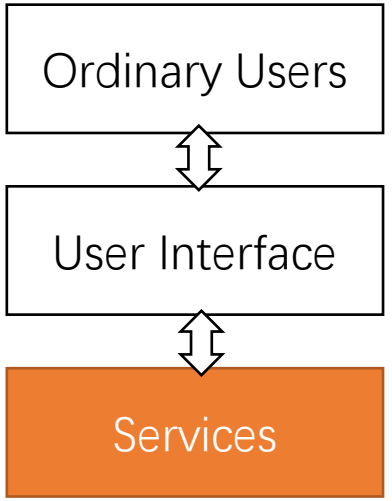
Project Introduction

Chun Yu 2021.3.3

Project Info



- Topic: Natural User Interaction in AIoT
  - Multiple Device; Dynamic Scenarios
  - Context-aware; User-aware; Task-aware
- We are going to explore how service will be delivered to a user with AIoT Interfaces

Project Info

- Teamwork: 3 members
- We considered devices including phone, watch, earphone, PC, tablet, TV, vehicle terminals, AR glass, smart ring
- We design and implement the AIoT interface for a specific service, such as short message, notetaking, shopping, music and so on.
- An interface defines how the information is present and the input is made
- The interface should leverage spatial sensing ability to provide novel and convenient interaction method

You choose a specific service from these

- instant message, i.e., wechat
- listen music, i.e., QQ music
- long video, i.e., iqiyi
- Memo, i.e.,
- News , i.e., toutiao
- short video , i.e., TikTok
- Moments（朋友圈） , i.e., wechat or facebook
- e-shopping , i.e., taobao
- e-pay， i.e., Alipay

