Footprints of XYZ&T

Travel time and space

Summary

1) History of Our Location technology - long experience
2) What is the All Footprints - To measure distance
3) The expansion of technology and applications - Digital Key, Indoor location, Smart Factory and Vital detect
4) Ranging Technology- Basic principle verification using actual prototype
5) Organization
6) Schedule

The technology we have

1998 — 2014 — 2019

World's first PDA with
GPS, Camera, Phone

Accuracy

World's first GPS Watch
with heart rate sensor

Low Power

World's first
GPS Solar Watch

Small

The smallest in the world
GPS Solar Caliber

Basic technology

Power

Image

0dbm (1mW) BLE(class3) transmission power Transmission range 1m

-80dBm

WiFi receiver sensitivity

-90dBm

BLE receiver sensitivity

-100dBm

1 million times small signal

GPS receiver sensitivity

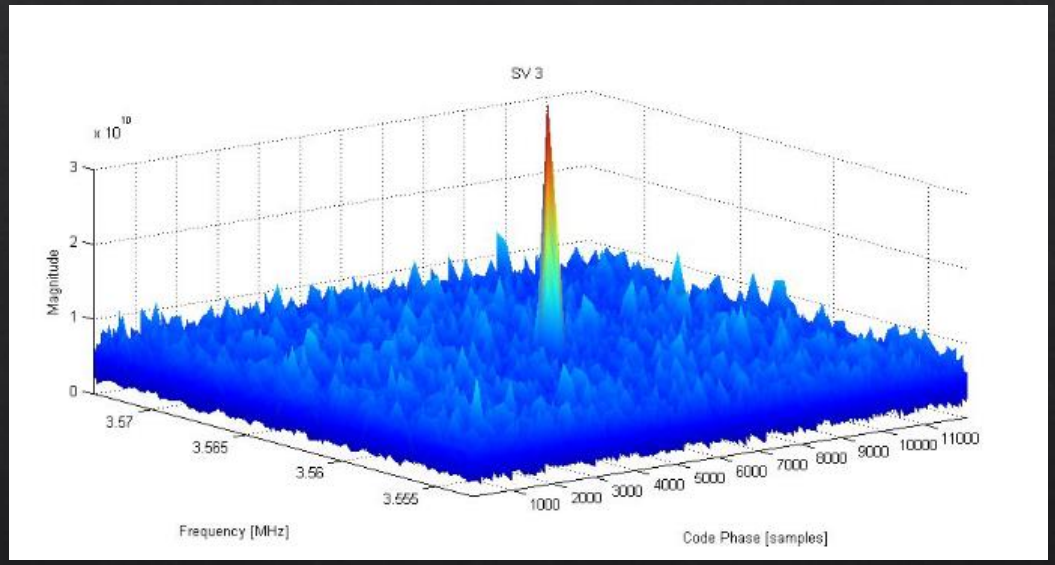
-160dBm

10 million times small signal

-166dBm

Our technology

Accumulate the extremely weak signal



The technology to extract desired signal from ultra-weak signal

What is the Footprints of XYZ&T





Track all life

X

Time

Y

Z

Track all space



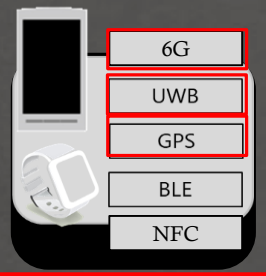


Track invisible phenomenon

The expansion of technology and XYZ&T applications

Next Generation

TeraHz wave



The world where Super big data and AI are evolved by Footprint

input

Footprint

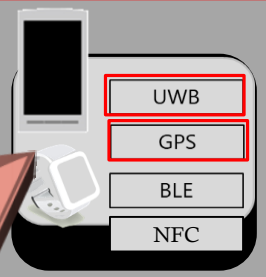
Who | What | Environment

XYZ&T

New Generation

GigaHz wave

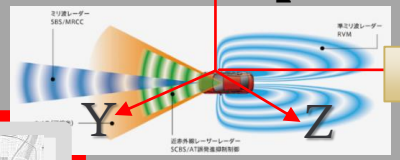
XYZ&T



- Low Power
- Long distance transmission

X

【BtoC】➡



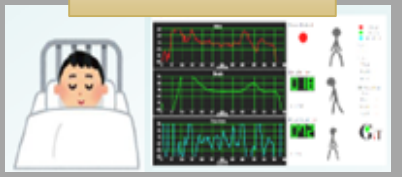
Object detection(Rear radar)

