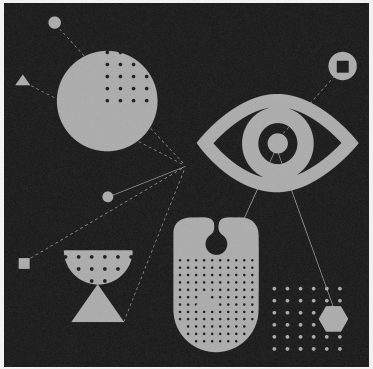
ULTRA 3
SENSING BEYOND SCREENS



Netta Gigi

Harrison Tan

Jehyun Kim

Rex Fu

Project Ultratool / SoSe 24 . 6 . 2021

POSTHUMAN FUTURE

"...We can and should use technology to augment our bodies and our minds; we can and should merge with machines, remaking ourselves..."

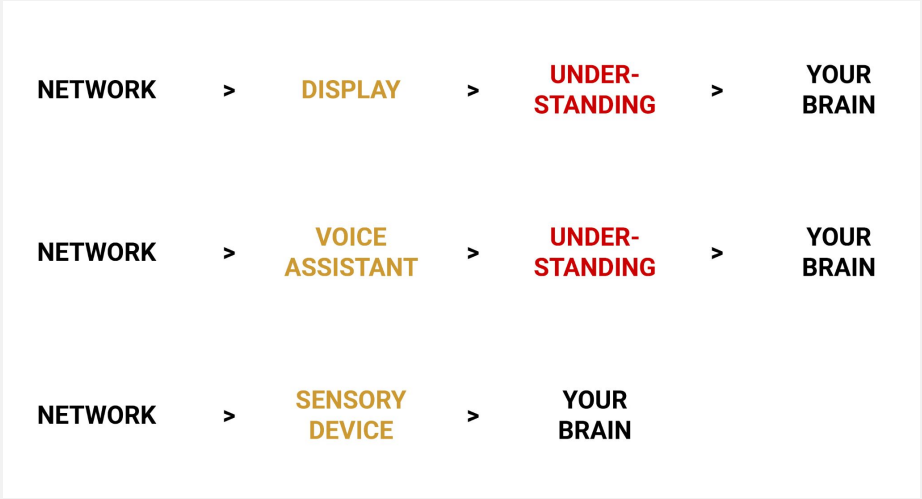
------<< To Be a Machine >> by Mark O'Connell

THE

ULTRA TOOL

IS YOU

We believe it is our basic human right to be able to upgrade ourselves, and to develop and leverage the fundamental technologies that enable the next phase of intelligence.



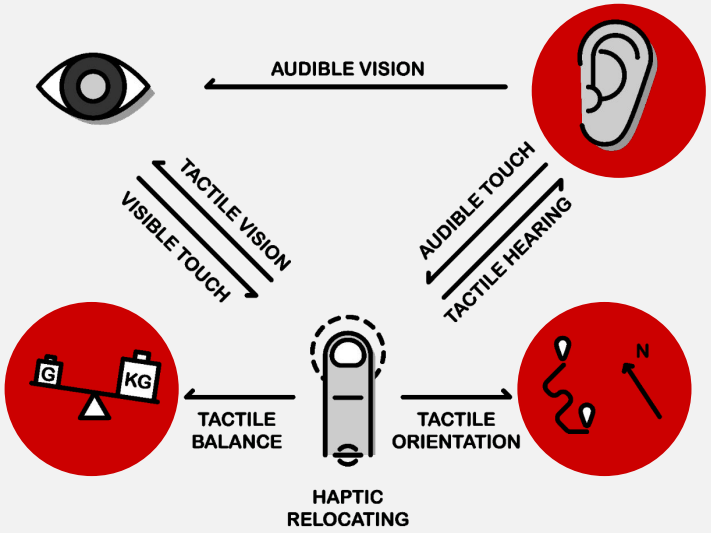
FUTURE

INTERACTION

IS SENSORY

We believe the future of the human race will allow us to opt out of natural perception, our very survival as a species depends on it.

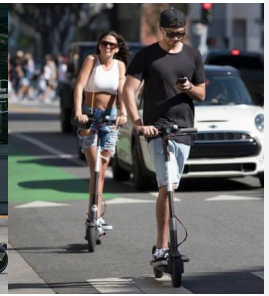
We won't allow us to be limited by the tiny screens we hold in our hand.



