

Naturanix Co., Ltd.

November 27, 2023

President & CEO Yasuki Kanazawa

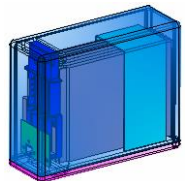
Basic Information

Company Name	Naturanix Co., Ltd.
Establish	25, May, 2015
Business content	R&D, manufacturing and sales of electrical equipment.
Address	Center of Garage, 1-16-3 Yokokawa, Sumida-ku, Tokyo, Japan.
No. of Member	7
Total amount raised	1M USD (Pre-series A)



History

●	May, 2015	Established Naturanix Co., Ltd.
●	July, 2015	Participated in Tech Venture Discovery and Development Contest in Shimane pref.
●	Jan. 2017	Received the ORIC Award in the Okayama Prefecture Business Plan Contest
●	Nov. 2019	Exhibiting BEV at Tokyo Motor Show 2019
●	Jan. 2020	Started sales of the company's first product Battery Station Ver.1.0.
●	Feb. 2021	Started sales of the company's first product Battery Station Ver.2.0.
●	May 2022	Started driving test of e-motor cycle using our battery packs in Sumida-ku, Tokyo, Japan.
●	Sep. 2022	Started research & Development of e-motor cycle using our swapping type battery packs in Bangkok, Thailand. Supported by JETRO.



Nature × Electronics = Naturanix

We realize society where Nature and Electric energy are in harmony.

Our Mission



Bangkok, Thailand

✓ Problem of e-motor cycle share business in Thailand market.

1. Out side temperature



Out side temperature is very high all year round in ASEAN area. Usually, battery pack for e-motor cycle don't have a cooling system.

Life Cycle of conventional battery pack for e-motor cycle is less than 2 year.

Therefore, battery waste is increasing in Thailand.

2. Long charging time



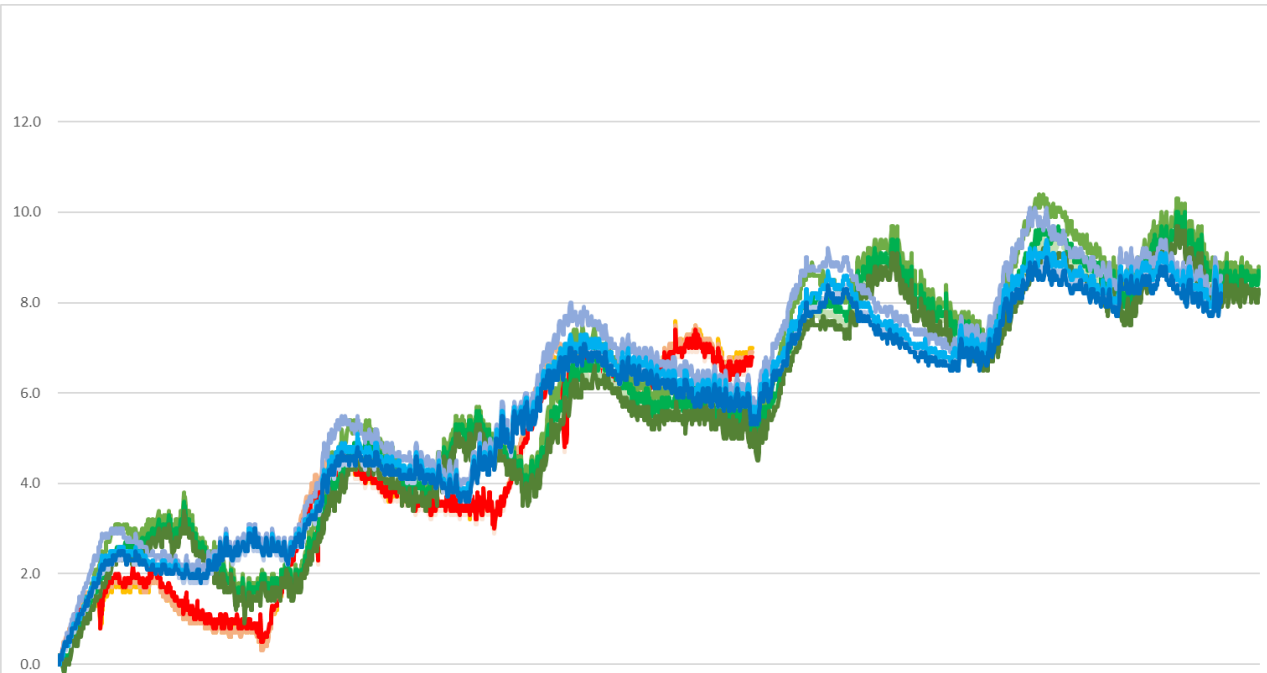
Charging time of conventional battery pack is about 2~3 hour. Conventional battery swapping system require 3 batteries per bike.