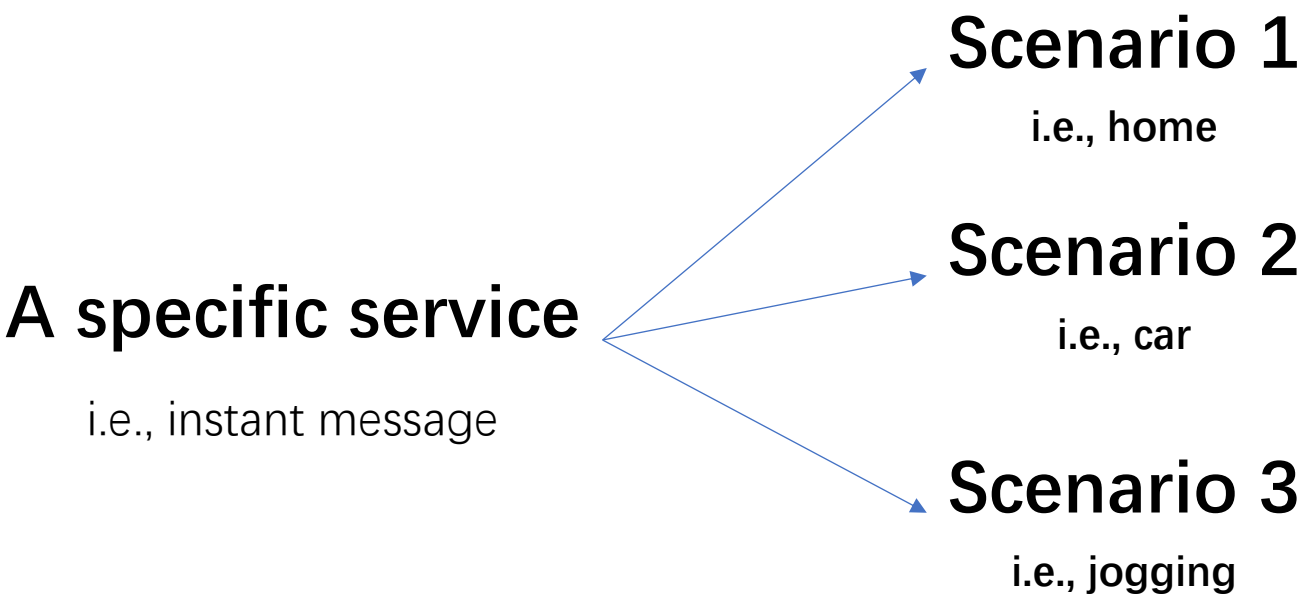
The scenarios

- Home
- In Car
- Dormitory
- Classroom
- Office
- Jogging

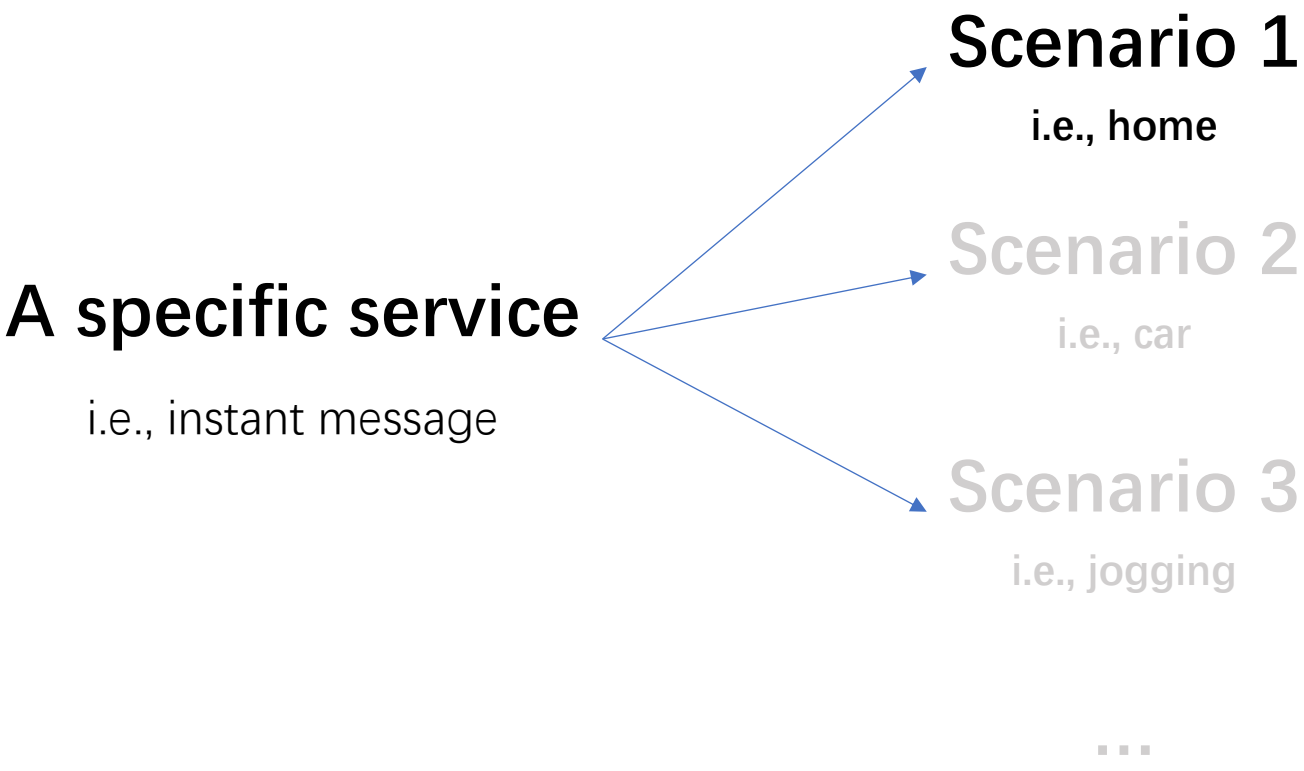
The smart devices

- Phone
- Watch
- Earphone
- Pad
- PC
- AR glass
- TV or big screen

The design space

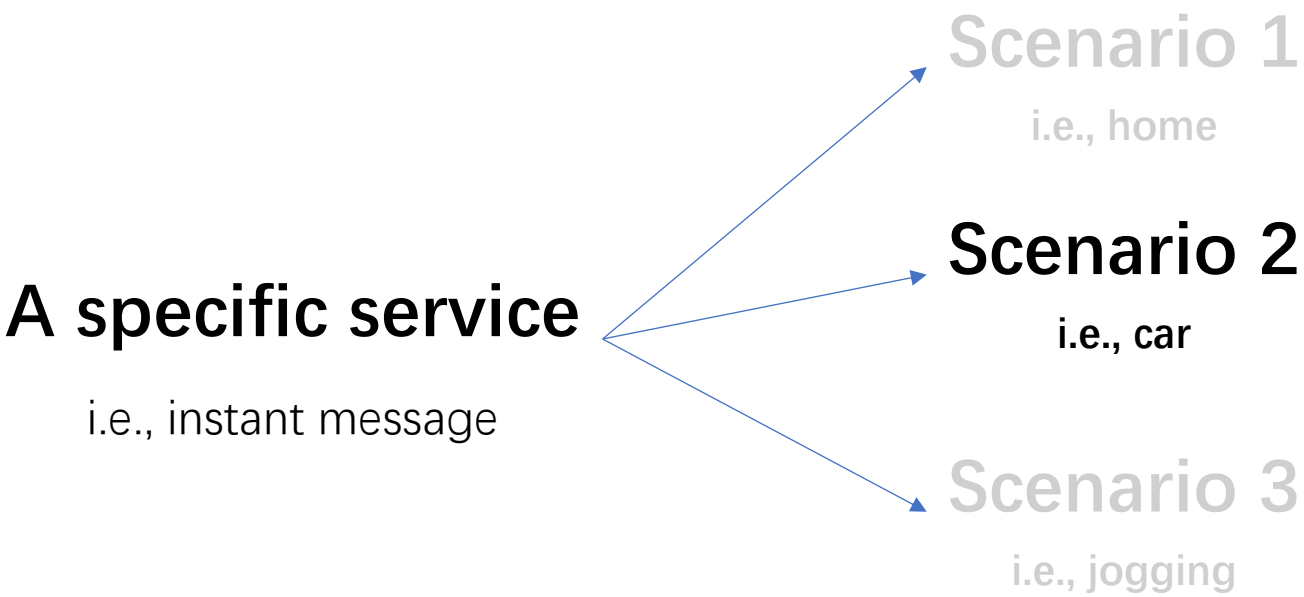


The design space



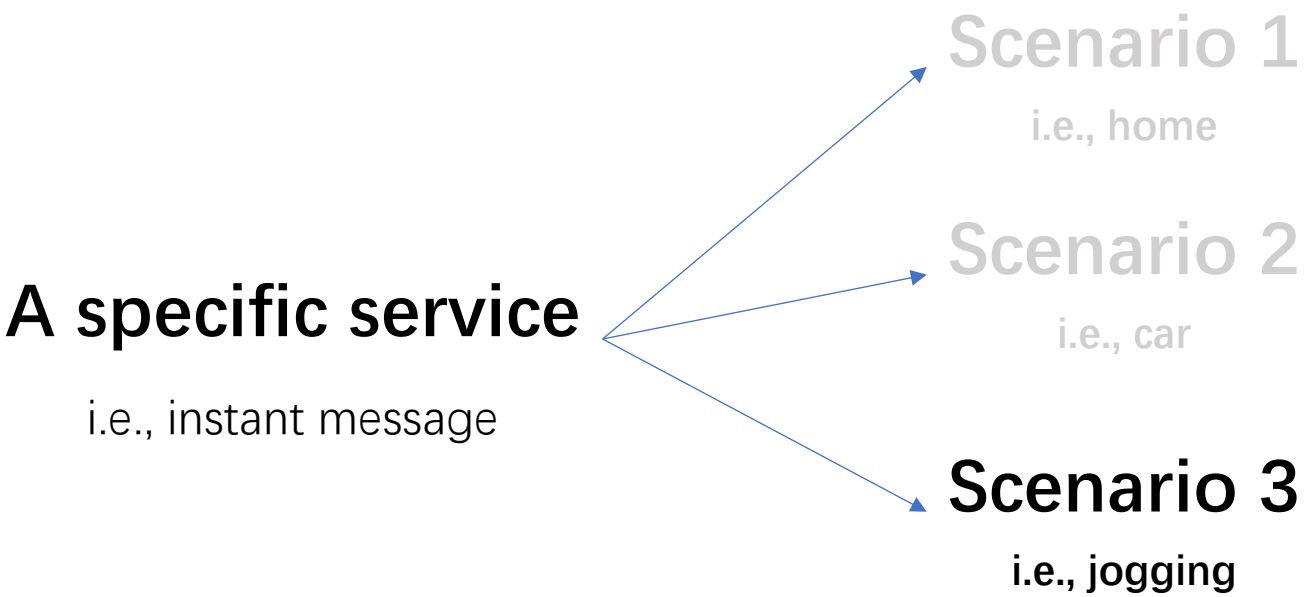
- Phone
- Watch
- Earphone
- Pad
- PC
- AR glass
- TV or big screen

