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UBTECH | Education

Dream with Robots



AI Education Solution

www.ubtrobot.com

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COMPANY INTRODUCTION

Established in March 2012, UBTECH ROBOTICS CORP LTD is a leading humanoid robots and smart service robots company in China.

Dedicated to the mission of 'bringing intelligent robots into every family, and making everyday life more convenient and intelligent', we have developed a full stack of humanoid robotic technologies independently. Based on our full-stack technologies, we have engaged in the research and development, design, smart production, and commercialization of smart service robots. We have established a smart robotic solution with hardware, software, service and content all integrated together, covering various industries such as AI education, smart logistics, smart wellness and elderly care, and business service.

We are one of the few companies which have developed full-stack humanoid robotic technologies in the world. Our full-stack technologies are a holistic combination of industry-leading robotic technologies (robotic motion planning and control technology and servo actuators) and our AI technologies (computer vision and voice interaction technologies), a number of integrated robotic and AI technologies (SLAM and autonomous technology, visual servo operation and human-robot interaction), and Robot Operating System Application Framework (ROSA), our proprietary robotics application framework.

We are also the first company in the world to accomplish mass production of small torque to large torque servo actuators with a torque from 0.2Nm to 200Nm. Our Walker is China’ s first commercialized biped life-sized humanoid robot. As of April 30, 2023, we have more than 1,750 robotic and AI-related patents, of which more than 350 are overseas patents.

We believe that the future of human lies in human-robot co-existence. With an unwavering commitment to innovations and technology, we envisage to bring UBTECH robots to every home and industry, marching towards a society where human and robots co-exist.

Our Achievements

One of the few Companies

to accomplish mass production of small torque to large torque servo actuators with a torque from 0.2Nm to 200Nm in the world

One of the few Companies

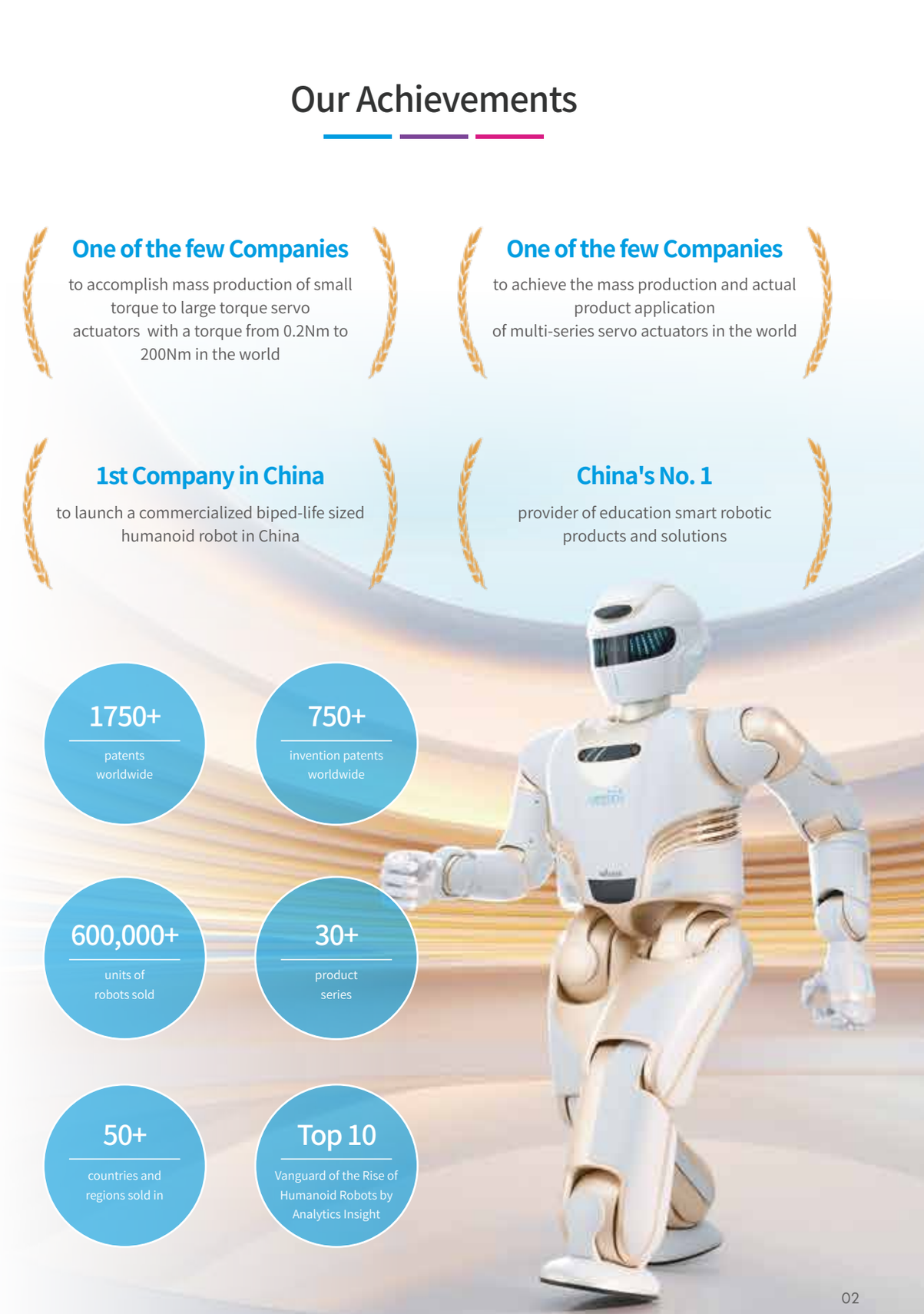
to achieve the mass production and actual product application of multi-series servo actuators in the world