Digital Key

Indoor Location

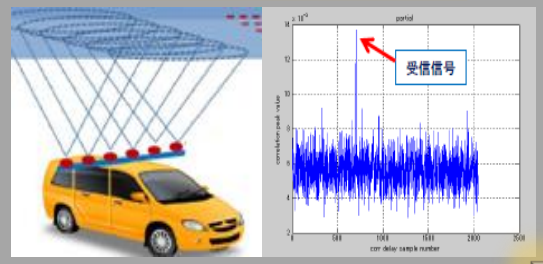
Hands free secure payment
Personalized marketing
Barea free payment

Vital sensor



Time

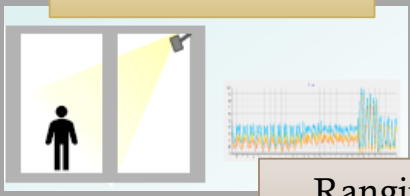
Non-destructive test



【BtoB】➡

Dust particle inspection

Detect over shield



Ranging technology

Current

MegaHz wave

省小精

Our Technology
- Low Power
- High Precision

Distance to satellite

Distance to target

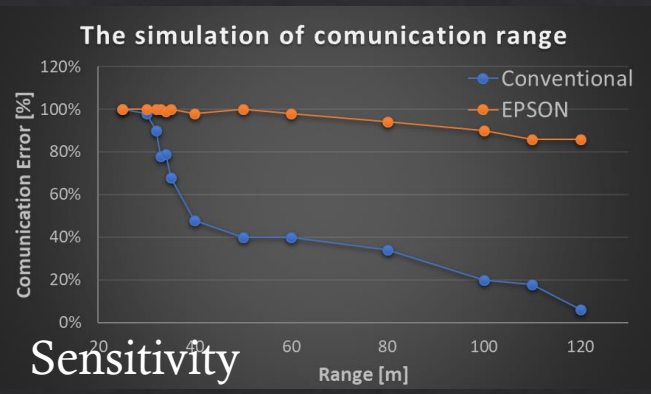
Start “XYZ&T momentum × Data business”

GPS Receiver
・Receives very weak satellite signals. High sensitivity technology.

Distance to satellite

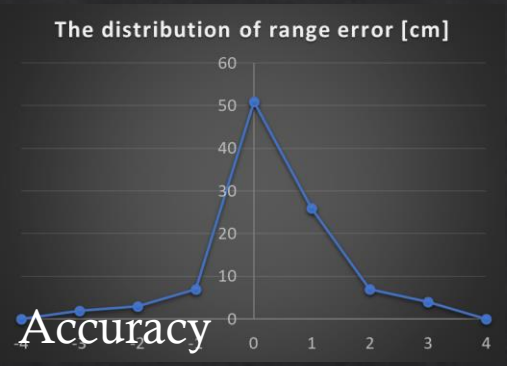
Distance to terminal

UWB Receiver
・Same basic principle with GPS.



Sensitivity

Simulate communication range and accuracy
・High sensitivity and accuracy
= Low Power