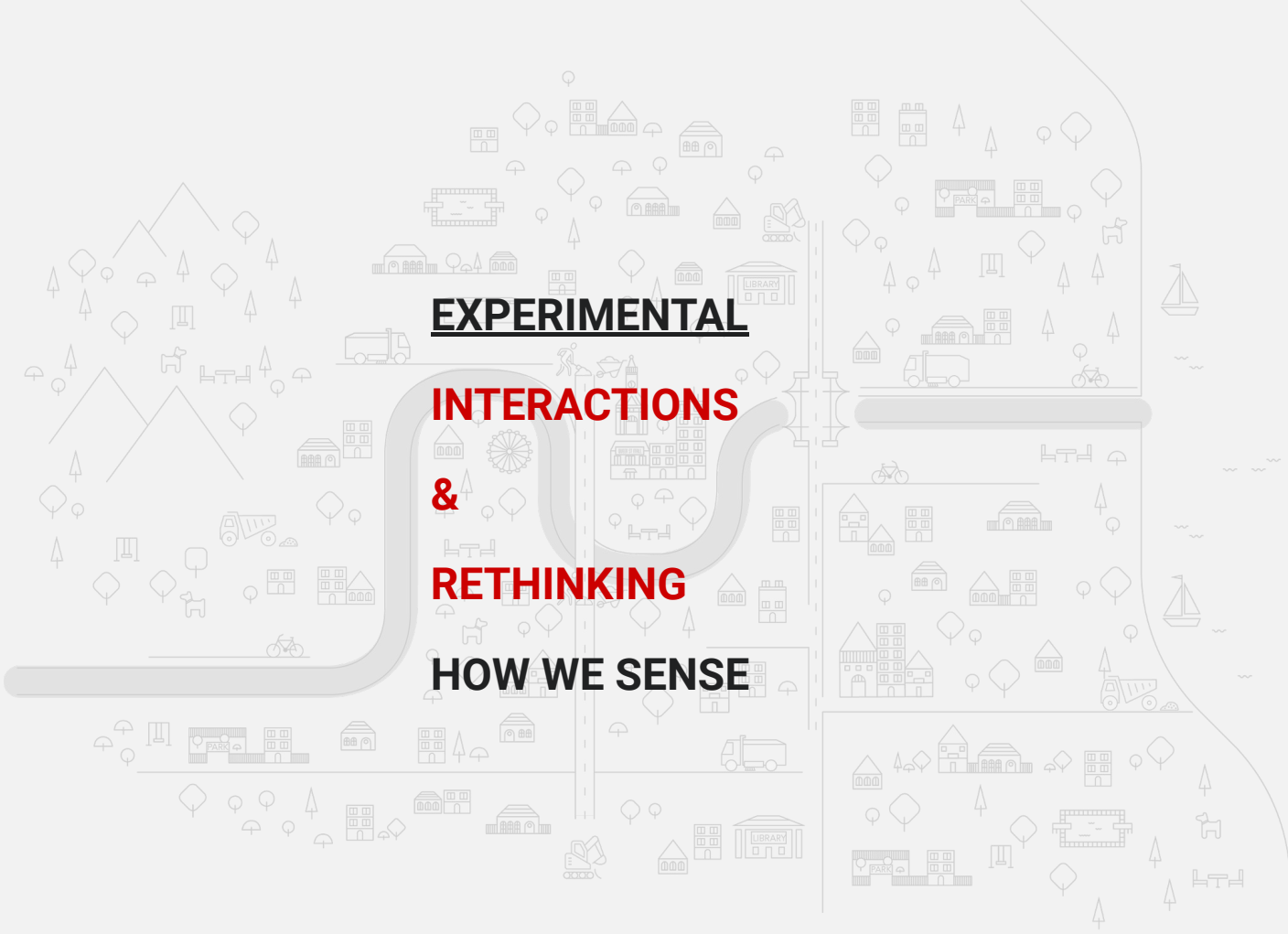
CASUAL **WAYFINDING**

AWARE OF **TRAFFICS**

CITY **EXPLORING**

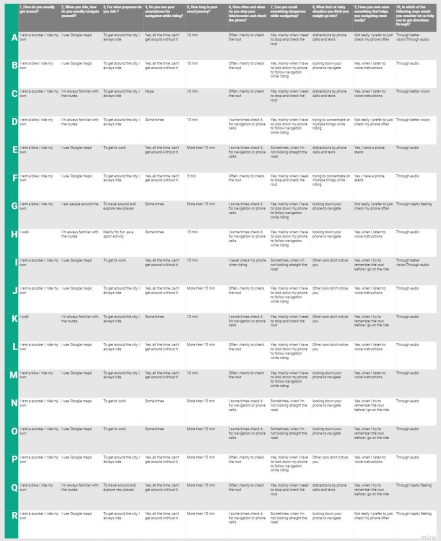


NAVIGATING **SAFER**


EXPERIMENTAL
INTERACTIONS
&
RETHINKING
HOW WE SENSE

CONCEPT / RESEARCH

INTERVIEW & SURVEY MAP



ENTHUSIAST 01

BASIC

Riding traveller
32, Chinese / WeiNan

JOURNEY SETUPS

Usually have a rout of 500km with segments. Max. 200km a day.

Usually involves main roads and rural / unknown community area.

Bike with 26" rim sport bike, with allroad tyre.
Equiped: waterbottle holder, backpack rack, GPS attached handle with phone holder, front lamp, front quick access bag, bell.

RIDING PREFERENCE

Prefer lightweight gears.
Quick dry clothing
Wirless earphone / with easier access(no airpods)

NAVIGATION SETUPS

With smartphone, check direction before entering highways / bridges. Check navigation when altitude changes(mountain to field). Check navigation after passing a certain area(village or park or crossing bridge)

prepare check-points before riding

1, How do you usually get around?

- [x] rent a bike / ride my own — own customized bike
- [ ] I rent a scooter / ride my own
- [ ] I walk
- [ ] I take the public transport

2, When you ride, how do you usually navigate yourself?

- [ ] I'm always familiar with the routes
- [x] use 'Google maps'
- [ ] I follow the traffic signs
- [x] ask people around me

check google maps before riding / cross check with physical maps / ask local people when get lost

3, For what purposes do you ride ?

- [x] Mainly for fun, as a sport activity
- [ ] To get to work
- [ ] To get around the city, I always ride
- [x] To travel around and explore new places — 10k mile experience / prefer long distance / exploration and more challenges
- [ ] For deliveries

4, Do you use your smartphone for navigation while riding?

- [ ] Yes, all the time, can't get around without it
- [ ] Some times
- [x] most times — mostly carry also a map
- [ ] Nope

5, How long is your usual journey?

- [ ] 15 min
- [ ] 10 min
- [ ] 5 min
- [x] More then 15 min — 3 days usually, 3-6 hour / day

6, How often and when do you stop your bike/scooter and check the phone?

- [x] Often, mainly to check the rout — stops all the time. Shit things happen all the time, missed highway/blocked roads, but you have to solve it using the app
- [ ] I never check my phone when riding
- [ ] I some times check it, for navigation or phone calls

7, Can you recall something dangerous while navigating?

- [x] Yes, mainly when I need to stop and check the rout
- [x] Yes, mainly when I have to look down my phone to follow navigation while riding
- [ ] Sometimes, when I'm not looking straight the road
- [ ] No, I feel like it's not dangerous at all — looking at phone while riding into a railway tunnel

8, What kind of risky situation you think you weight go into?

- [x] looking down your phone to navigate — phone navigation blacked out and have to stop on the highway in front of a ramp ring road
- [ ] distractions by phone calls and texts
- [x] trying to concentrate on multiple things while riding
- [x] Be dizzled by the sun — you know you shouldn't, and you think it's safe to check the phone at a constant speed, but it's not. Traffic is stressing on some highways or in the city.
- [ ] Vision problems
- [x] Other cars don't notice you

9, Have you ever seen something that helps you navigating more easily?

- [ ] Yes, when I listen to voice instructions — Work apps are too detailed with traffic infos but lack infos for roads other than normal roads. (Useful to check WeChat see if anything should be noticed)(blocked / flooded). APPs could make mistakes using infos for big road(creating a detour), if you don't follow it, you lost direction, if you follow it, it's too far away.
- [ ] Yes, when I try to remember the rout before I go on the ride
- [ ] Not really, I prefer to just check my phone often
- [x] Yes, I have a phone stand

10, In which of the following ways would you consider let us help you to get directions through?

- [ ] Through better vision
- [ ] Through audio — it's hard to hear things on the road sometimes / when at higher speed
- [x] Through haptic feeling
- [x] Something else

PERSONA

WORK AND TRAVEL

BASIC

"I Ride to get to work but also around the city, I always ride"

Jorden, 26, Tel Aviv

OPINION

"I ride my scooter every day to work, I navigate mainly after work to meet friends and run some errands."

" Navigation is a big part of my daily routine especially because not on every road your allowed to ride a scooter, therefore I prefer to check Maps every few minutes. I know it's a bit risky but I stop my scooter most times."

REASONS FOR ME TO ENGAGE WITH YOU

, I ride daily around the city, I always use the navigation if I'm not familiar with the route.

2, I sometimes get confused while riding especially during the day when it's hard to see the screen when I'm dazzled.

3, I don't always feel safe to stop and check my phone while riding, it's not an ideal solution.

REASONS FOR ME NOT TO ENGAGE WITH YOU

1, I already have a phone.

2, I'm not always good with complicated technology evolving.

3,

MY EXPERIENCE

" Since TLV is a small city, I usually get from point A to B within 15 min maximum, I do tend to stop between 1 to 2 times to check the routes. most times I'm not in a rush so I'm fine with stopping, but eventually, time is money, and renting a scooter is super convenient to get around but not the cheapest."

MY PERSONALITY

extrovert		introvert
sensing		intuition
judgeing		perceiving

MY PREFERENCE

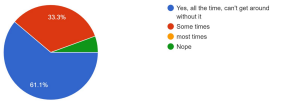
I always wear a helmet. I usually listen to instructions but sometimes it's a delay, therefore I check my phone if I have a place to stop. I prefer not to look at my phone while riding but most times I have no choice. I wish for a continuous ride.

MY GEARS

I rent "Bird" scooter
Wearing: helmet, airpods, Leptop bag

4, Do you use your smartphone for navigation while riding?