The design space



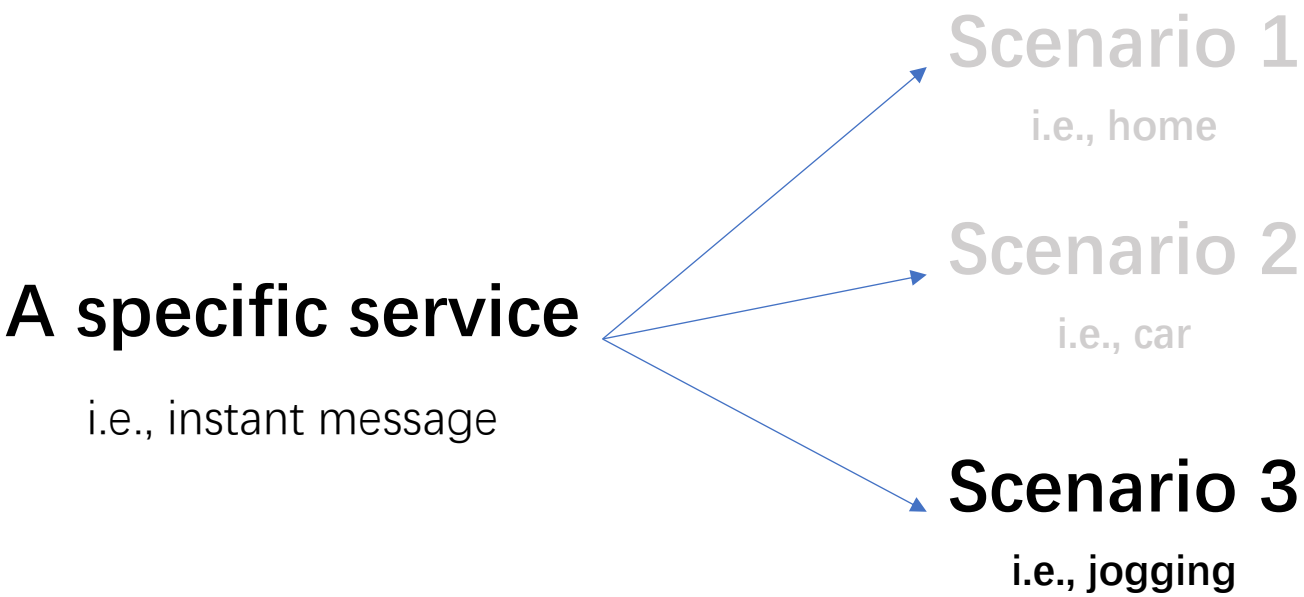
- Phone
- Watch
- Earphone
- Pad
- ~~PC~~
- AR glass
- ~~TV or big screen~~

The design space



- Phone
- Watch
- Earphone
- ~~Pad~~
- ~~PC~~
- ~~AR glass~~
- ~~TV or big screen~~

The design space

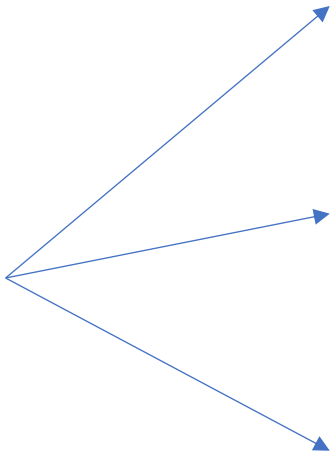


- Earphone only
- Watch only
- Phone only
- Earphone+watch
- Earphone+phone
- Phone+watch
- Three devices

