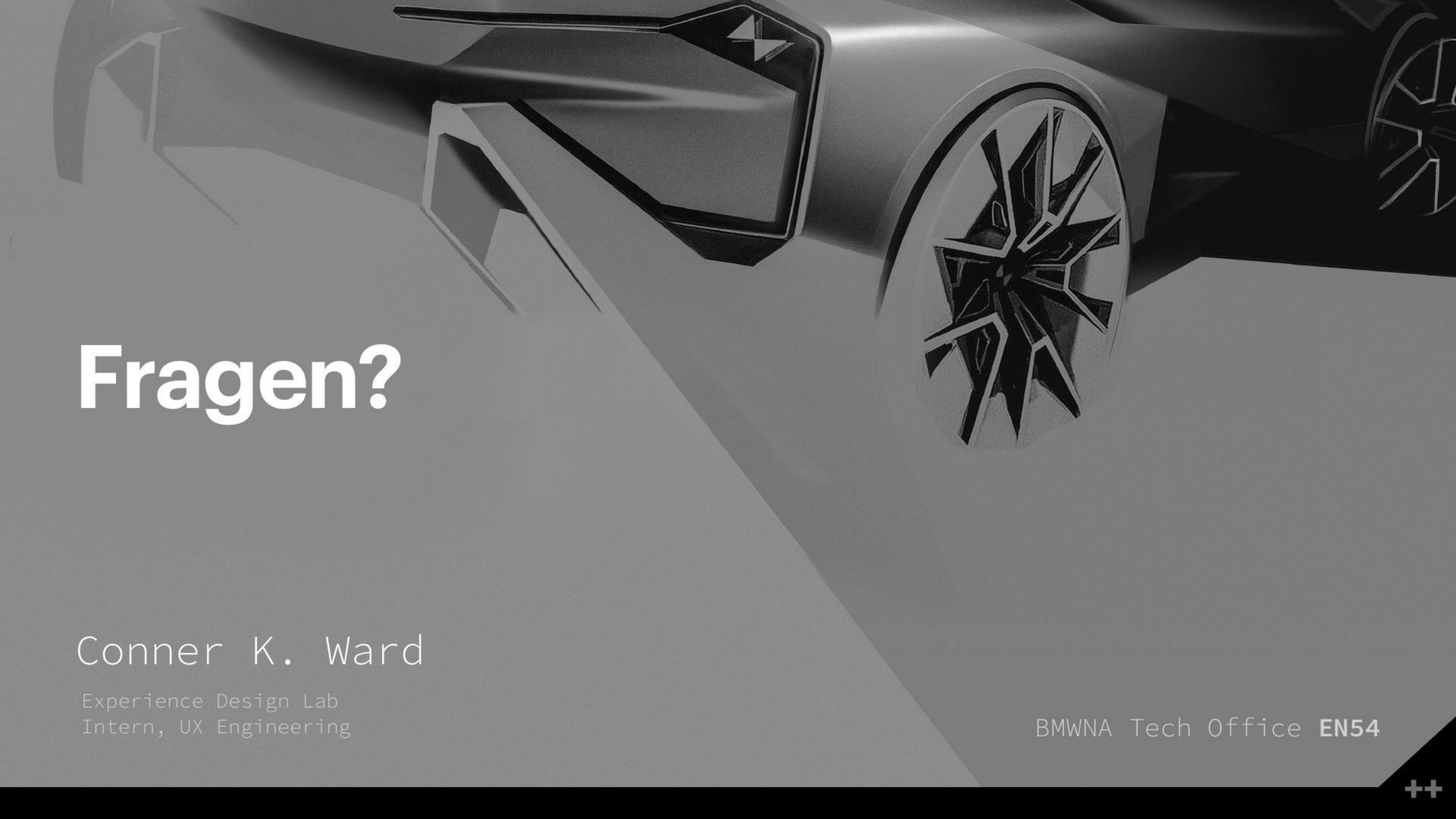
- Handy M-Turk Guide
- Streamline process of acquiring device IP's / hostnames (local DNS?)
- MQTT protocol Common Project Backend
- More rigorous Unity development protocols



{ Sentiment }

- Learned **business mindset**
- Got to utilize **Linux (RPi), React** and **Unity** skillsets
- Limited use of **CAD** and **microcontroller** skillsets
- Felt like home!





Fragen?

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