18 responses



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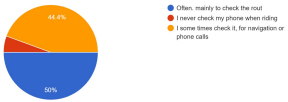

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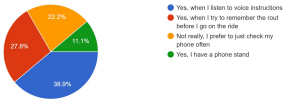
18 responses



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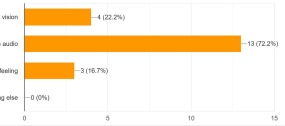
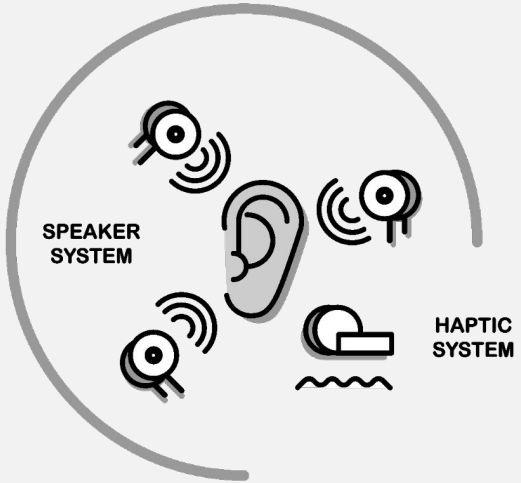
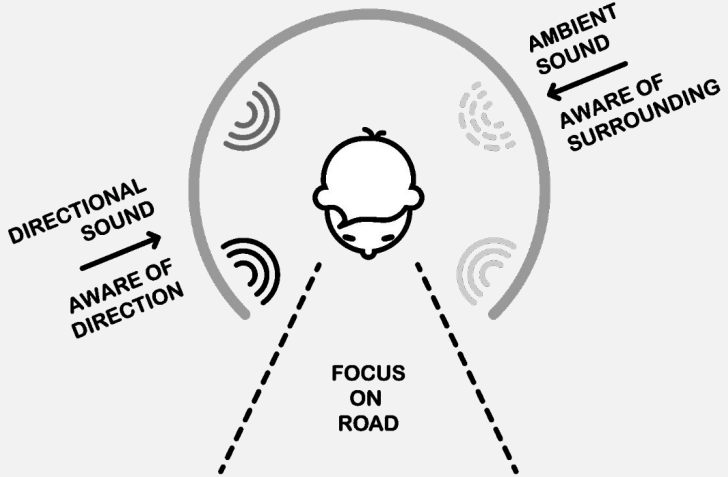
18 responses

