



/hae-kohzae/

# Crafting life-care widgets.

To live with greater agility and freedom.

### Achievements

360,000+ Non-equity funding (HK\$)

331

Units ordered/sold











Official trials with 6 intl. companies









Major accolades









Major exhibitions



Patents/certifications pending

(wearable cooling technology)





Innovation Wing FACULTY OF ENGINEERING

Incubation programmes











# Our Team



An award-winning team, led by designer architects.



**Jeff Li** | Chief Operating Officer Awarded 2 scholarships from HKU Bachelors in Architecture (BAAS, HKU)





**IMAGINEX** GROUP



Mac Ju | Chief Product Officer
2-time winner of IYRADC Art and Design
Competition
Certificate in Design (Multimedia-Aided Design)
Bachelors in Architecture (BAAS, HKU)









Vito Mak | Electronics Engineer State Key Lab Research involving signal generators, oscilloscopes, and network analyzers, circuit and antenna simulation Bachelors in Electrical Engineering (BEng, HKU)







### **Advisory Board**

HAYKOZÉ

Professional support with a powerful network.





HKU Med LKS Faculty of Medicine The University of Hong Kong 香港大學李嘉誠醫學院



Prof. George Tham

BSc(Eng) (HKU), PhD (HKU) Ex-associate Dean







Dr. Parco Siu

Dean

BSc (HKLIST) MPhil (CLIHK)

BSc (HKUST), MPhil (CUHK), PhD (West Virginia), FRSB, FACSM, FECSS, FHKASMSS



# THE UNIVERSITY OF HONG KONG 香港大學 faculty of architecture 建築學院





Ar. William Tam

BA(AS), DipArch(Dist), MA, Sheffield; RIBA; ARBUK; HKIA; RAHK; PRCRA (Class 1) Qualification



Prof. Mark Tam

HBAS (Waterloo), MArch (Waterloo), MEng (MIT), Dr. Sc. (ETH Zurich)







#### Problem

Heat. Stress. Accidents...

60%+

300%

Construction workers suffered heatstroke symptoms

More work errors in 35°C+ environments

https://www.greenpeace.org/hongkong/issues/climate/press/3987 人因工程学/郭伏,钱省三主编. 2 版. 北京:机械工业出版社, 2018.

Money Loss...

Only worsening.

-\$200/hr

Salary/productivity loss from heat work-downtime



https://www.hko.gov.hk/en/cis/statistic/vhotday\_statistic.htm

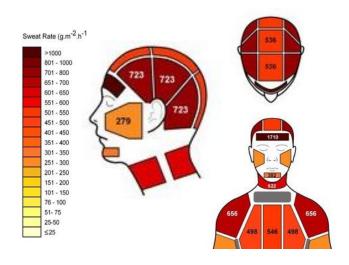
638,464 workers in HK suffering. More trouble for the employers.

https://www.censtatd.gov.hk/en/web\_table.html?id=29A

#### Problem

# Hot head

Back neck & ears: highest sweat-rate. Overheating causes heatstroke.



90%

Workers lack portable fans.





# AR 49 Contactless Biomedical Cooling Additive

# A Product of 48 Prototypes

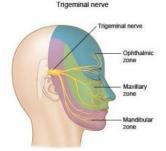




### **Targeted Hotspot Cooling**

HKU LKS Faculty of Medicine The University of Hong Kong Med 香港大學李嘉誠醫學院

Max. temp. difference -5.1°C | Avoids headache nerves ▶



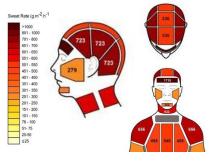


Weightless
155g | Balanced



#### Hyperduration

Up to 15hr use per charge | 2-3 working days





#### Robust

Triple-point support | Waterproof (IPX4-pending)



#### Two-click installation

Fits all helmets



### **Dual-utility**

Neck fan for off-work ▶



Aerodynamic tests: targets high-sweat regions (neck, back), avoids cold stimulus of the facial trigeminal nerve; and providing ventilation upwards and within helmet.