Therefore, size of conventional battery swapping system become big size. Initial cost for conventional battery swapping system is high.

One of the factors that reduce the life cycle of the battery packs

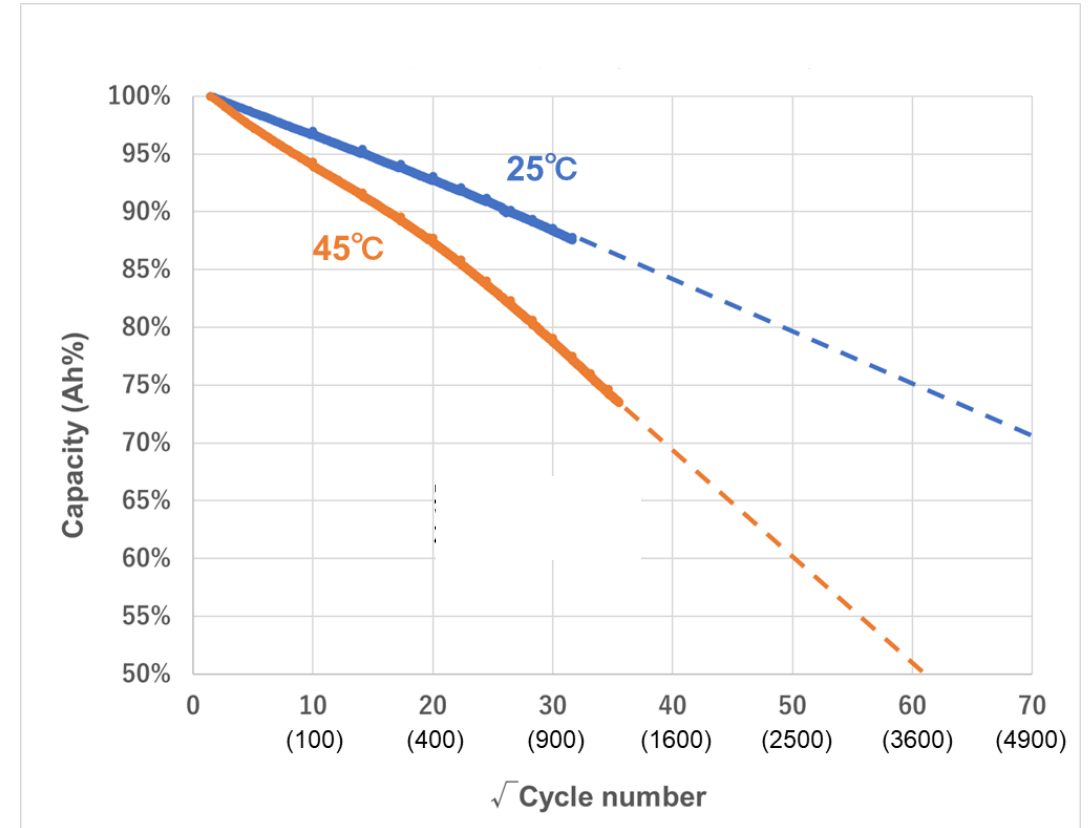
Life Cycle

Self-heating test (Charge:10C Dis:3C DOD100%)