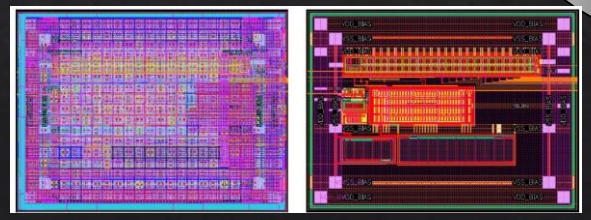


Accuracy

Design → Simulation → Prototype → We are here! → IC, Module → Design

We want to be with you

Big data analysis



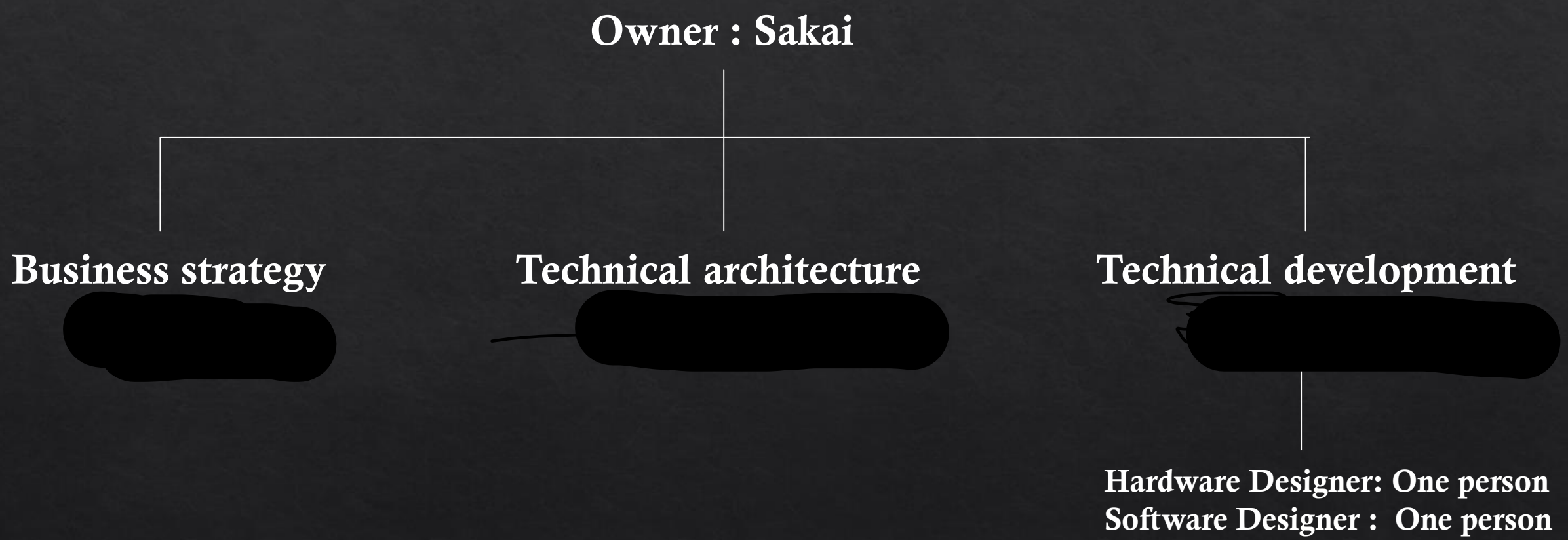
Basic layout verification

We are planning to adopt the latest technology specialized for low consumption
・Complete feasibility study with semiconductor vendor.

Basic principle verification using actual prototype

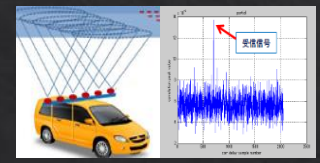
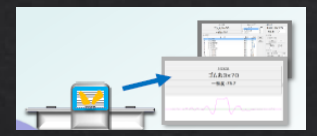
- Hardware
  Principle confirmation
- Software
  Position calculation
  IEEE compliant

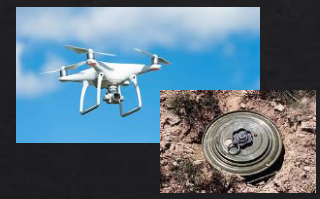
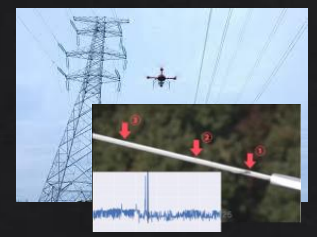
Organization



Business strategy :

Target customer	User Benefit	Solution	Technology
Road Corporation Train Corporation Building Maintenance	Easy maintenance,	Non-destructive test	Wall, Tunnel Reflection analysis
Manufacture control Agriculture shipment	Automatic detection	Non-defective judgment	Particle, Apple etc Reflection analysis
Peacekeeper, Government, NGO	Safety and Wide area demining	Non-touch sensing	Land mine Reflection analysis
Electric power company	Low cost maintenance	Cable or Noise tracing	Line defective Reflection analysis

