



# Achieving Intelligent Robotic Application for C&I and Utility-Scale Solar in KSA

Bruce Wang, Founder & CEO  
Feb 19<sup>th</sup>, 2025



# Agenda

1

About LEAPTING

2

Market Opportunity

3

LEAPTING Solution







01

# About LEAPTING



# 01 About LEAPTING



**LEAPTING TECHNOLOGY** is a high-tech enterprise specializing in the **R&D, Manufacturing, Sales, and Service of intelligent automation robots** for the photovoltaic energy field.

As one of the industry's leading suppliers, we take **AI and digital twin as the core technology**, and combine IoT, and big data analysis to provide photovoltaic power stations with high-performance, high-quality, cost-effective personalized robot solutions.





## 02 MILESTONE



### 2022

**JUL**

Huzhou Leapting was established

**OCT**

Set up R&D and Operation Center in Shanghai

**DEC**

Completed the 1<sup>st</sup> prototype of **G2** cleaning robot & BIPV robot

### 2023

**FEB**

Won the 2022 "Solar Energy Cup" most potential growth award by SOLARBE

**OCT**

- G1 cleaning robot signed a total of more than **2GW** in overseas market.
- Completed Series A+ Financing of tens of millions of RMB, and completed 3 rounds of financing in one year

**NOV**

**MIR** (module inspection robot) released for global market

### 2024

**JAN**

**MIR** Won The "Excellence Award" by INPUT2

**FEB**

**MIR** & MMR (module mounting robot) dispatched to oversea project sites

**Apr**

**G1** cleaning robot signed 4GW project.

**G2** cleaning robot signed 500MW project



## 03 MANUFACTURING CENTER



The annual production volume includes:



**20,000** G1 cleaning robots, **200** MIR robots,  
**200** G2 cleaning robots and **100** MMR robots.



## 04 DEPLOY GLOBAL

### Global Presence

Integrating global resources, developing global business and forging global competitiveness



4+1 Service Centers



All time zones covered



24/7 service

Manufacturing Bases: [Huzhou, China](#)

Branches: [2](#)

REP: [2](#)





### Founder & CEO

- Convenor of IEC standard committee
- Nearly 20 years experience in solar industry
- Lead the R&D of tracker technology.
- Global shipment over 30GW  
( 8% market share of tracker in the world)