1st Company in China

to launch a commercialized biped-life sized humanoid robot in China

China's No. 1

provider of education smart robotic products and solutions



1750+
patents worldwide

750+
invention patents worldwide

600,000+
units of robots sold

30+
product series

50+
countries and regions sold in

Top 10
Vanguard of the Rise of Humanoid Robots by Analytics Insight

GLOBAL TRENDS IN AI EDUCATION

2016

Australia
Australia has included AI programming into the national syllabus.Students begin to acquire programming logic at the age of 10, and can actually carry out programming at around 12 years old.

Finland
Finland has implemented the new National Core Curriculum Outline, which incorporates programming into the primary school syllabus and requires schools to open programming courses from Grade 1.

U.S.
The White House has set up a committee on artificial intelligence and machine learning to coordinate actions taken by people from all walks of life in the field of artificial intelligence in the US and to explore the formulation of policies and laws related to artificial intelligence.

South Korea
South Korea has planned to incorporate programming into the education syllabus, and popularize programming education from Grade 1 of primary school to Grade 3 of middle school in 2020.

2017

China
The State Council of China has promulgated the Notice of the New Generation Artificial Intelligence Development Plan.

Singapore
Singapore has included programming into primary and secondary school exams. This reflects the trend of countries implementing and developing STEAM education policies, as well as developing programming education for the young generation. This goes in line with the times and follows the need to foster talents for the forthcoming AI era, therefore maintaining their future human capital competitiveness.

UK
The British government has issued a report on artificial intelligence, hoping to enhance the overall national strength with the innovative advantages of artificial intelligence.

Japan
The Ministry of Education of Japan has issued a new edition of the Interpretation of Learning Guidelines for the New Semester, which proposed that Japanese primary and secondary schools should provide computer programming courses from 2020 to 2021 to cultivate future AI talent.

2018

China
The Ministry of Education of China has issued a notification on the Action Plan for Artificial Intelligence Innovation in Colleges and Universities to guide colleges and universities to continuously improve their capabilities of scientific and technological innovation, talent training and international cooperation and exchange in AI with the aim of providing strategic support for the development of a new generation of AI technologies in China.

2019

U.S.
U.S. President Donald Trump has officially signed American AI Initiative administrative order. To prioritize the development of AI, the U.S. government has offered help and support accordingly, such as expanding the authority of relevant researchers to use government data.

2020

UNESCO
The First Draft of the Recommendation on the Ethics of Artificial Intelligence

2021

UNESCO
AI and Education: Guidance for policy-makers
Artificial Intelligence and the Future of Learning Program
UNESCO Strategy on Technological Innovation and Education (2022-2025)

2022

UNESCO
K12 AI Curricula:
A mapping of government-endorsed AI curricula

The AI education application market has emerged and is expected to reach a market size of $ 6 billion by 2024.