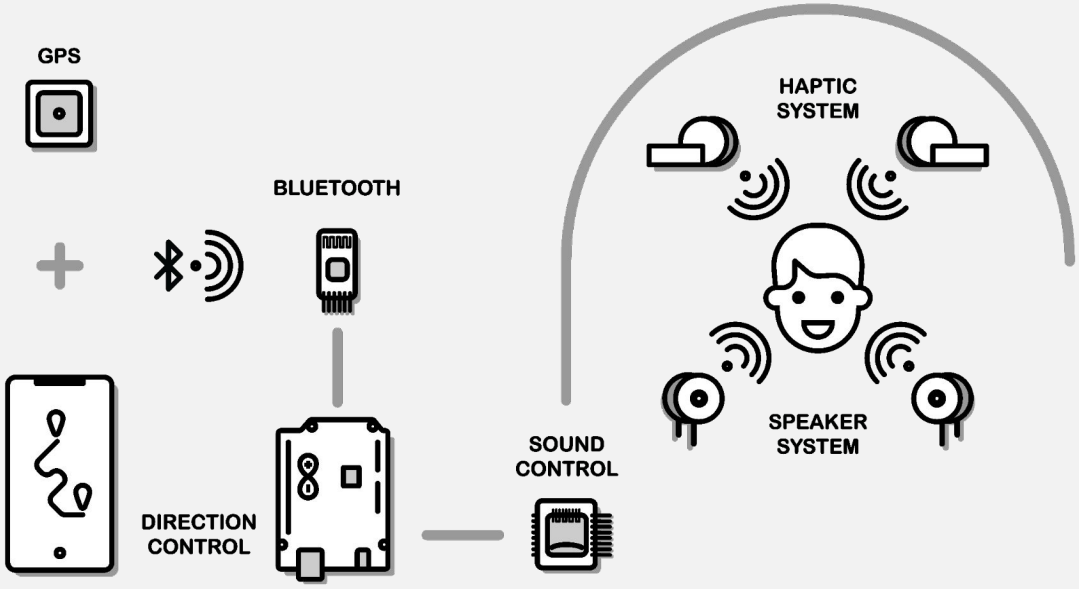


CONCEPT / RESEARCH

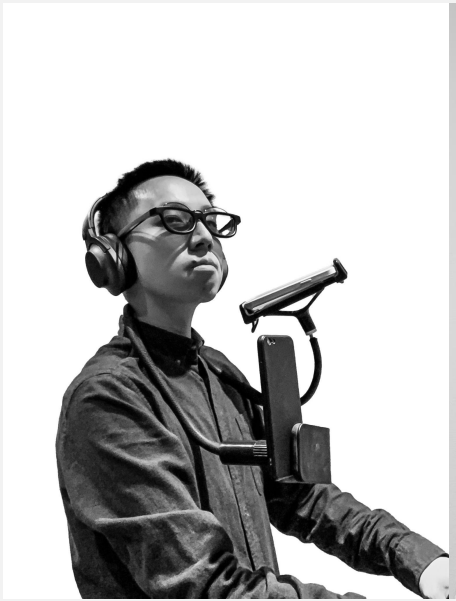


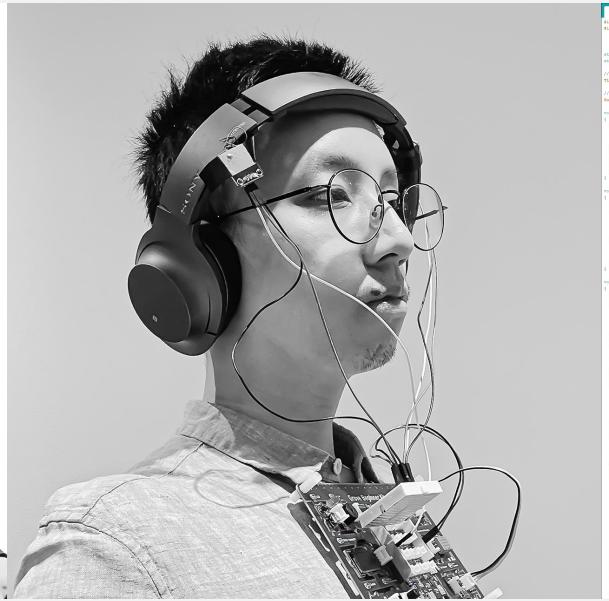


PROTOTYPE 1.0 / PLAN



PROTOTYPE 1.0 / EXPERIMENT

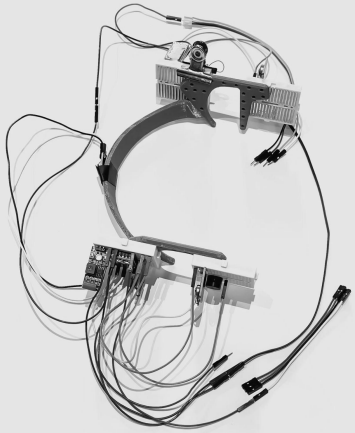


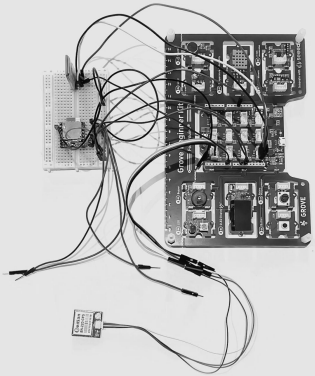


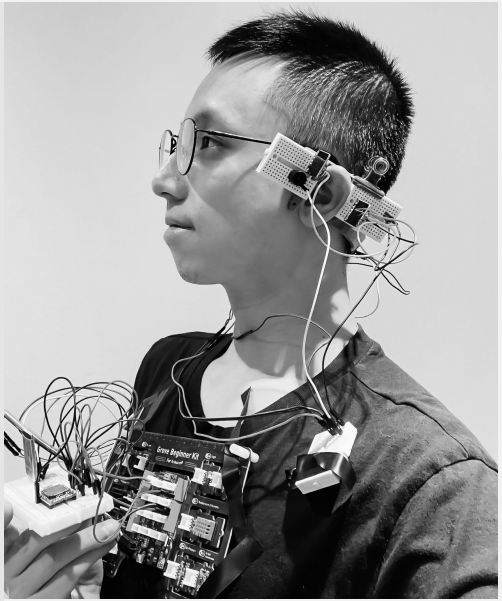
```
DeviceExample
#include <TinyGPS++.h>
#include <SoftwareSerial.h>

   A very basic serial GPS device hooked up on pins 4(rx) and 3(tx).

static const int RXPin = 4, TXPin = 3;
static const uint32_t GPSBaud = 9600;

// The TinyGPS++ object
TinyGPSPlus gps;

// The serial connection to the GPS device
SoftwareSerial ss(RXPin, TXPin);

void setup()
{
  Serial.begin(115200);
  ss.begin(GPSBaud);

  Serial.println(F("DeviceExample.ino"));
  Serial.println(F("A simple demonstration of TinyGPS++ with an attached GPS module"));
  Serial.print(F("Testing TinyGPS++ library v. "));  Serial.println(TinyGPSPlus::libraryVersion());
  Serial.println(F("by Mikal Hart"));
  Serial.println();
}

void loop()
{
  // This sketch displays information every time a new sentence is correctly encoded.
  while (ss.available() > 0)
    if (gps.encode(ss.read()))
      displayInfo();

  if (millis() > 5000 && gps.charsProcessed() < 10)
  {
    Serial.println(F("No GPS detected: check wiring."));
    while(true);
  }
}

void displayInfo()
{
  Serial.print(F("Location: "));
  if (gps.location.isValid())
  {
    Serial.print(gps.location.lat(), 6);
    Serial.print(F(","));
    Serial.print(gps.location.lng(), 6);
  }
  else
  {
    Serial.print(F("INVALID"));
  }

  Serial.print(F("  Date/Time: "));
  if (gps.date.isValid())
  {
    Serial.print(gps.date.month());
    Serial.print(F("/"));
    Serial.print(gps.date.day());
    Serial.print(F("/"));
    Serial.print(gps.date.year());
  }
  else
  {
    Serial.print(F("INVALID"));
  }

  Serial.print(F(" "));
  if (gps.time.isValid())
  {
    if (gps.time.hour() < 10) Serial.print(F("0"));
    Serial.print(gps.time.hour());
    Serial.print(F(":"));
    if (gps.time.minute() < 10) Serial.print(F("0"));
    Serial.print(gps.time.minute());
    Serial.print(F(":"));
    if (gps.time.second() < 10) Serial.print(F("0"));
    Serial.print(gps.time.second());
    Serial.print(F("."));
    if (gps.time.centisecond() < 10) Serial.print(F("0"));
    Serial.print(gps.time.centisecond());
  }
  else
  {
    Serial.print(F("INVALID"));
  }

  Serial.println();
```

```
LIS3DHTR_AcceleratorReadings
#include "LIS3DHTR.h"
#include <Wire.h>
LIS3DHTR<TwoWire> LIS; //IIC
#define WIRE Wire

int SpkL_pin=3;
int SpkR_pin=9;

void setup()
{
  Serial.begin(115200);
  while (!Serial)
  {
  };
  LIS.begin(WIRE, LIS3DHTR_ADDRESS_UPDATED); //IIC init
  delay(100);
  LIS.setOutputDataRate(LIS3DHTR_DATARATE_200HZ);
  LIS.setHighSolution(1);

  pinMode(SpkL_pin, OUTPUT);
  pinMode(SpkR_pin, OUTPUT);

}
void loop()
{
  if (!LIS)
  {
    Serial.println("LIS3DHTR didn't connect.");
    while (1)
      ;
    return;
  }

  Serial.print("x:"); Serial.print(LIS.getAccelerationX()); Serial.print("  ");
  Serial.print("y:"); Serial.print(LIS.getAccelerationY()); Serial.print("  ");
  Serial.print("z:"); Serial.println(LIS.getAccelerationZ());

  int Vol_L=map(LIS.getAccelerationY()*100,-100,100,255,25);
  int Vol_R=map(LIS.getAccelerationY()*-100,-100,100,255,25);
  //analogWrite(SpkR_pin,Vol_R);
  //analogWrite(SpkL_pin,Vol_L);

  if(LIS.getAccelerationY()>0){
   //analogWrite(SpkR_pin,Vol_R);
   noTone(SpkR_pin);
   noTone(SpkL_pin);
   tone(SpkR_pin,Vol_R*2);
  }
  else{
   //analogWrite(SpkL_pin,Vol_L);
   noTone(SpkR_pin);
   noTone(SpkL_pin);
   tone(SpkL_pin,Vol_L*2);
  }
```