### R&D Professionals

100%

bachelor degree  
and above

33%

Master degree

10%

Phd degree

25%

Solar Specialists



## 20

Inventions

## 110<sup>+</sup>

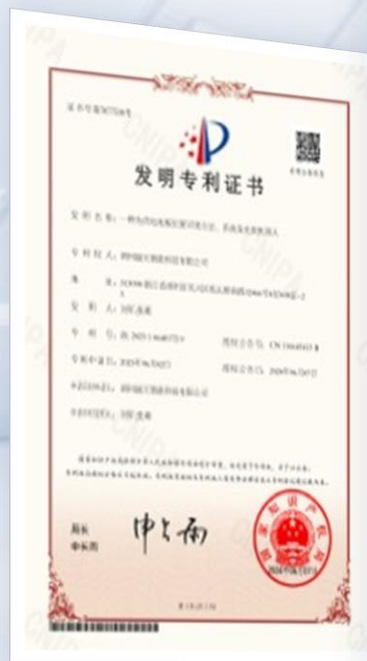
Invention Application

## 60

Utilities

## 230<sup>+</sup>

Utility Application

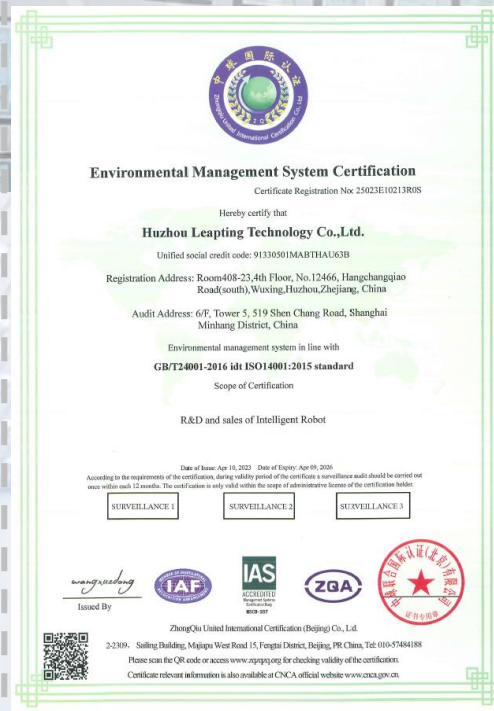




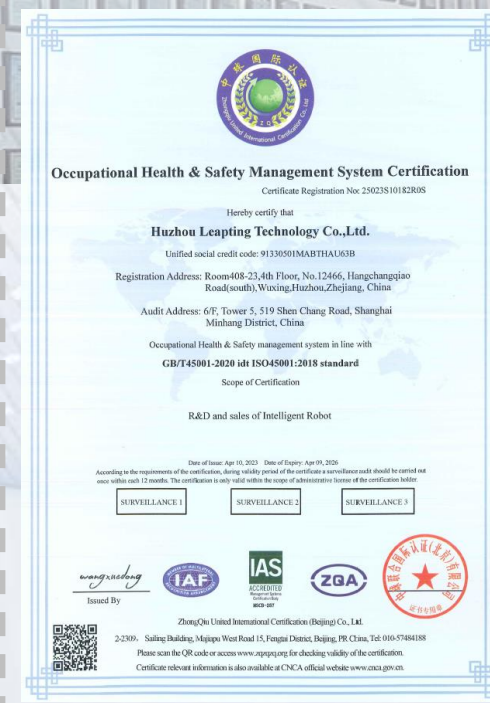
# 07 COMPANY ACCREDITATIONS



ISO9001



ISO14001



ISO 45001



# 08 INTERNATIONAL MARKET



LONGi 隆基

adani

Masdar  
A MUBADALA COMPANY

ReNew  
POWER

ACWA POWER  
الوا بوار

CanadianSolar  
MAKE THE DIFFERENCE

BOUYGUES  
CONSTRUCTION

国家电投  
SPIC

中国华能集团

EQUANS



02

# Market Opportunity

# 01 PV Plant - Manual to Robotic



## Manually PV Cleaning

Soiling loss 5-15%