Problem of self-heat generation
(LTO Battery Module)

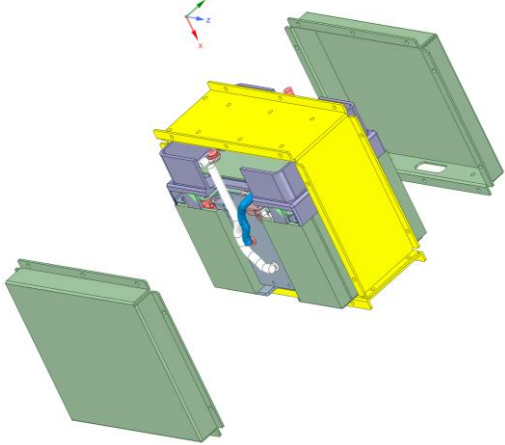
Life Cycle test (1C DOD100%)



Problem of outside temperature
(MnLiO Battery Module)

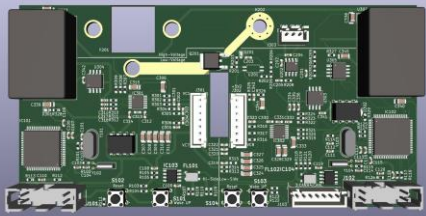
Our Solutions and benefits

Cooling system to suppress heat generation



Battery pack for high Power

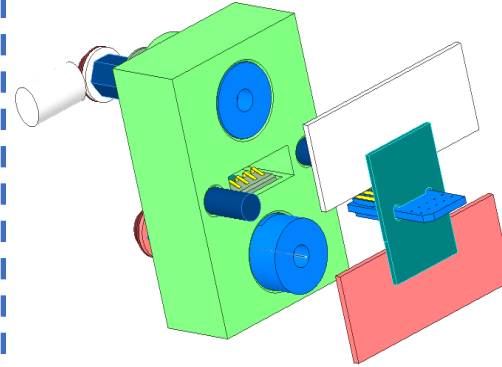
Include the air cooling system for battery cell temperature.
Cooperate with TOYOTA Group.



Battery Management System for high current

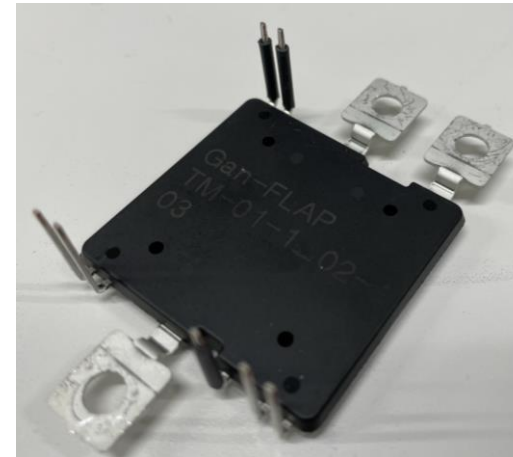
Include the safety and low power loss circuit system for high current.
Cooperate with Sony Chemical Group.

Technology to realize high current



Low impedance connector

Maintains 5mΩ impedance even after 100 thousand cycles.