The design space

A specific service

i.e., instant message



Scenario 1

i.e., home

Scenario 2

i.e., car

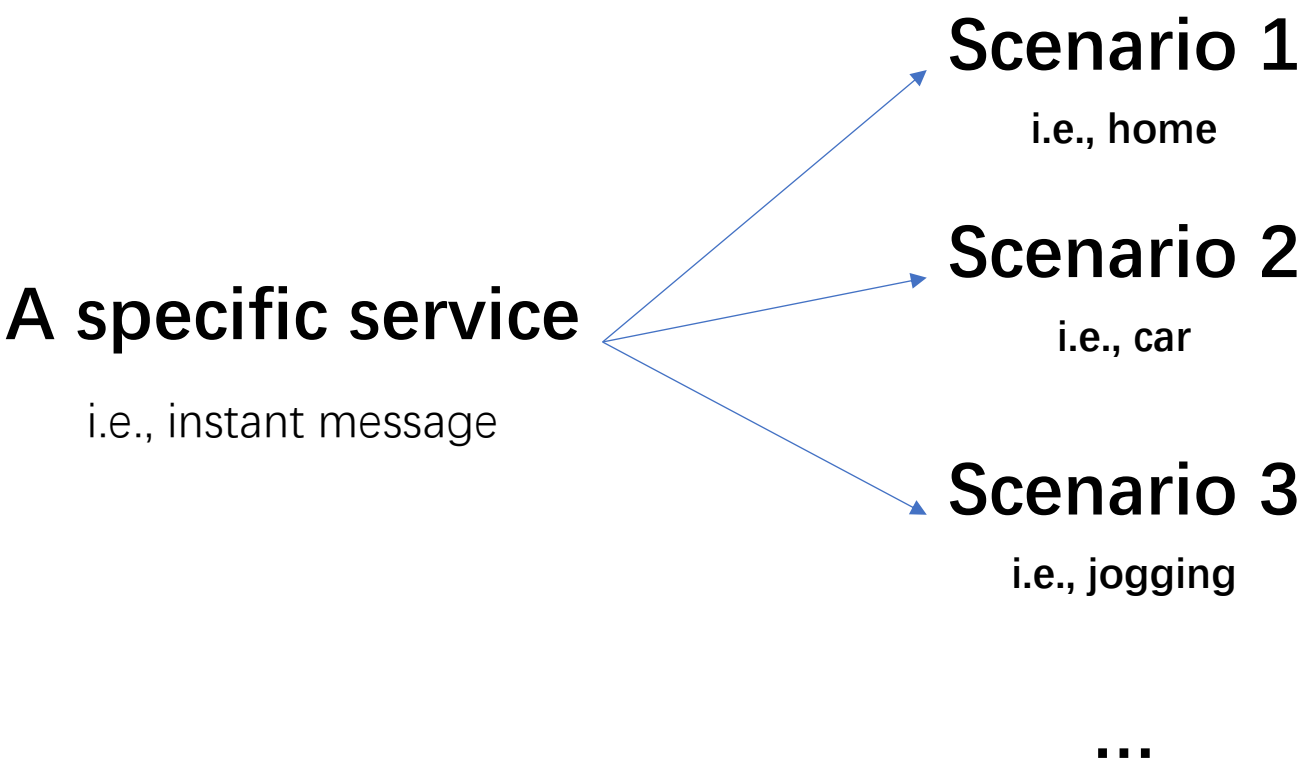
Scenario 3

i.e., jogging

...

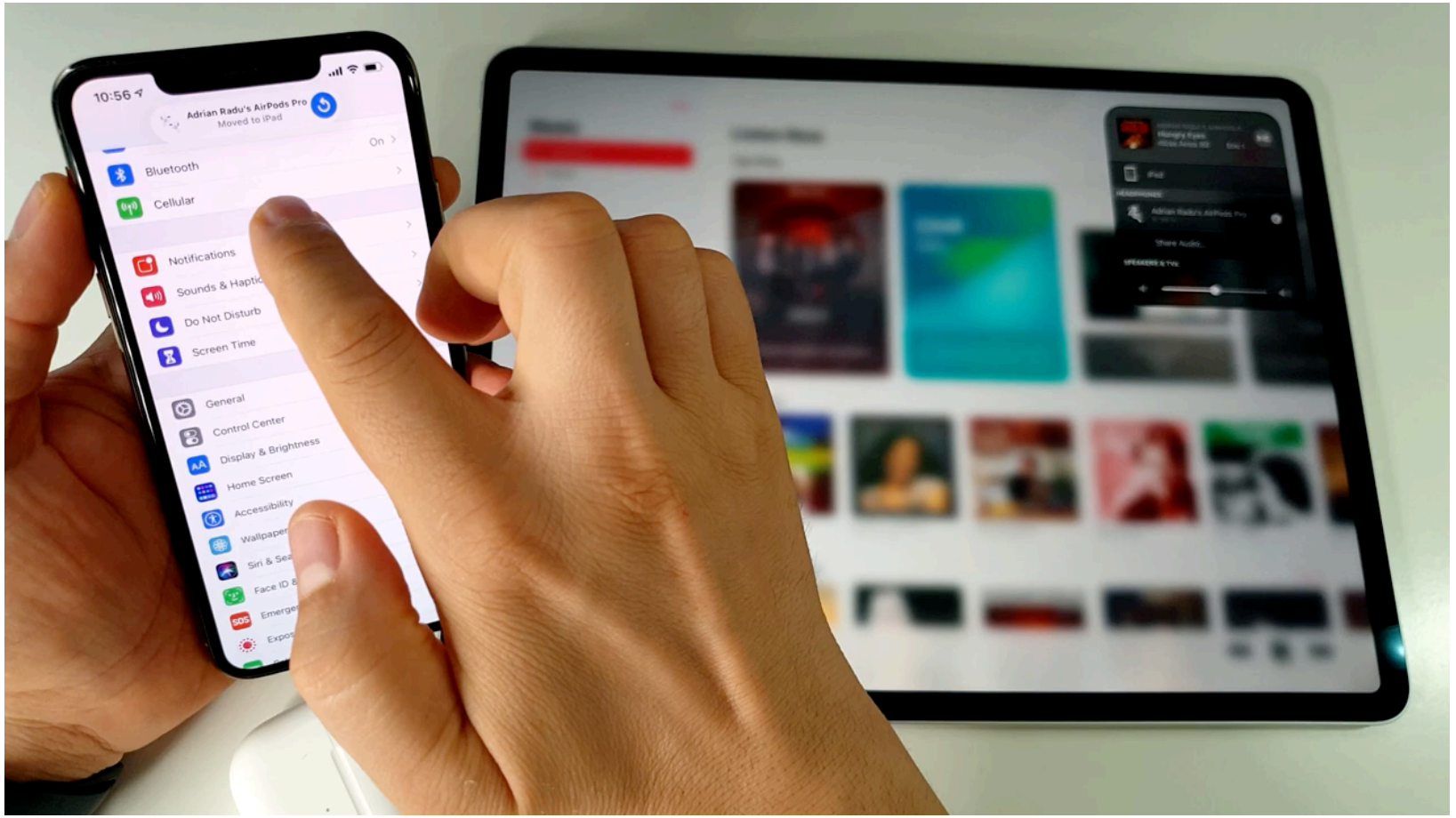
- Earphone only
- Watch only
- Phone only
- Earphone+watch
- Earphone+phone
- Phone+watch
- Three devices