Low Efficiency

Low frequency

Lose energy



## 02 PV Plant - Manual to Robotic



### Manually PV Module Installation



Facing a variety of harsh environments



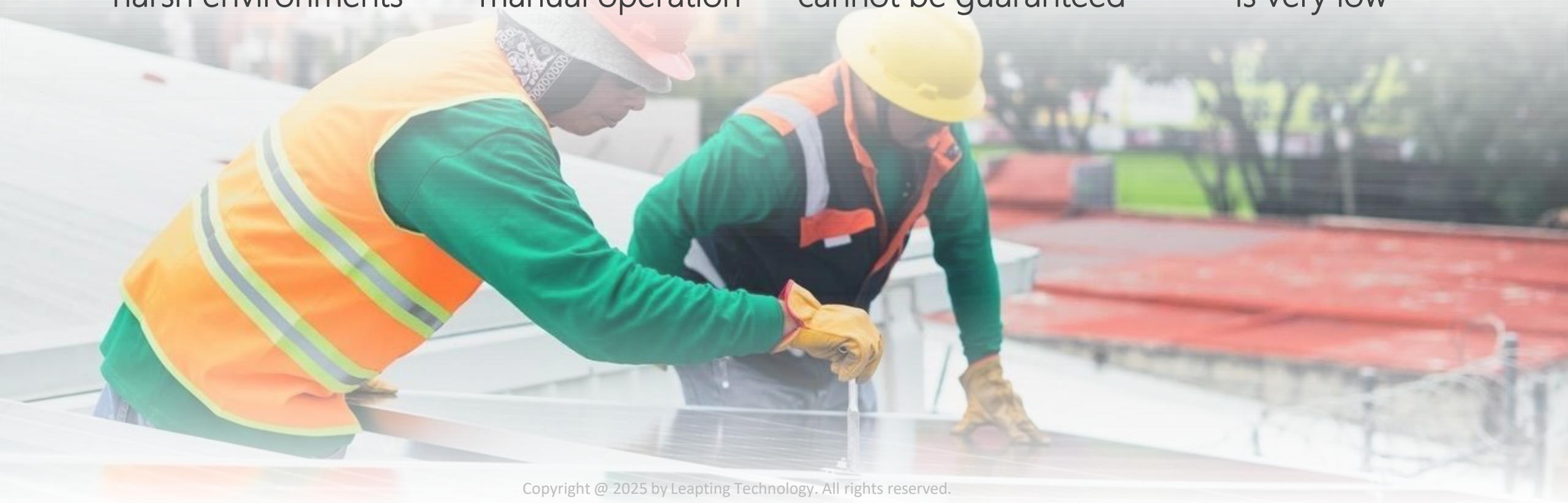
A huge of manual operation



Installation schedule cannot be guaranteed



Work safety is very low





## 03 PV Plant - Manual to Robotic



**Desert Leveling**



**Position Correcting**



**Pile Driving**



**Structure  
Installation**

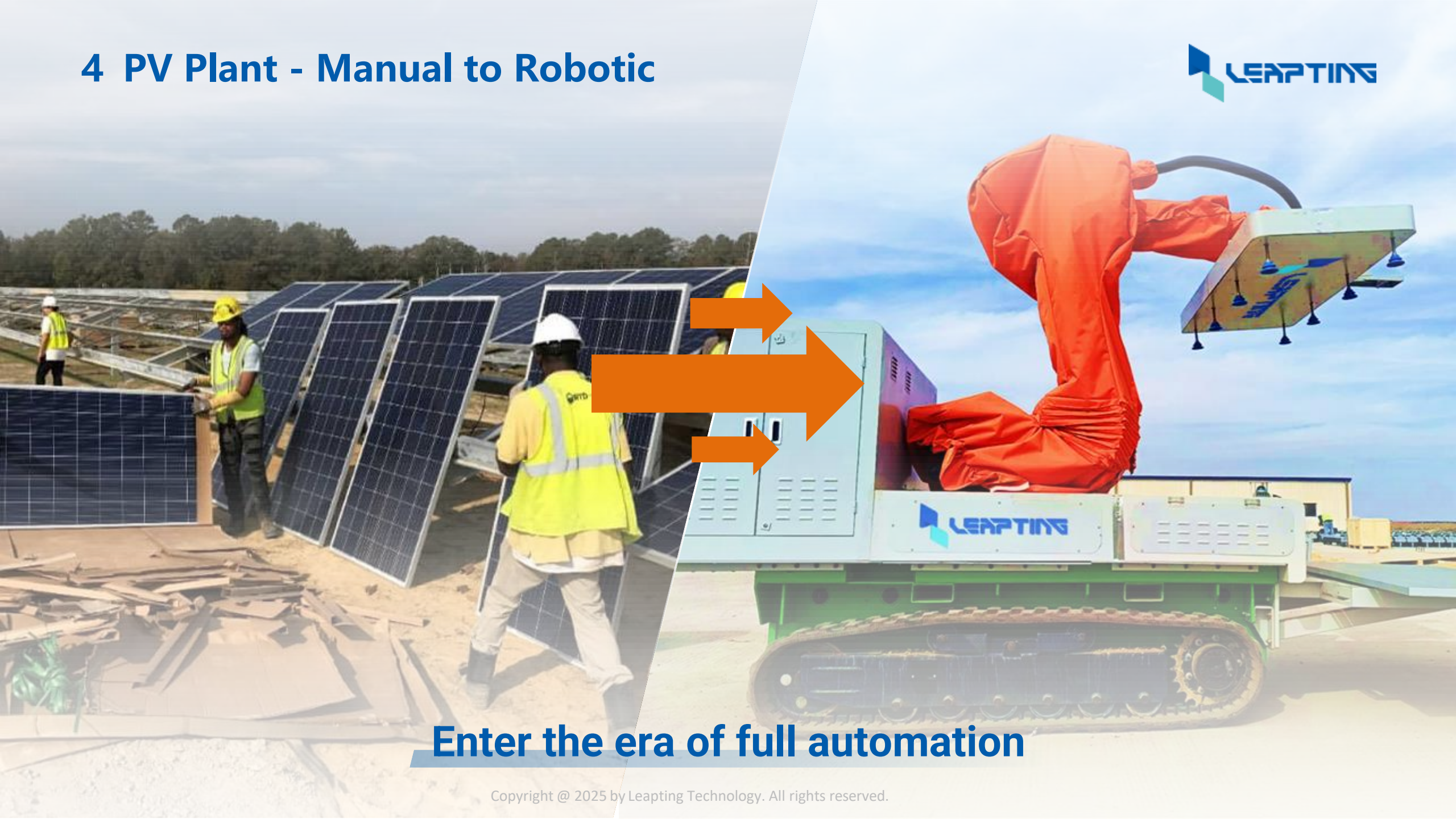


**Module Installation**





## 4 PV Plant - Manual to Robotic



**Enter the era of full automation**

## 05 Project Cases

Observe the operational procedures of our intelligent robots within a photovoltaic power station.