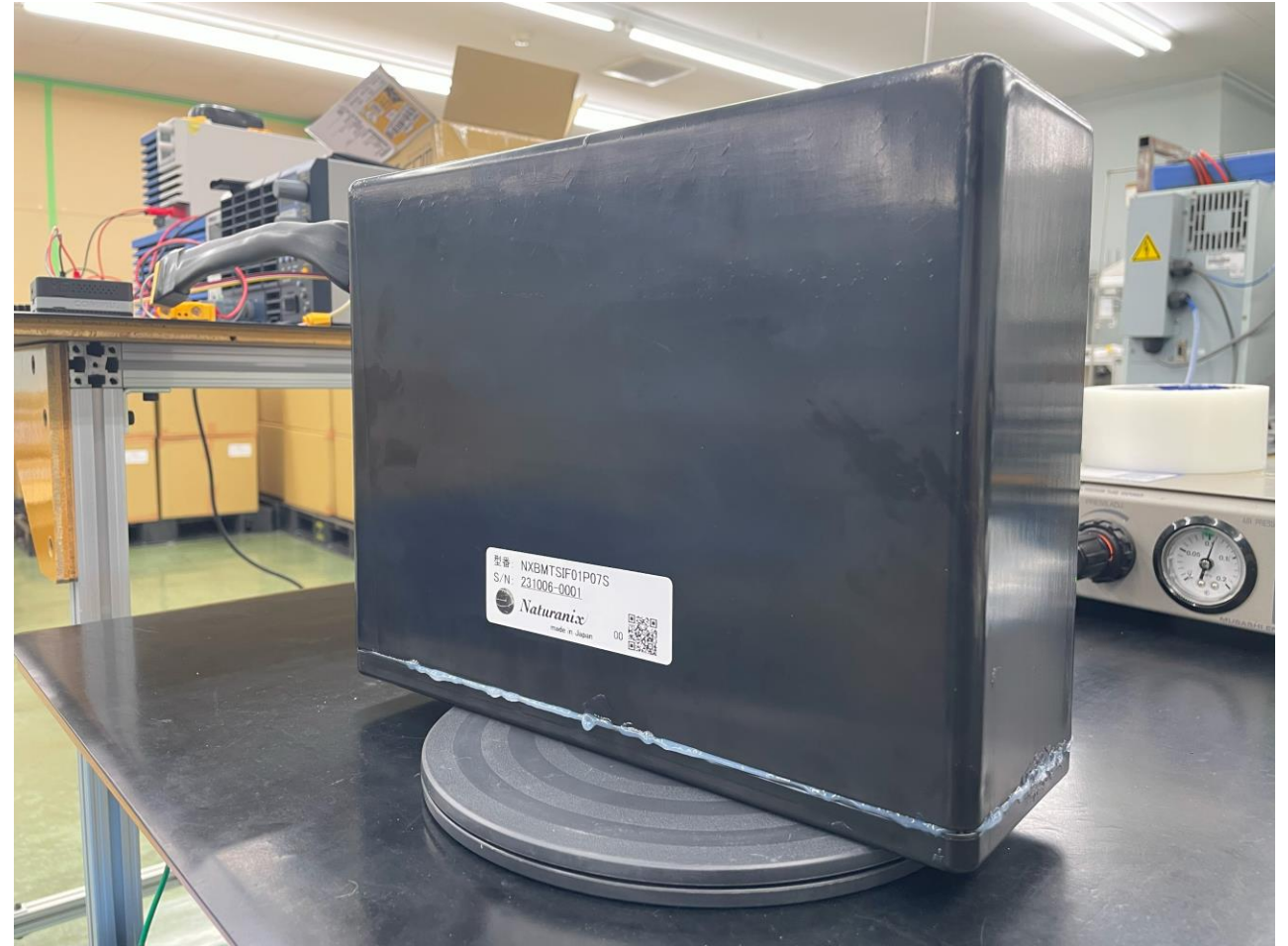
Professor Hiroshi Amano make the GaN (Blue-LED) device.
He received the Nobel Prize in 2014.

Fast Charger using GaN device

GaN device can reduce the power loss of fast chargers, lowering it up to less than 0.5%.