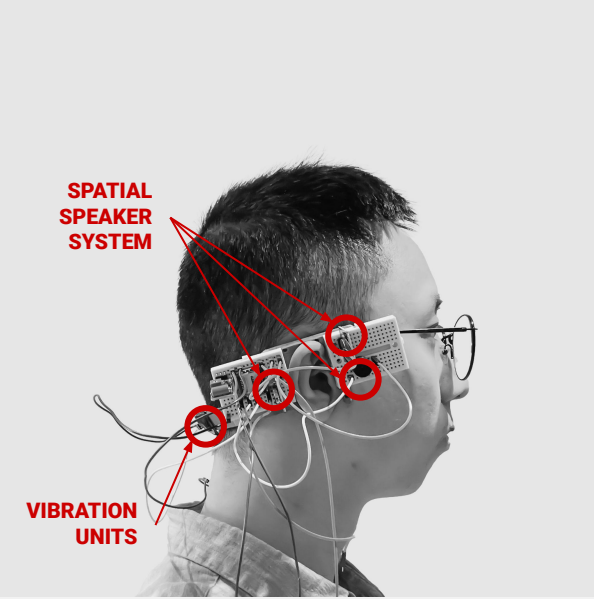
PROTOTYPE 2.0 / STRUCTURE

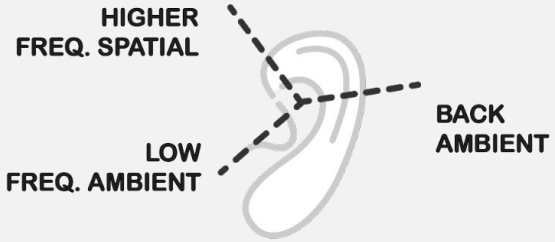




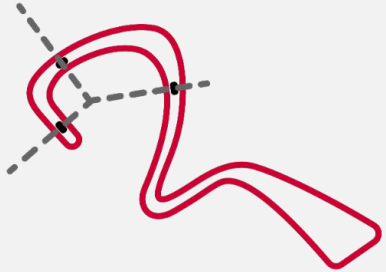


PROTOTYPE 2.0 / STRUCTURE

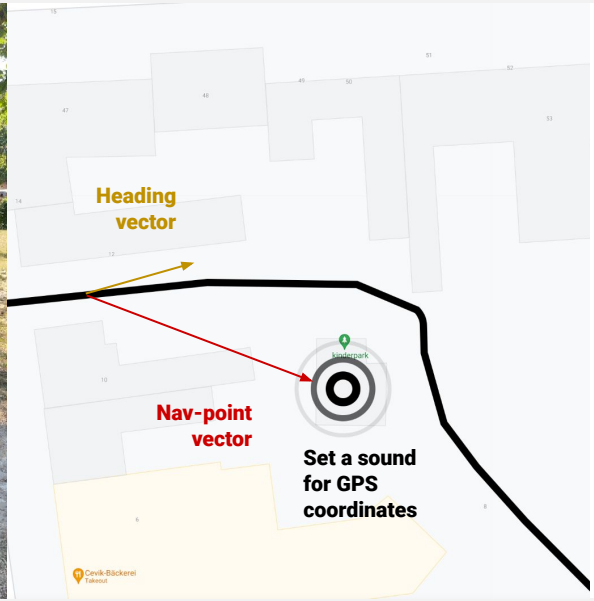


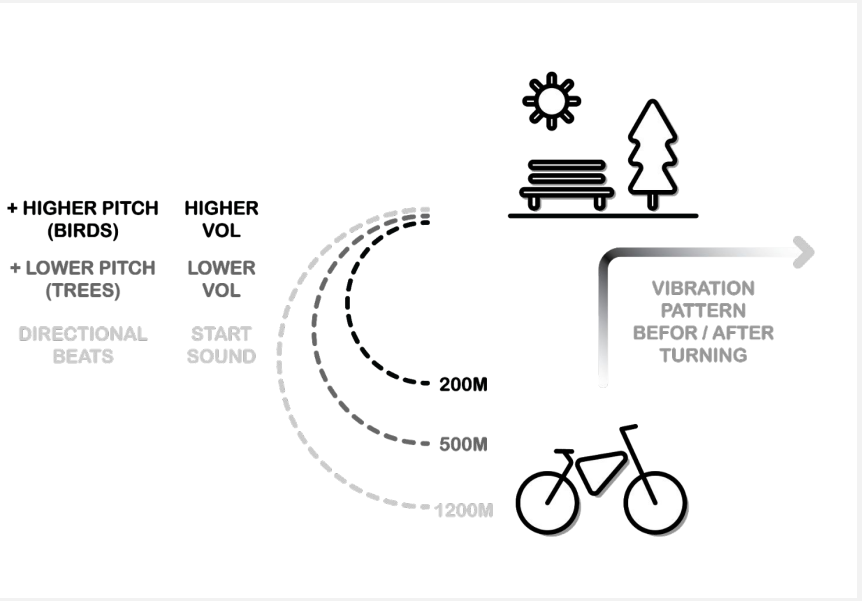


By controlling the sound properties and simulate how sound transmit into the ear, we can greatly improve our sense of direction.