### 1 Cleaning Robots



### 2 Cleaning Robot



### 3 PV Module Mounting Robot





03

# LEAPTING SOLUTION



# 01 Solar Power Plant Robots



G1

2+4GWp PO

- Fully-auto 1 robot/row
- Semi-auto 1 robot/multi-row



MMR

2 robot PO

- 8-10 hours/day
- 3MWp/day/robot
- Auto drive
- Bar code record



G2

6 robot PO

- Cost down 20%+ vs G1
- No ancillary engineering
- Flexible cleaning frequency



MIR

Oct end launch

- Daily scanning
- Thermal & visual
- Additional function module (grass cutting, security, delivery & site monitoring)



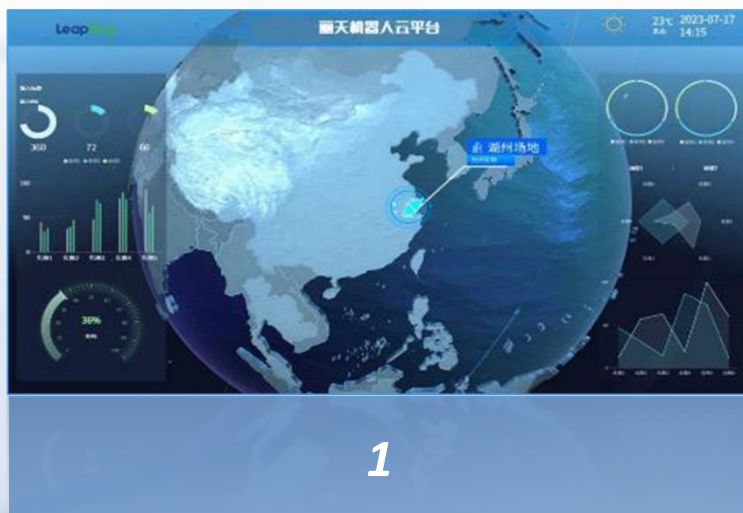
G3

Launching soon

- More AI, auto-drive based robots are coming.