Our Solutions and benefits

LiMn2O4 Battery Packs	Specification
Voltage	24V
Voltage range	21V~28V
Capacity	30Ah
Charging time	<u>15min. (MAX)</u>
Operating Temperature	-10°C~45°C
Life Cycle	<u>10,000 Cycle (About 10Year)</u>
Communication	CAN, RS-485
Protection	Over Voltage, Current, temperature Cell balance error
Size & Wight	81.7mm × 263mm × 285mm, 5kg



Battery Packs comparison table

Battery Packs	Voltage	Cost	Life Cycle	Operating Temperature	Energy Density	Charging time	Other information
Our LiMn2O4 Packs	3.8V	◎	10k	-10°C~45°C	△	15min.	<ul style="list-style-type: none"> For Fast Charging Mn is cheap material. Japan original recipe. Naturanix used it.
Other LiNiO2 Packs	3.6V	△	2k	0°C~40°C	◎	4hour.	<ul style="list-style-type: none"> Can't Fast Charging Using the rare metal
Other NMC Packs	3.6V	○	0.8k	0°C~40°C	○	4hour.	<ul style="list-style-type: none"> Can't Fast Charging Mass Market world wide
Other LiFePO4 Packs	3.2V	◎	2k	-10°C~45°C	△	1hour.	<ul style="list-style-type: none"> Can't Fast Charging Mass Market world wide
Our LTO Packs	2.4V	×	100k	-30°C~60°C	×	3min.	<ul style="list-style-type: none"> For Fast Charging Using the rare metal Japan original recipe. Naturanix used it.

Competition analysis and advantage



Conventional Swapping System	VS	Naturanix Swapping System
2~3 hour	Charging time	<u>15 min.</u>
2 year	Life Cycle of Battery Pack	<u>10 year</u>
◎	Energy density of Battery Pack	◎
-10~45[deg.]	Operating Temperature	-10~45[deg.]
×	Cooling system	◎
×	Initial Cost Running Cost	◎



Driving Test of e-motor cycle using our battery packs in Thailand



We will install Naturanix Batteries into EV motorcycle And develop a leasing business in Thailand.

- Naturanix Battery : 15min charging/compact size/Long life(10years)
- Target : Bike Taxi Driver
- Start time : February, 2024



Our partner company operates a parking lot business in Bangkok.



- This company operates **30 parking** lots in Bangkok.
- This company has parking lot management know-how.



- ✓ easy management (profit distribution/rent management)
- ✓ Parking record
 - Car entry and exit times, Number of units
 - Fee calculation, car license plate, surveillance camera
- ✓ Distribute reports regularly