The design space

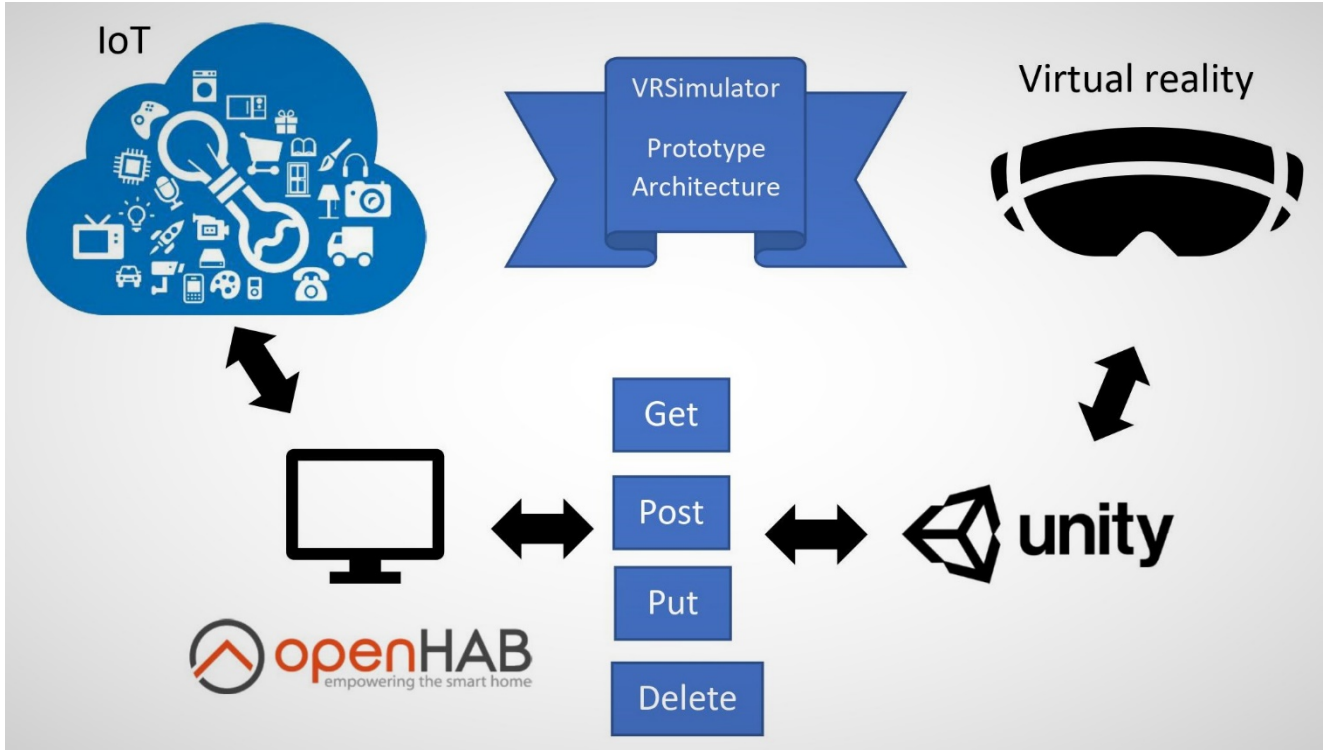


- Emulate all the potential and meaningful combinations
- Design the best experience for your service in that setup.
- Summarize all the designs and choose the best N to implement

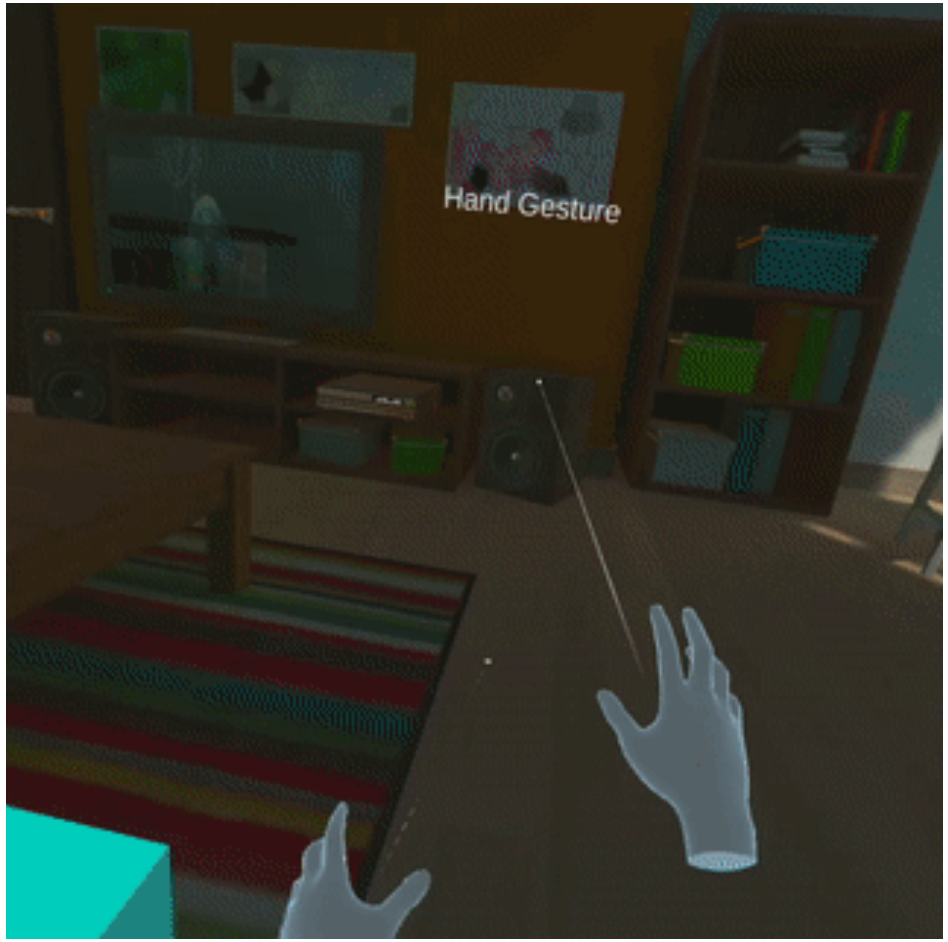
A Small Example



NUIXStudio

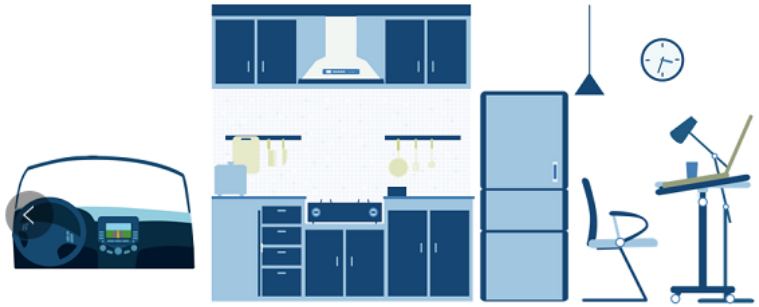

IoT
VRSimulator
Prototype
Architecture
Virtual reality
Get
Post
Put
Delete
unity
openHAB
empowering the smart home