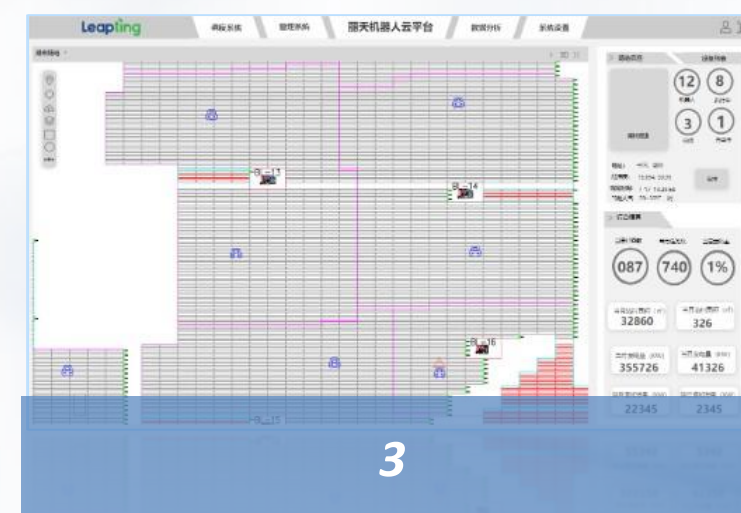


### Real-time Monitoring and Management of the Cloud Platform



#### Trackable

From SCADA we can trace the availability, status, and history of each robot.



#### Interconnected

Different robot platform can be interconnected, for example MIR can share info to G1/G2 for better control of cleaning.