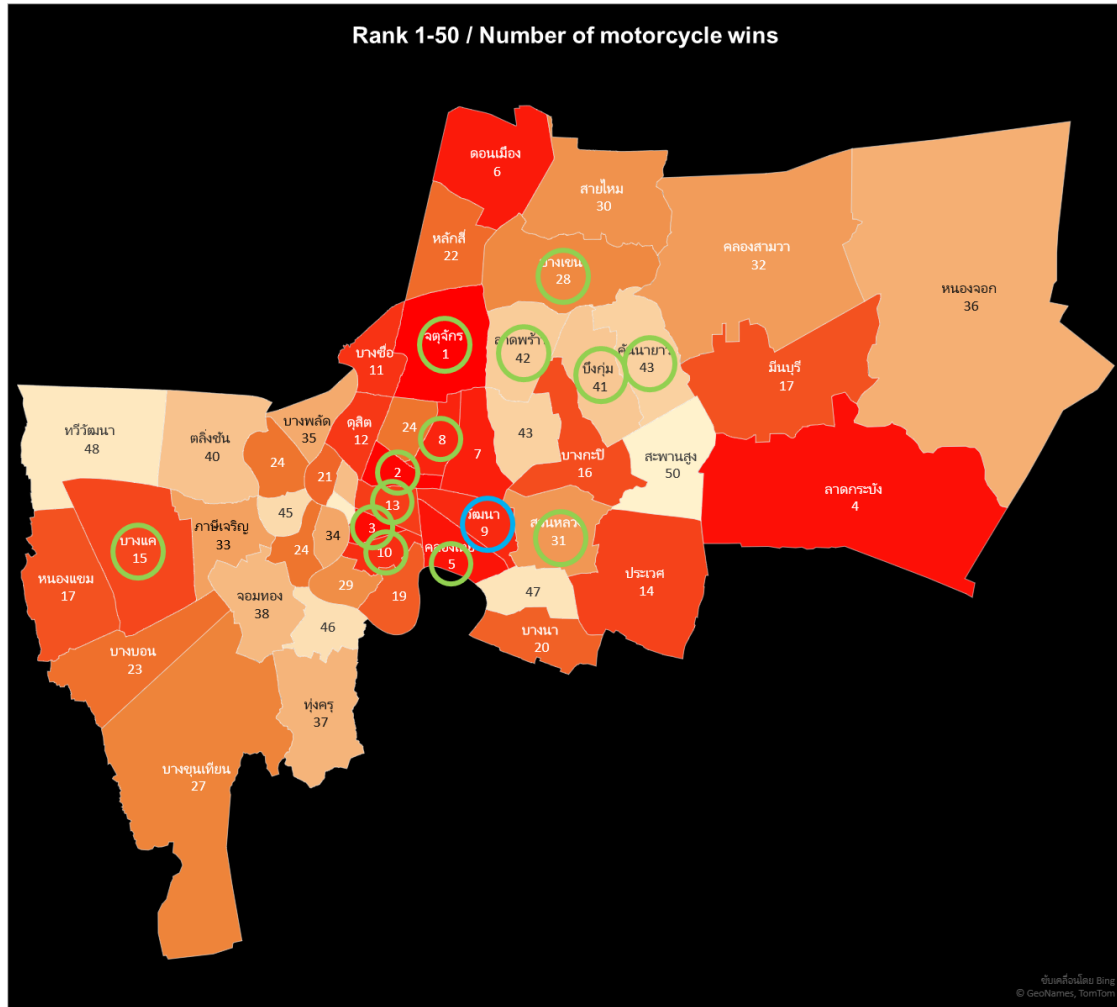


LOCO Wallet pay OK!