# R&D - Past to present





# Competitive advantage

Helmet cooling solutions









Tajima (Japan)

Taobao (China)

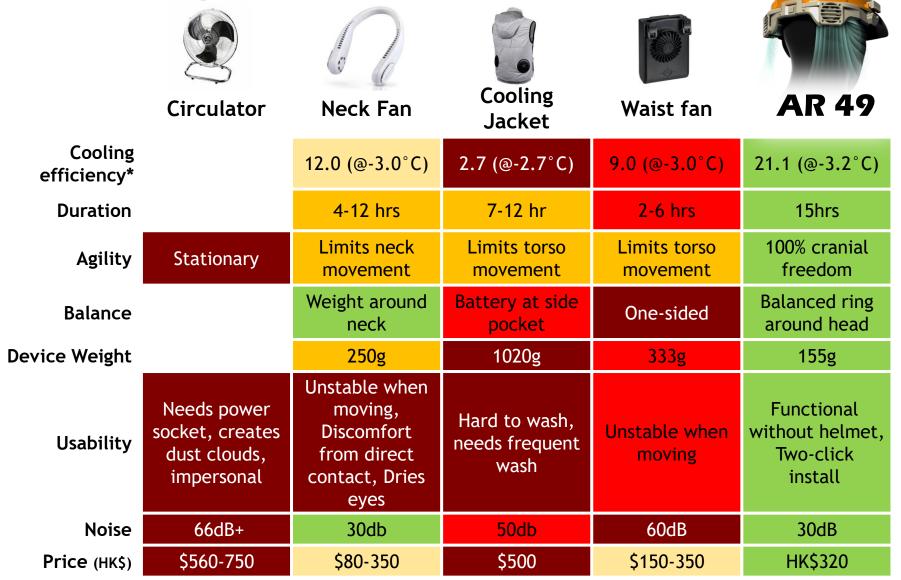
KleinTools (US)

**AR 49** 

Duration	5-12hrs	14-24hrs	8-16hrs	15hrs*
Agility	Obstructs looking up	Overweight	Extends outwards, exposed wiring	100% cranial freedom
Balance	Weight at back neck	Heavy weight at front and back	Weight at back neck	Balanced ring around head
Device Weight	305g	610g	570g	155g
Usability	Limited to helmets with specific brim	Cannot remove fan, illegal	Limited to Klein helmets	Functional without helmet, Two-click install
Noise	64dB	51dB		30dB
Price (HK\$)	HK\$1170	HK\$260-360	HK\$663	HK\$320

# Competitive advantage

Other cooling solutions



# Unique Selling Proposition





#### More targeted cooling:

1st to market in biometric cooling.

#### Best battery life to weight ratio:

15 hours (900min)/155g = 5.8min/g.

[Tajima = 2.4min/g. Taobao = 2.4min/g. KleinTools = 1.7min/g]





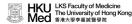
#### More multi-functional:

1st to market in dual functionality as helmet air-conditioner and neck fan.

#### More adaptable:

Proprietary Smart-locking mechanism adapts to all safety helmets.





I have reviewed the research outline presented in this document. I acknowledge and endorse the proposed approach and objectives for this research study.

Research Advisor: Prof. Parco Siu, School of Public Health, HKU



#### Medical support:

Product of 11 on-site trials, supported by professor-backed methodology in collaboration with the University of Hong Kong's Faculty of Medicine.

# Use cases



# 11 trials completed with 6 companies - to perfect the product



小蠔灣地鐵廠



九龍灣宏照道公屋



**礎石灣**污水處理廠









中國建築工程(香港) 有限公司 CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LIMITED

₩ 後和 Chun Wo



啟德簡約公屋



上水警察設施



**迦納**M&S總部



**迦納**ENI氣油公司





**331** (HK\$84,870 in value) Units sold/signed LOI



中國建築工程(香港)有限公司 CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LIMITED



FSE ENGINEERING GROUP LTD









# Target Market



\$49.2B

40%

\$19.7B

<0.01%

\$1.72m

TAM

Personal cooling device market (Global, 2025)

https://www.meticulousresearch.com/product/portableand-personal-hvac-cooling-devices-market-6212 SAM

Personal cooling device market (Asia-Pacific, 2025)

https://www.meticulousresearch.com/product/portableand-personal-hvac-cooling-devices-market-6212 SOM

Year 3



Upcoming: For workers to enjoy smart systems.