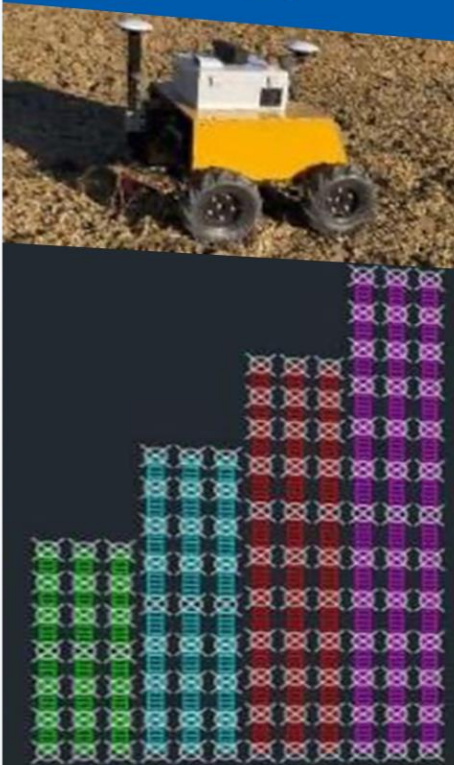


## 03 Product line



Using robotics to cover the whole life of PV power plant

Marking



Piling



Structure



Module Installation



Cable connect and routing

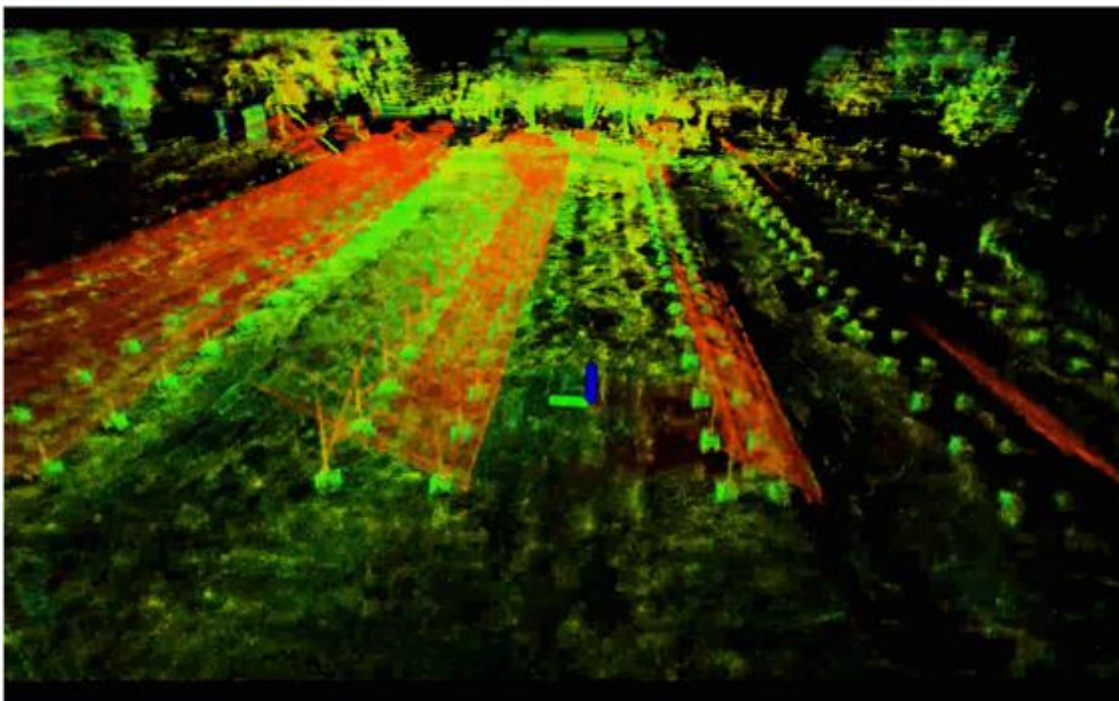


AI technology based | Auto-Drive | Laborless | Low cost

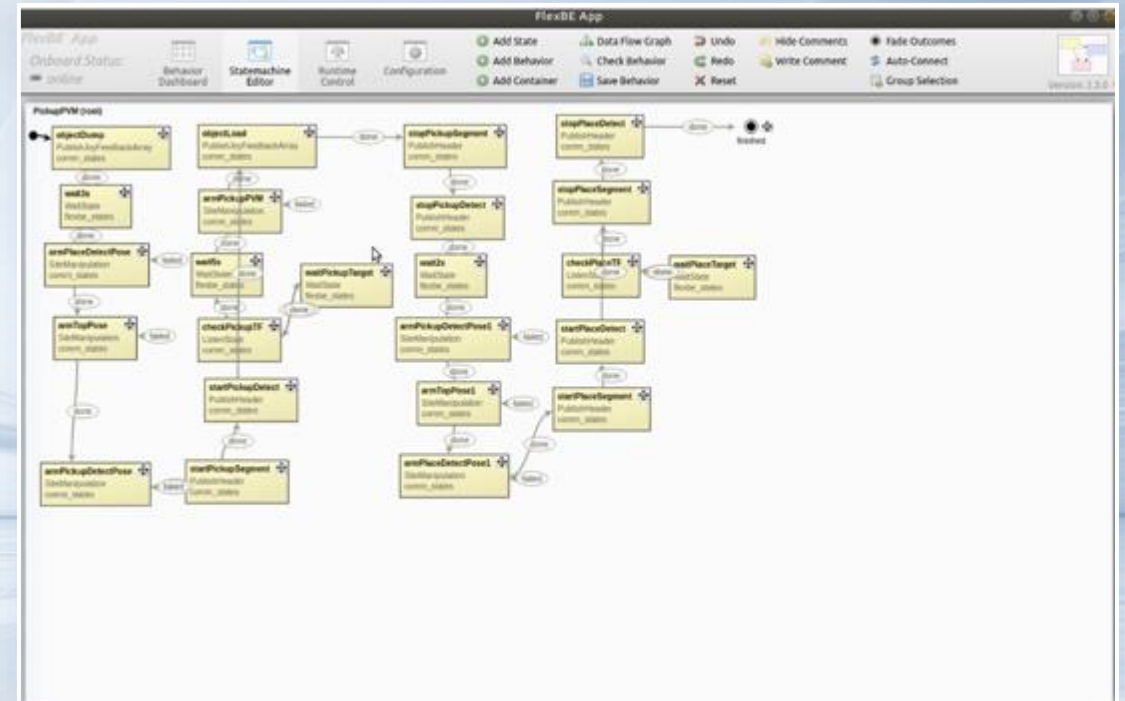


# 04 Navigation-Autopilot

## Environment perception algorithm



## Decision planning algorithm





## 05 BEV-Large-scale Model

1

Dig data analysis



2

Achieve dig analysis of data for photovoltaic cleaning robots through technologies such as modeling and simulation, and digital twins.