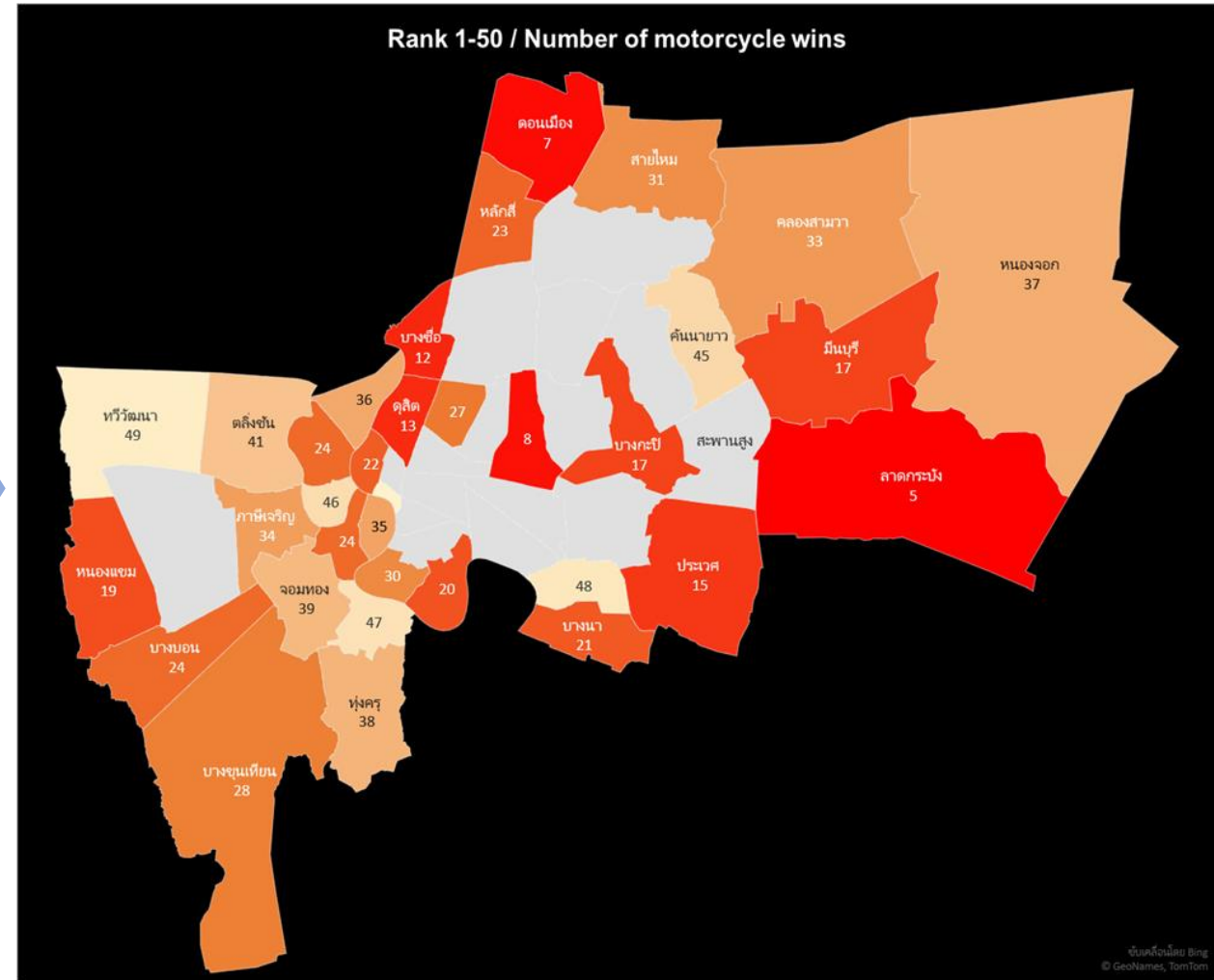


Thailand EV motorcycle business

2023Y (○) 、2024Y (○)