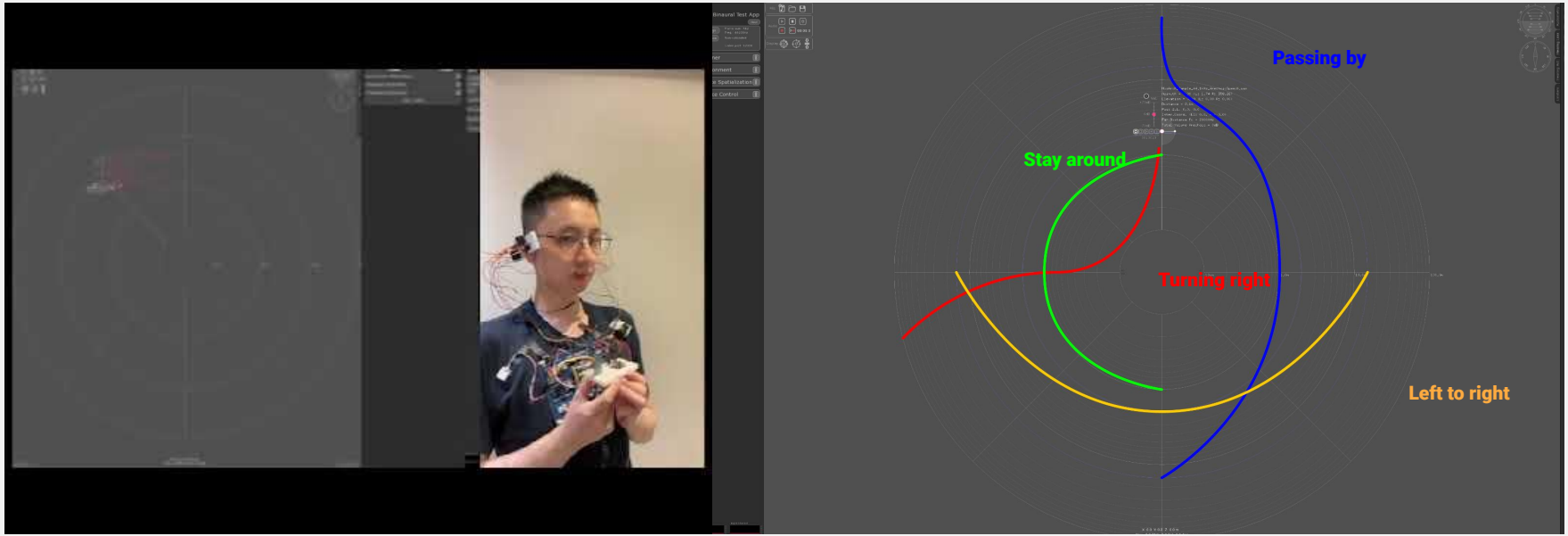


PROTOTYPE 2.0 / SOUND INTERACTION

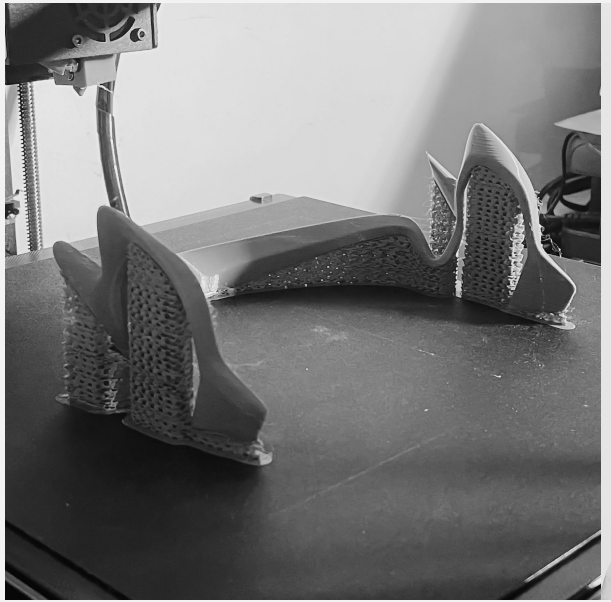




PROTOTYPE 2.0 / SOUND INTERACTION



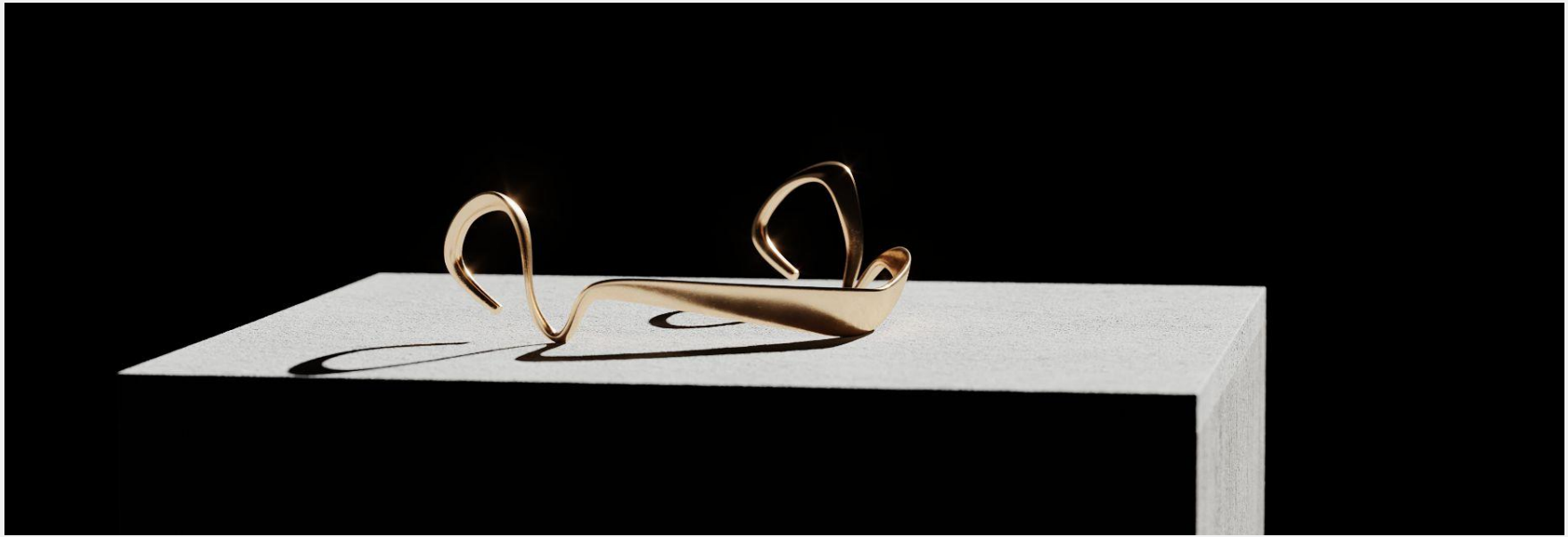
PROTOTYPE 2.0 / FORM



AN **INTEGRATED** FORM

LIGHTWEIGHT **ELEGANT**

BETTER **ERGODYNAMIC**



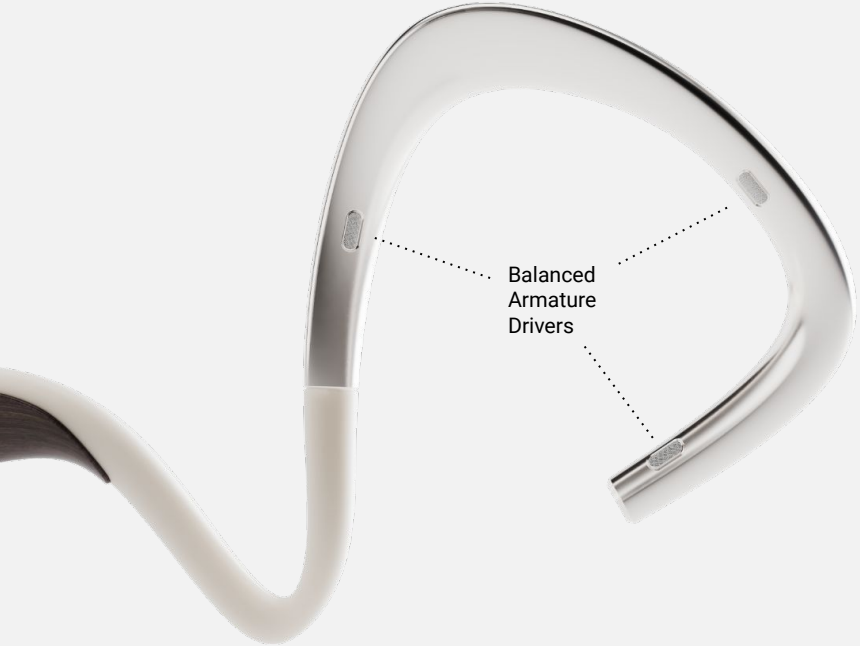
LET’S MEET

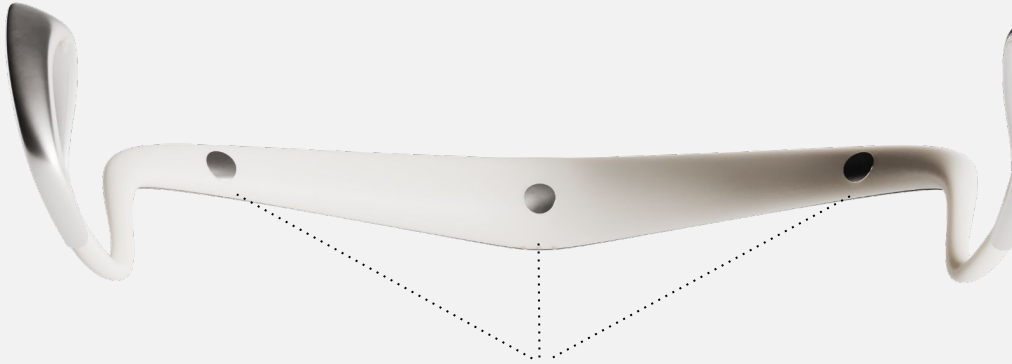