## 06 PV Module Inspection Robot



**Infrared, Visible image**

**Artificial intelligence Analysis**

**Daily 10kms operating (10MWp)**

**Self charging and parking**

**All terrain**



## 07 PV module cleaning Robots – G2



**No DS, RS, Bridge required**

**No table misalignment adjust**

**Daily 10kms operating (10MWp)**

**Easy O&M, low AMC**

**All terrain**



## 08 PV module cleaning Robots – G2D



**No DS, RS, Bridge required**

**No table misalignment adjust**

**Daily 20kms operating (20MWp)**

**Easy O&M, low AMC, all terrain**

**Rapid deployment**

**Optional wet and dry cleaning**

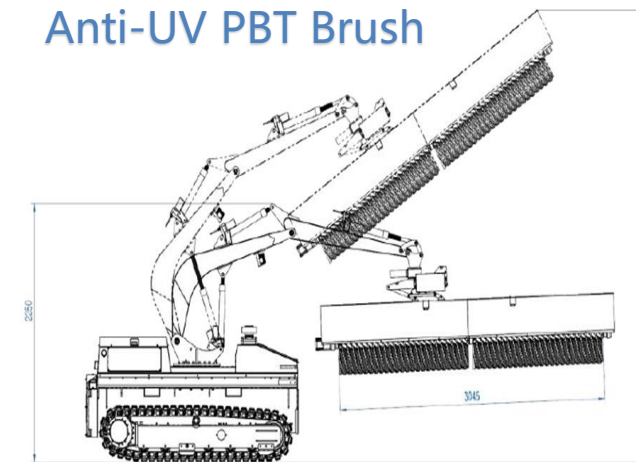


# 09 PV module cleaning Robots – G2D

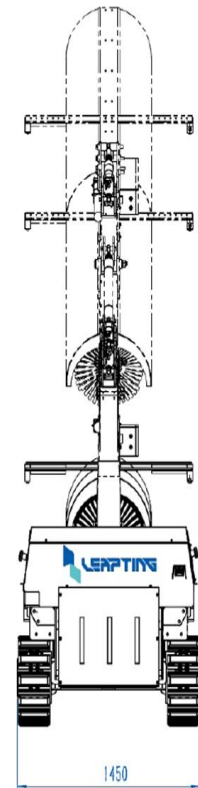
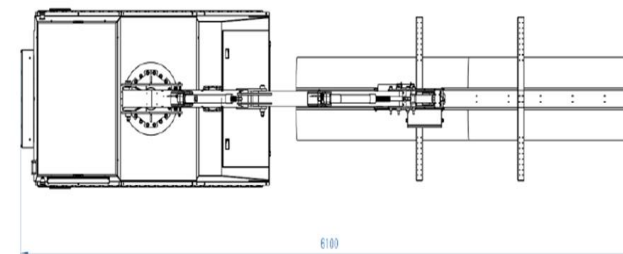