安全智慧工地系統標籤計劃 SMART SITE SAFETY SYSTEM LABELLING SCHEME

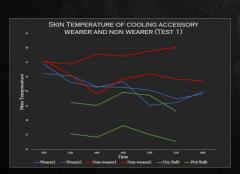




**Compatible** across CMP, site wide monitoring



Heat sensors to track worker health in heat

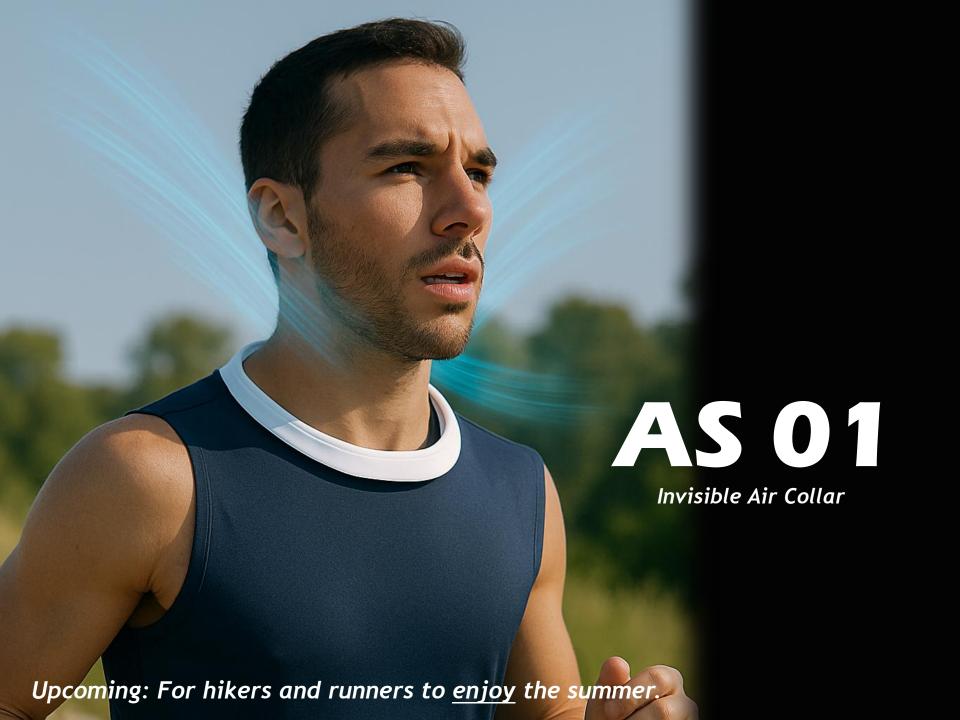


Al data analysis of worker temp fluctuation according to environment: heatstroke warnings

# **AR 50**

HAYKOZÉ

IoT-enabled
Biomedical Cooling Additive



### Revenue Model

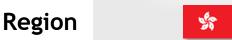


Year 2 Year 3 Year 1

**Product** 



**AR 49** 



Industry

Construction

Volume forecast

2116

~\$320/pc

Revenue<sup>1</sup>

\$677k

Pessimist's estimation





Construction, Lifestyle

3732

~\$320/pc

\$1.19m \$1.72m

3.1% of manual labors 😘 <1 in 13400 manual labors 📸





Construction, Lifestyle, Mining, Outdoor cleaning

5210

~\$320/pc

<0.01% of APAC market

Currency in (HK\$)\*

### Industry-wide value



Construction worker



Earn more from less downtime



Enjoyable working condition





Less work-halting accidents, deaths



Improve ER/EE relationship



Construction firm



HAYKOZÉ



Compliance with: Cap 5.3.3. *Heat* stroke prevention at work



Pay For Safety Scheme

Smart Site Safety Scheme (pending)



Government



Resolve tension from

heat-rest guidelines

Attract talent to solve ageing industry



Uplift futuristic industry image



Strong push for construction innovation



Recover salary, time cost \$200/hr/worker

15min/hr/worker



Gain innovation accolades, remuneration



Advantage in securing future contracts



Save costs from sped-up work



Enhance leading brand image



Advantage in hiring

# We need your support.

To free the workers from global warming.





#### **Branding**

Support in standing out from the rest



#### **Supply Chain**

Local manufacturing advice, budgeting



#### **Going International**

Critical connections to international partners (Singapore, Australia, UAE)



#### **Elevate industry standards**

heat accidents, recover lost work hours



#### Integrate IoT system

Heat sensors, CMP, track worker health



#### **Expand market**

Liberate 229m+ outdoor workers globally