2025Y~、Expanding outside the center



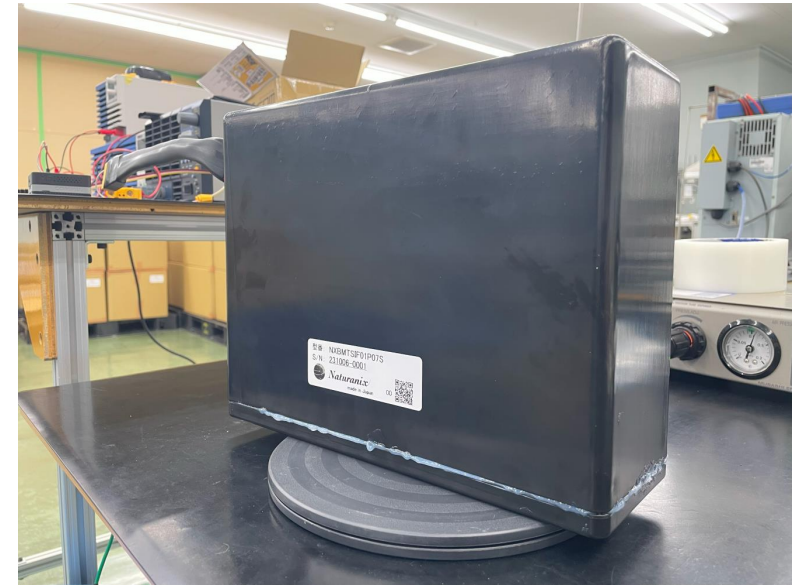
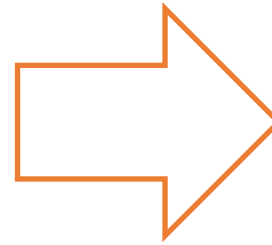
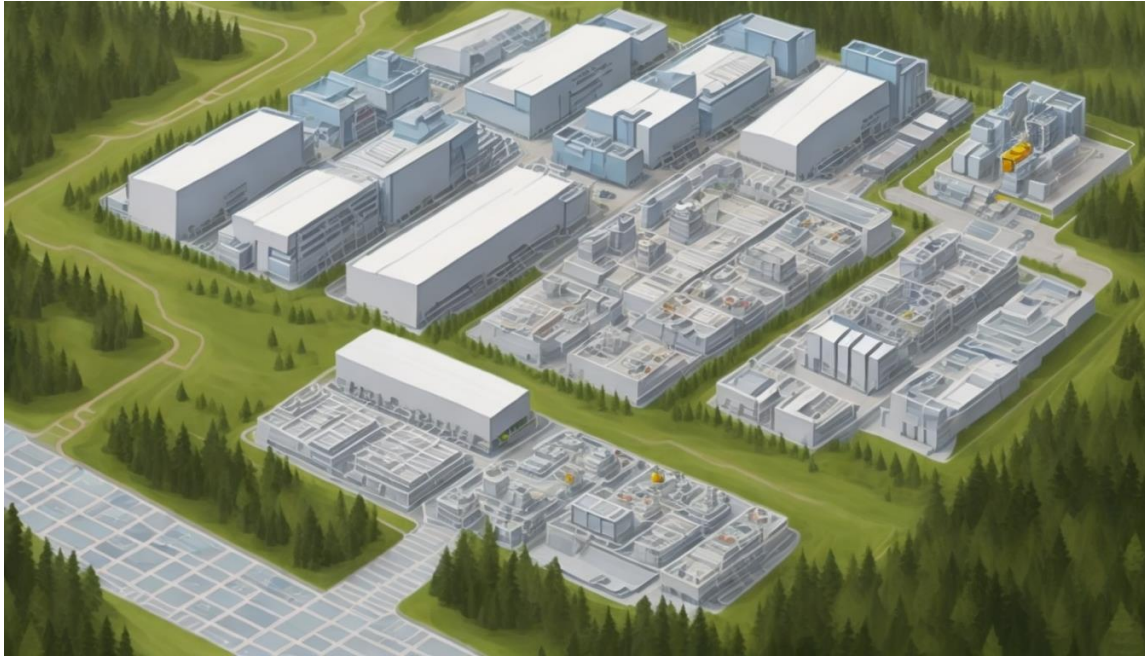
We aim to achieve the following goals by 2027



- **5,000 EV motorcycle rentals**
- **200 charging stations**



Future Plan of Battery Packs in Thailand.



**In 2024 Autumn:
Our company will establish
the battery ASSY factory for
e-mobility in Thailand.**

**We are holding the investment
round A until Feb, 2024
in Japan & Thailand.**

Naturanix member



Yasuki Kanazawa
(President & CEO)



Toshiyuki Daidoji
(CFO)



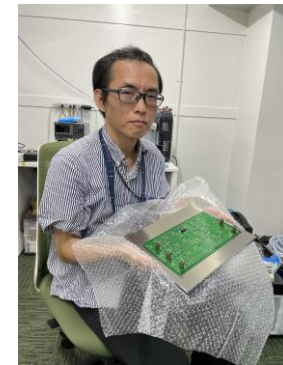
Hiroshi Yamaguchi
(General Manager)



Kazuhiro Nishihara
(Product Manager)



Tsunenori Furuhashi
(Engineer)



Takashi Sawada
(Engineer)



Risa Ohashi
(General Affairs)



Founders





Naturanix

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