NUIXStudio



NUIXStudio – Mixing Virtuality and Reality

Test your AIoT vision quickly and agilely



IoT Devices

VR Headset
Unity Client

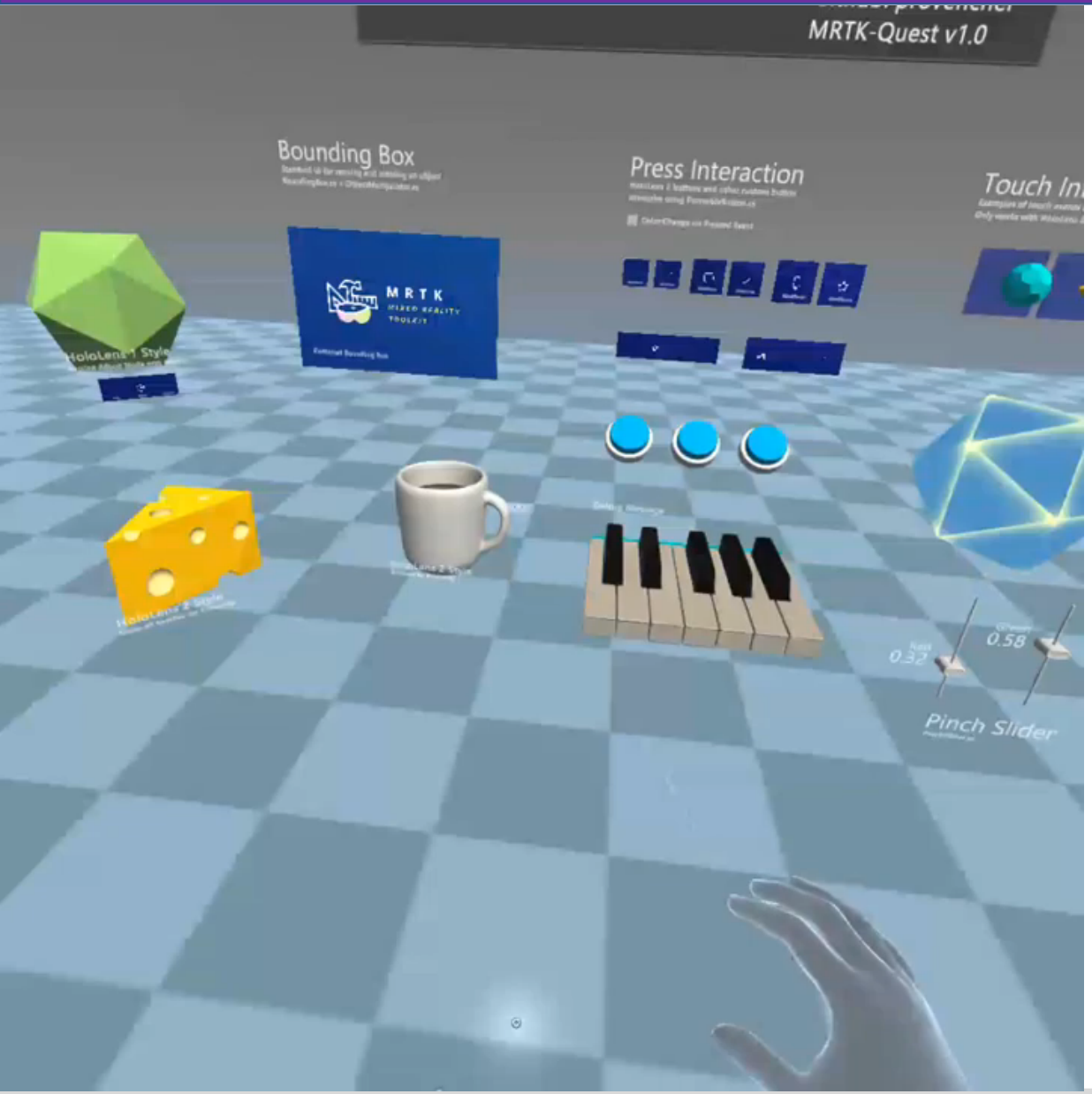
openHAB Server

NUIX Studio SDK

PC – Computations -
Unity Server

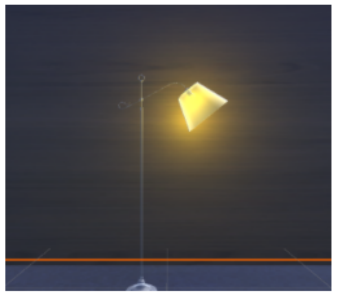
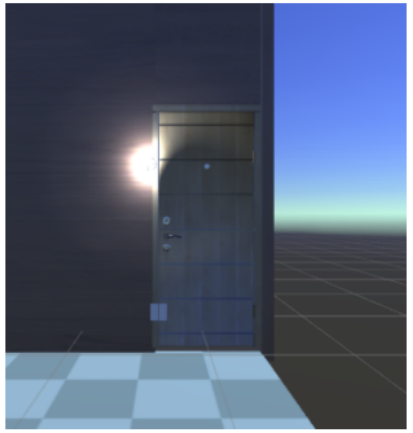
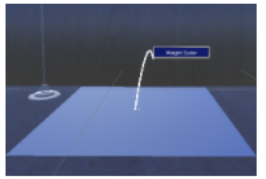
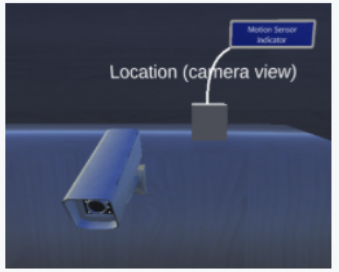
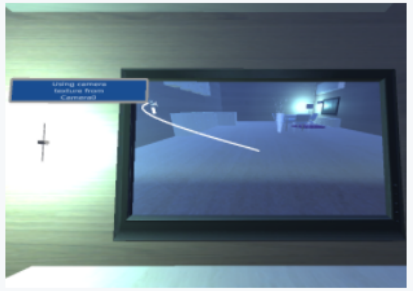
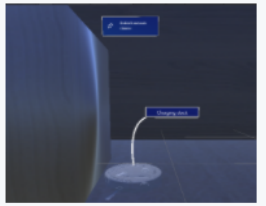
NUIXStudio – Natural User Interaction