## G2D Model Schematic Diagram

Anti-UV PBT Brush



Ultrasonic Sensors



Auto-drive Chassis

# 11 PV Module Mounting Robot (MMR)



**8 vacuum suckers - safe**

**Whole pallet module load**

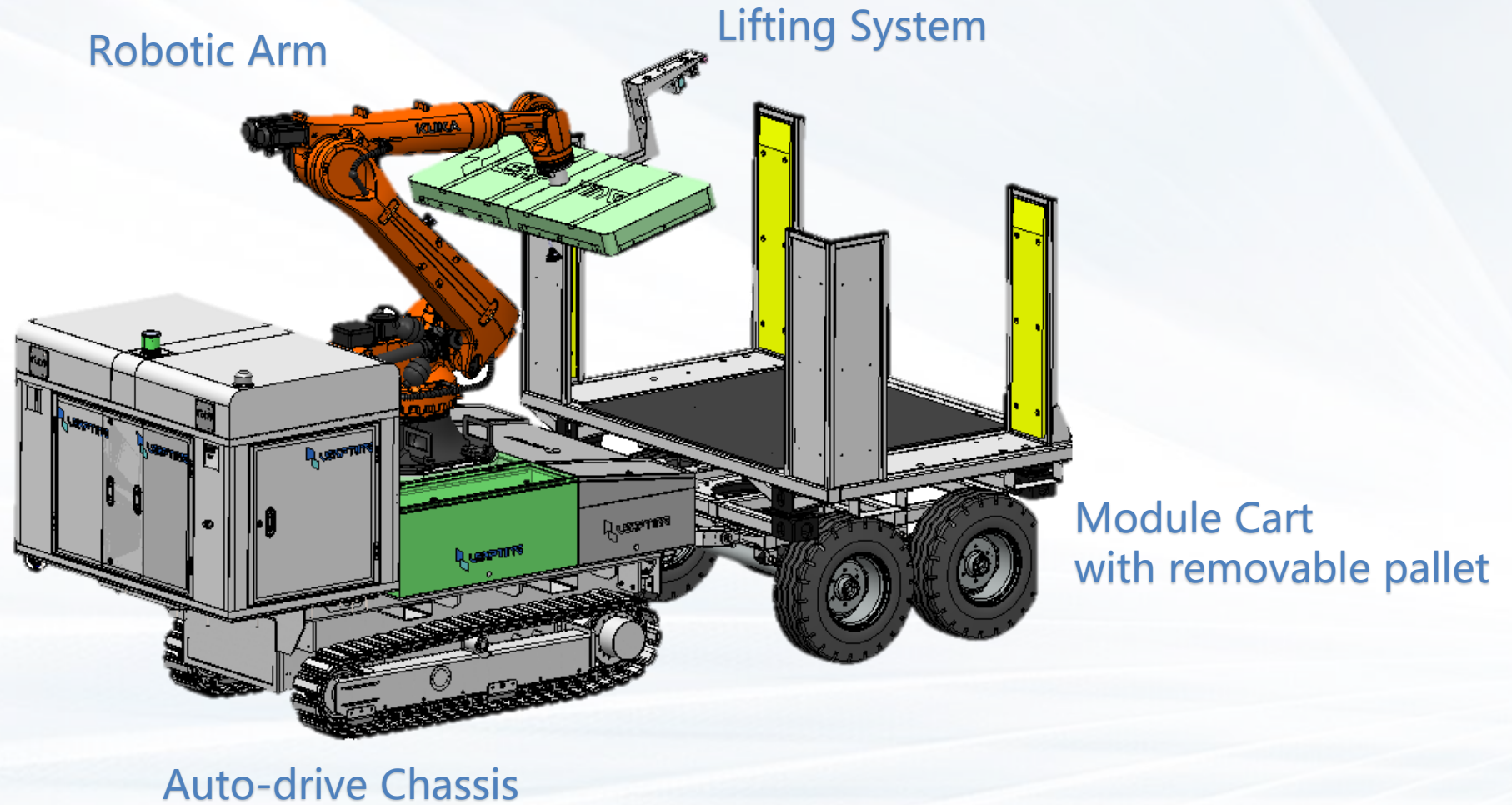
**4-5hours charging**

**8-10hours operation**

**All terrain**



# 12 Module Mounting Robot (MMR)



# 13 MMR SPECIFICATIONS



Specifications	Automatic Drive Vehicel Carrier
Dimension(L*W*H)	5.3m X 2.6m X 3.2m
Weight	4,500kg
Speed	1.5km/h
Maximum grade ability	15°
Drive motor power	3.5kw
Minimum turning radius	5.5m
Battery	400Ah, 48V
Charging port	380V/20A
Control mode	Automatic Drive
Chassis navigation	SLAM + Visual Navigation
PV cart capacity	36~50pcs

Specifications	Installing Robot
Maximum reach	3,100mm
Rated payload	100kg
Maximum payload	210kg
Weight	1,200kg
Ingress protection	IP65/IP67
Mounting height	Adjustable(≤2m)
Number of vaccum suckers	8
Ambient temperature during operation	0° C to 50° C / -20° C to 60° C

**4** hours to be fully charged

**8** hours operation when fully charged



# 14 MMR Video Onsite





# 16 Summary (MMR)







# THANKS!

Add: 6/F, Tower 5, 519 Shen Chang Road, Shanghai, China 201107

Tel: +86-21 6045 0950

Web: [www.leapting.com](http://www.leapting.com)

Mail: [sales@leapting.com](mailto:sales@leapting.com)

Copyright © 2025 by LEAPTING Technology. All rights reserved.