THE
CONCEPTUAL

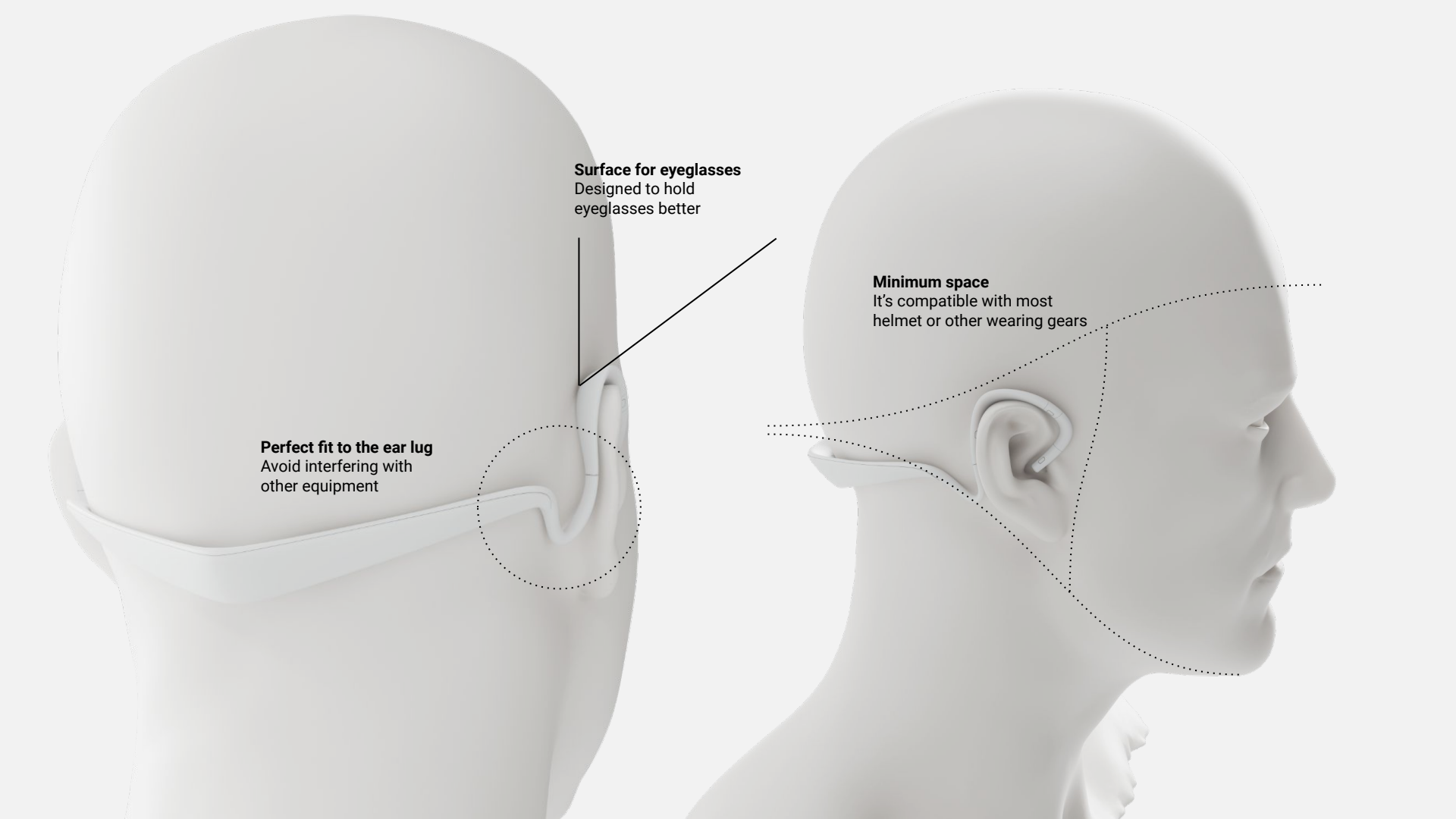
NEOM

A CHROME YOU
CAN WEAR

AN EXTENSION
TO YOUR
SENSORY


Balanced
Armature
Drivers


Surrounding Vibration Units
On a silicon frame


Surface for eyeglasses
Designed to hold
eyeglasses better
Minimum space
It's compatible with most
helmet or other wearing gears
Perfect fit to the ear lug
Avoid interfering with
other equipment