NUIXStudio – Natural User Interaction

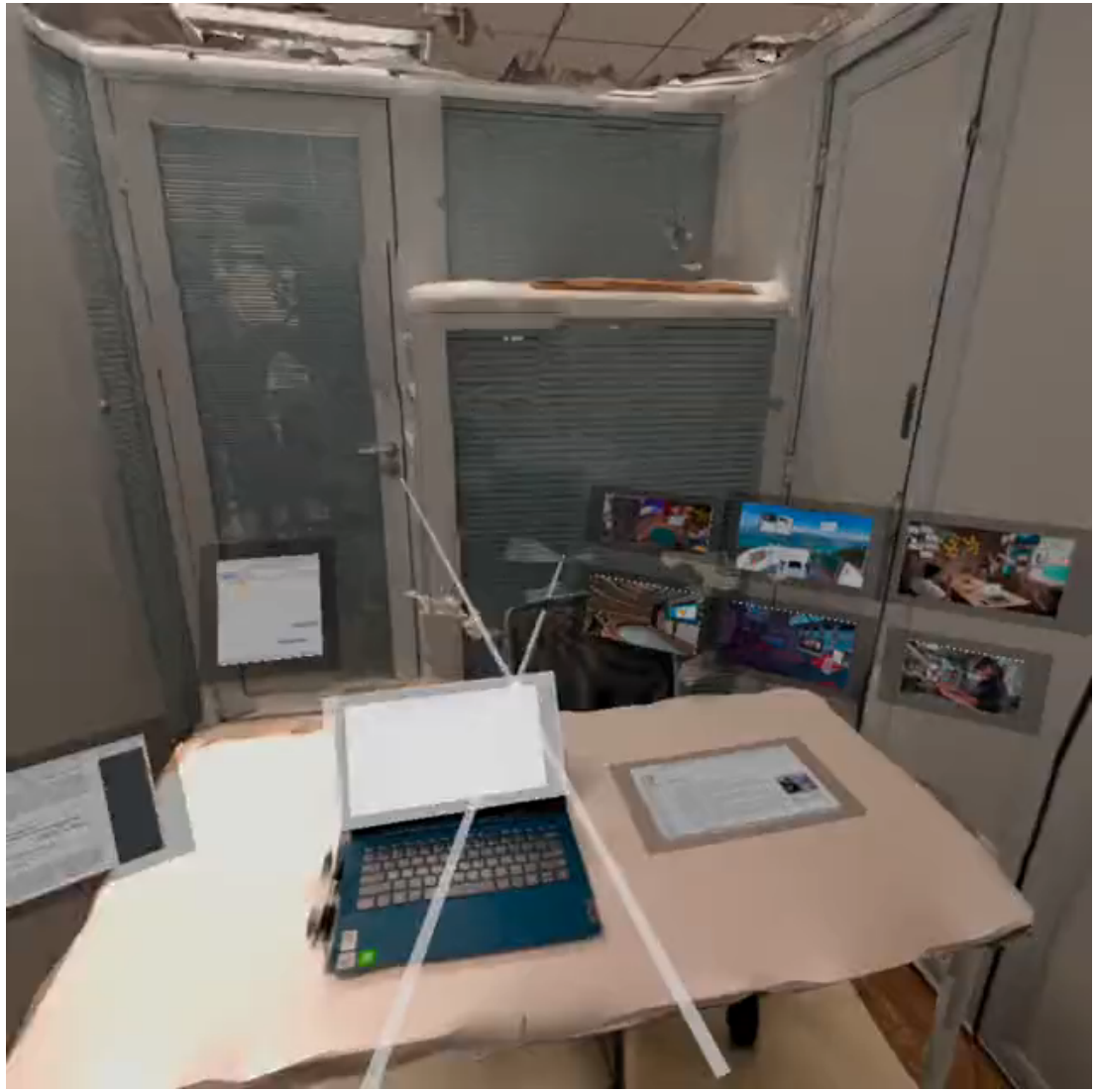


IoT VR Platform package

Available items (the list is frequently updated):

 Light Item	 Door	 Weight Scaler
A lamp thing with Location and Light items attached	A door with a door close/open sensor item attached	Weight Scaler item triggers according to the weight scaled on it
 Camera	 TV	 Vacuum Cleaner
A camera with a motion sensor connected	A TV translating an image from the camera	A vacuum cleaner thing, which can be docked/undocked and move around the scene