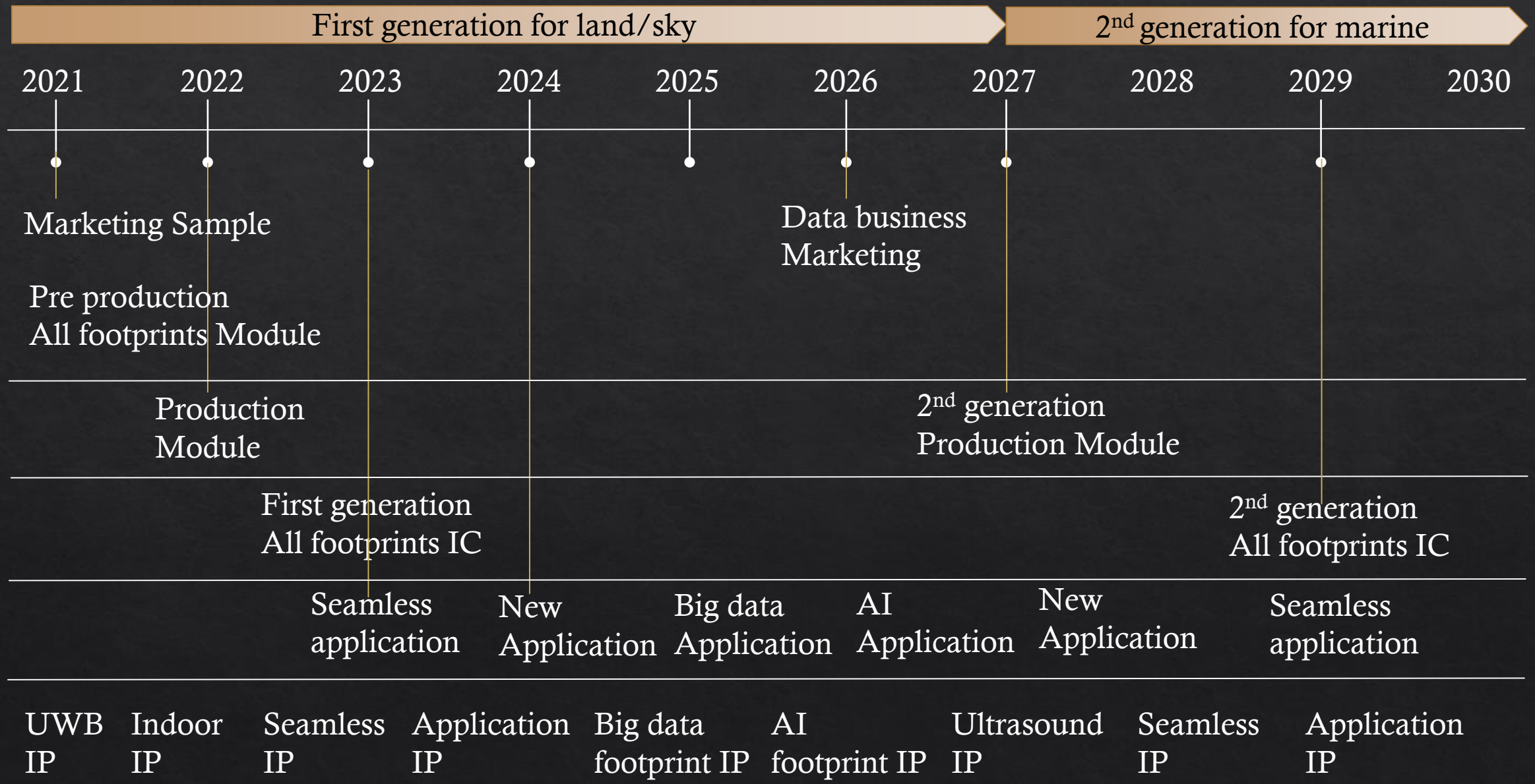



Business strategy :

Target customer	User Benefit	Solution	Technology
Smartphone maker	Key in smartphone	Digital key	Calculate distance
Smartphone maker	Secure payment	Proof of Position	Indoor location
Car maker	Efficient work	Auto tool adjustment	Calculate distance
Car maker	Car parking assist	Target poising	Indoor location

Schedule


First generation for land/sky
2nd generation for marine
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Marketing Sample
Pre production
All footprints Module
Production
Module
First generation
All footprints IC
Seamless
application
New
Application
Big data
Application
Data business
Marketing
AI
Application
2nd generation
Production Module
New
Application
2nd generation
All footprints IC
Seamless
application
UWB
IP
Indoor
IP
Seamless
IP
Application
IP
Big data
footprint IP
AI
footprint IP
Ultrasound
IP
Seamless
IP
Application
IP

Business Schedule

First generation for land/sky

2nd generation for marine

2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

Pre production
All footprints Module

Data business
Marketing

Feasibility Study

Production Module

Start B2B Business

2nd generation
Production Module

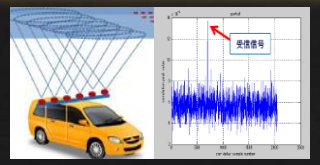
2nd generation
All footprints IC

First generation
All footprints IC

2nd Phase of B2B Business

Start Device Business

For
・Non-destructive test
・Non-defective judgment



For SmartPhhoe

For Car

For with Big data analysis
・Non-destructive test
・Non-defective judgment

END