A WHOLE NEW

EXPERIENCE OF

TRAVELLING

AND

EXPLORING

PRODUCT / USAGE

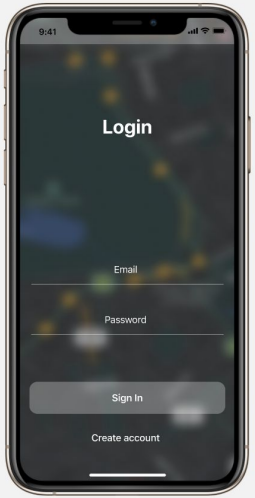
The virtual sound source

NOW YOU CAN WATCH OUR DEMO VIDEO

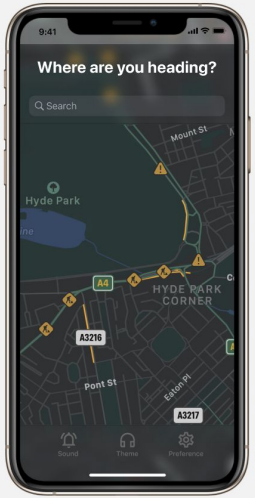
LINKS IN THE CHAT

https://www.youtube.com/watch?v=GHs1OPLeuVg

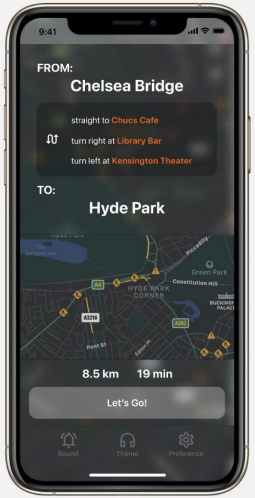
PRODUCT / INTERFACE



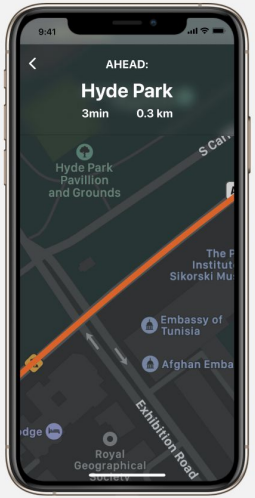
Login Page



Map Page

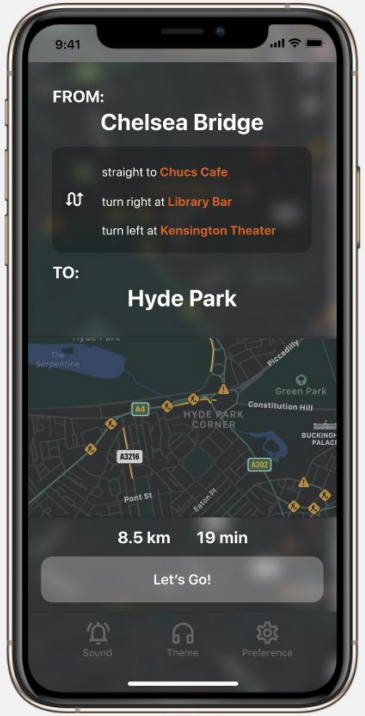


Search Page

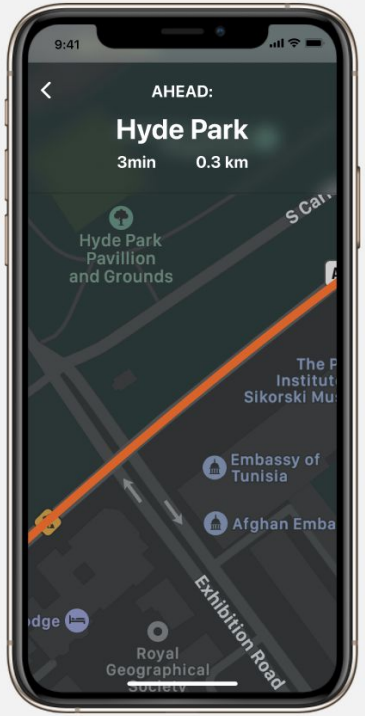


Navigation Page

PRODUCT / ROUTE SETTING

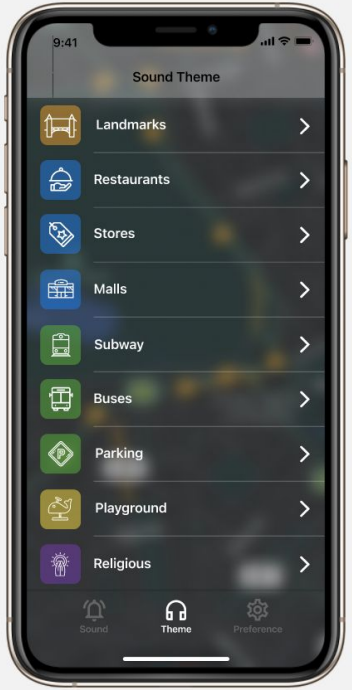


Search Page

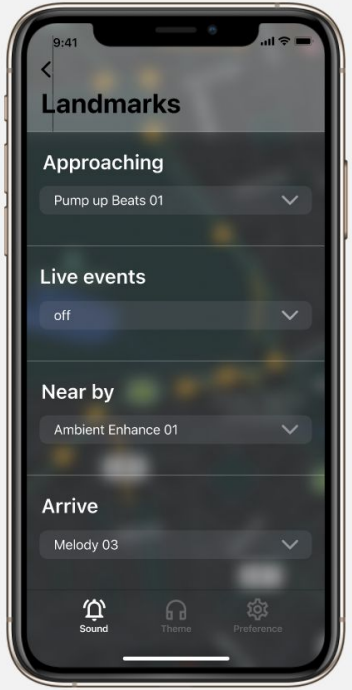


Navigation Page

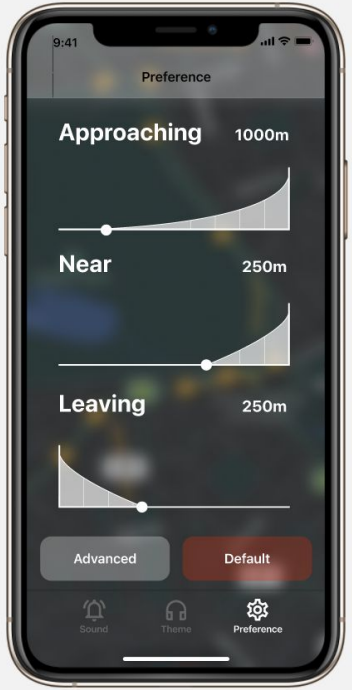
PRODUCT / SOUND SETTING



Sound Theme



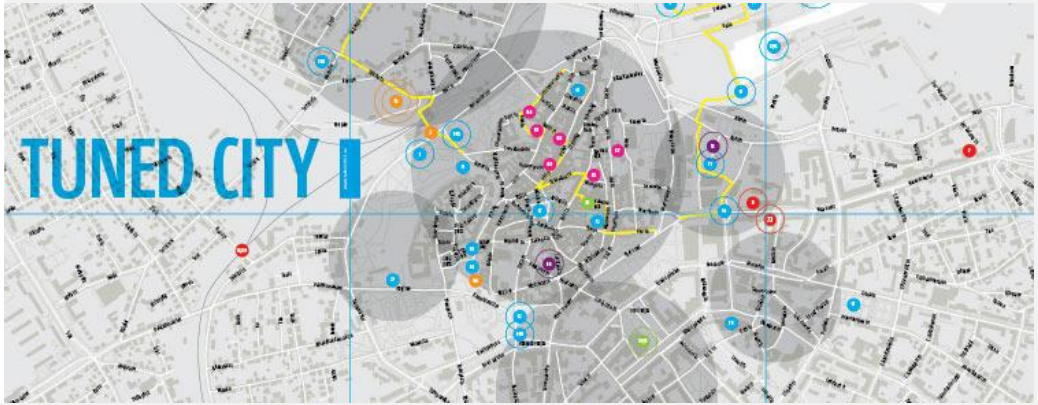
Sound Setting

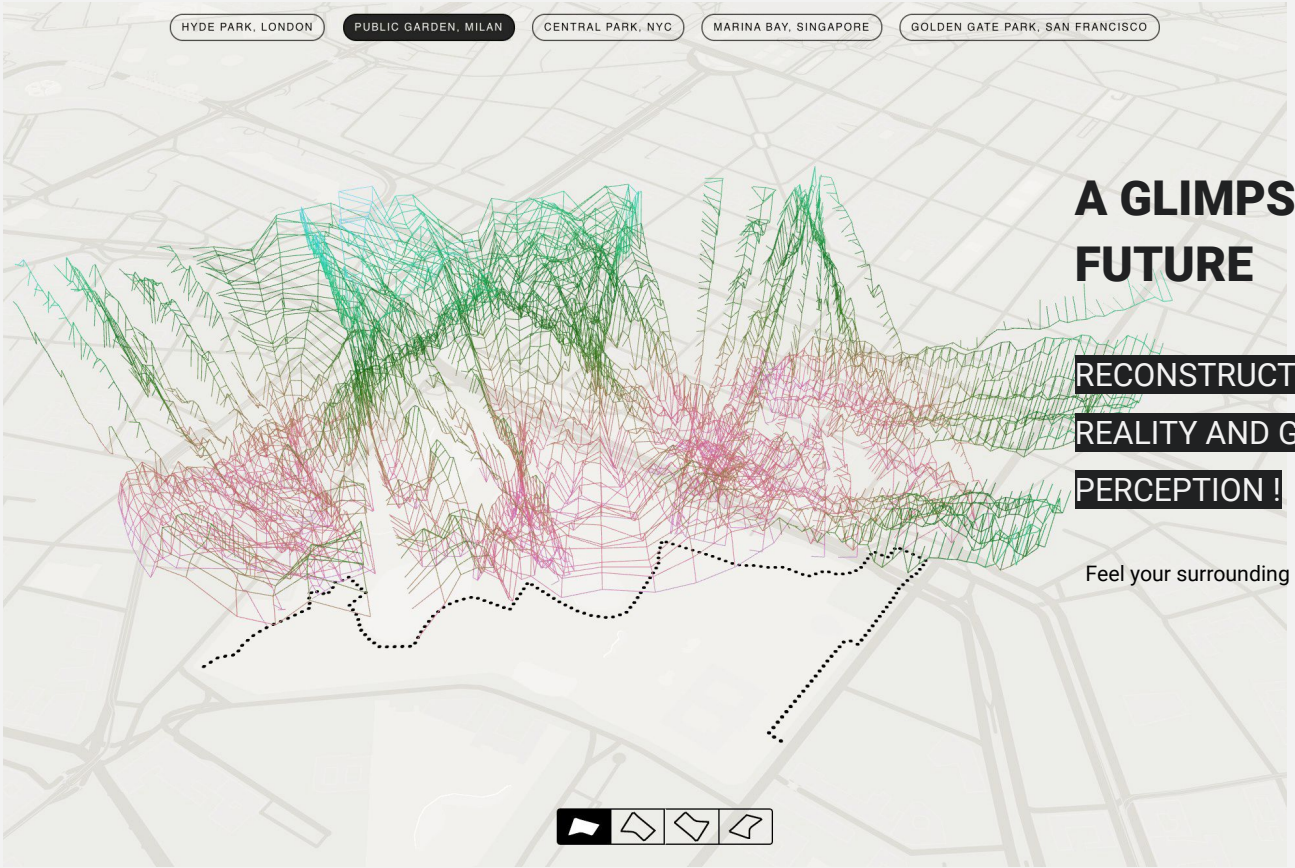


Preference

PRODUCT / SOUND LIBRARY

Cafe in Sanur on the 2nd floor with distant activity and voices, and heavy exterior traffic rumble - AB stereo, expansive.	1:21
Exterior cafe crowd with distinct voices and background traffic	0:20
Crowd in Chiang Mai at a cafe with scattered voices, quiet activity, and eating.	1:29
City ambience - restaurant cafe people talking - interior or exterior perspective - sidewalk seating - diners reacting and applauding to a group activity on the street - Cafe Louise, Boulevard St Germain.	0:35
Crowd in Chiang Mai at a cafe with women's voices, activity, chatting, eating, and an espresso machine and some English.	1:58
Ambience from the outdoor cafes near the harbour at La Maddalena, Sardinia, with voices, traffic etc 1.	3:02
Crowd in a William's cafe, medium distant voices loitering and chatting with background staff activity and plates.	1:01
Cafe ambience - indoor perspective - daytime and lunch time at a small restaurant - adults and children chatting in Hungarian and dining in a happy and light atmosphere - sounds of cutlery and dishes and wooden chair movements - Hungary.	1:59
Crowd in Chiang Mai at a cafe, sparse with hushed voices, activity, espresso machine, stools, and footsteps.	4:40
Crowd in a Thong Sala cafe, light with active voices in Italian and activity with cutlery and a frother.	3:41
Busy cafe ambience with crowd - Sweden 1.	2:35
Annecy, France - Lively bar interior atmosphere.	4:39





A GLIMPSE INTO FUTURE

RECONSTRUCT HUMAN PSYCHOLOGICAL REALITY AND GO BEYOND HUMAN PERCEPTION !

Feel your surrounding in a whole new dimension

THE END
THX

Netta Gigi

Harrison Tan

Jehyun Kim

Rex Fu

Project Ultratool / SoSe 24 . 6 . 2021