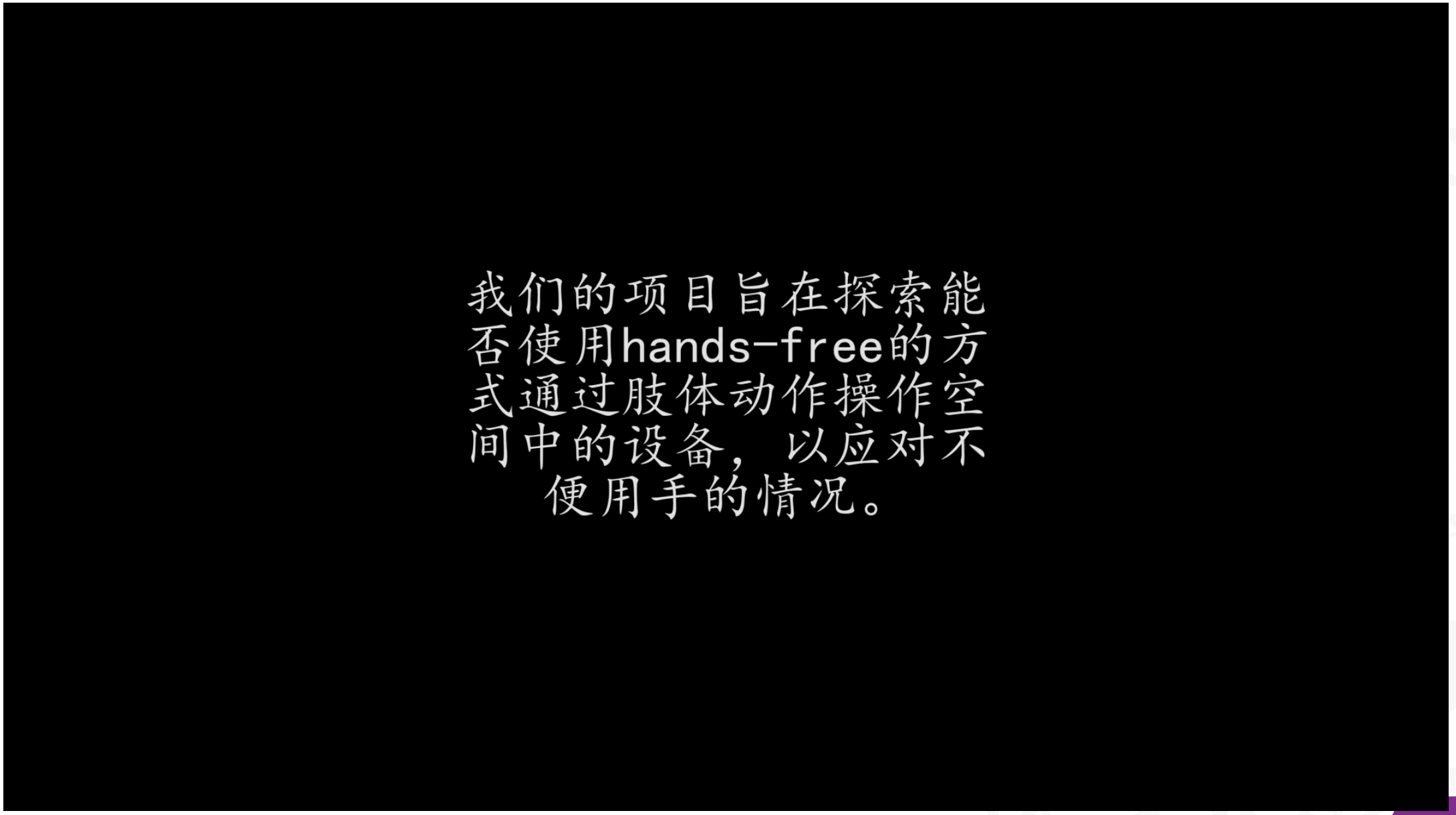
NUIXStudio – Mixing Virtuality and Reality



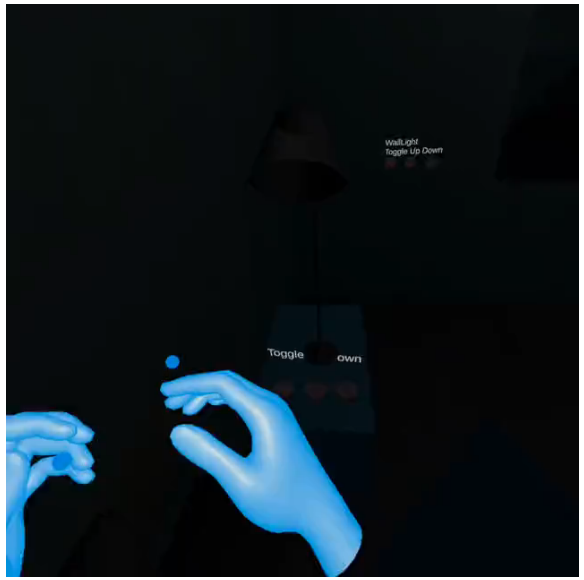
NUIXStudio – Example：Gesture Tutorial

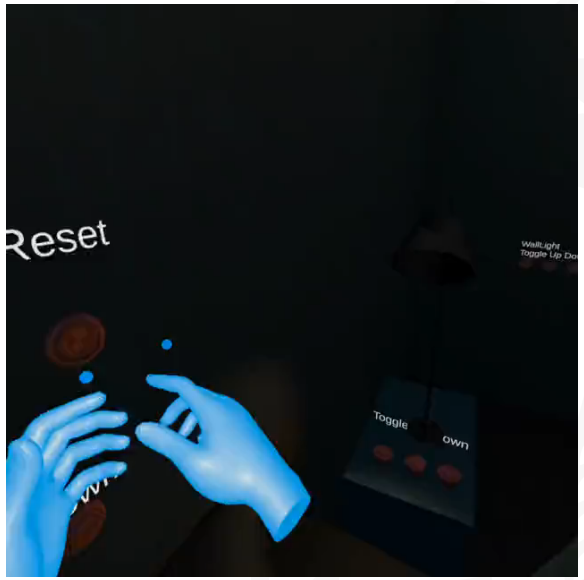
NUIXStudio – Example：Gaze Control

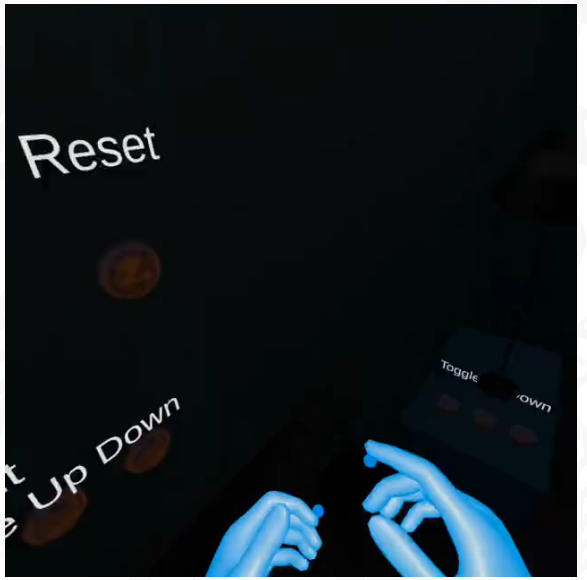
NUIXStudio – Example：Interaction on the floor



NUIXStudio – Example：Lighting Control







Q&A