The Impact of Artificial Intelligence Education on the Nation

The development of artificial intelligence education in a country can bring significant improvements across various dimensions:

01 Impact on Youth Scientific and Technological Literacy

For K-12 students :
AI literacy popularisation, Programming/ Innovation/Logic thinking/ Computing thinking/Problem solving/Hands-on ability etc, cultivation of Tech Literacy

For Vocational/College Students :
AI development skills, maintenance skills, testing skills,operation skills and cultivate industry talents

02 Impact on the Education

Shaping a gradual pyramid technology talent cultivation structure
Lays the cornerstone for the future technology talent development in the country
Cultivate a team of artificial intelligence education teachers

03 Impact on the Economic and Industry

Technological Innovation and R&D
Development of Emerging Industries
Labor Market Transformation
Promote the transformation of national industrial and econom -ic structures

04 Impact on Society

International Reputation and Competitiveness
International Cooperation and Influence
National talent competitiveness
Social InclusionSocial
Governance&Public Services

AI EDUCATION SOLUTION



UBTECH is dedicated to the popularization of AI literacy for all citizens and the development of technical talents by fostering AI talent sinks into schools.

UBTECH has laid out a through-type AI education system from K-12 to colleges



Research Talent

METHODS

In-depth learning and research of professional knowledge and cutting-edge technologies in the industry Innovate AI technology.

GOALS

To lead the futuristic development and revolution.



Skilled Talent in Applicable Scenarios

METHODS

Learn the technologies of industrial AI & robotics Apply AI technology

GOALS

To facilitate the industrialization and real-time application.



The General Public

METHODS

Popularize basic AI educationExperience AI Technology.

GOALS

To understand and actively embrace the changes AI technologies bring to life and work.

Inspire AI interesting → Foster AI literacy → Continue to study AI major → Engaged in AI works → Shaping talent structure

AI Talent Development Solution Framework

Scenario-oriented Solutions to meet different levels of needs

AI Center Solution Deploy in main cities	AI Lab Solution Deploy in schools	AI E-Learning Solution Smart cloud platform for all





Curriculum & Teaching Material System

- Systematic Curriculum Framework
- Interdisciplinary Integration
- PBL study with 5E pedagogy

Teacher Training & Support System

- Three levels teacher training: Initial, Senior, Expert
- Online and offline integrated efficient service
- Technical support

AI Hardware Matrix

- Diversified forms / Strong AI attributes / Open and scalable
- Designed for Educational Scenarios

Assessment & Evaluation System

- Process Evaluation & Results Evaluation.
- Student Learning Report & Teacher Competency
- Certification

Software & Programming Tools

- Graphical programming / code programming /3D simulation tool
- Open access capability, docking with ecological products

Robotics Competition & Events System

- Authoritative event endorsement strategy / confrontation / task

AI Education Platform

AI Teaching & learning tools / curriculum resources / products & user aggregation / project operation / AI education ecology

AI Education Platform

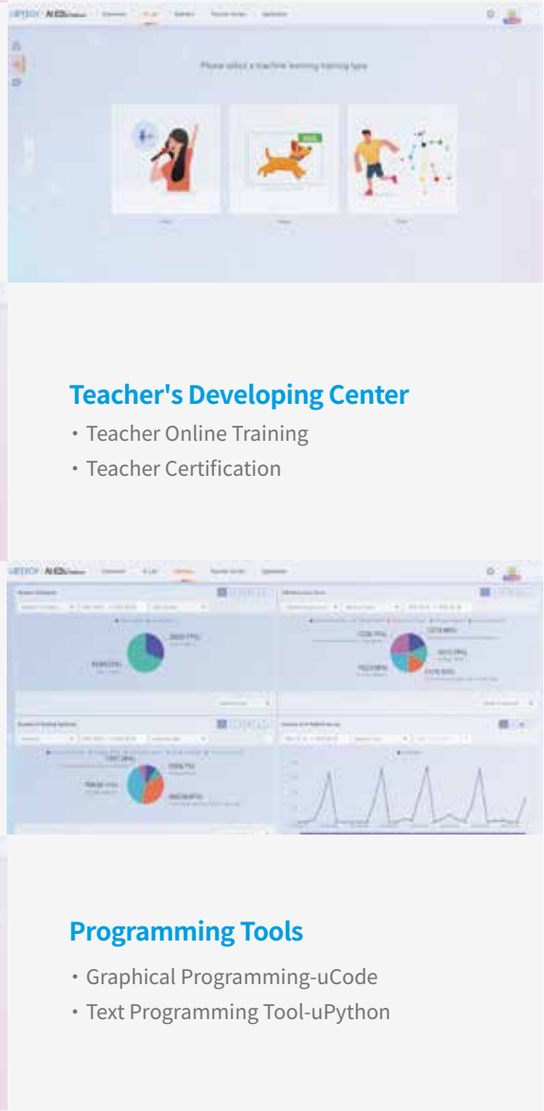


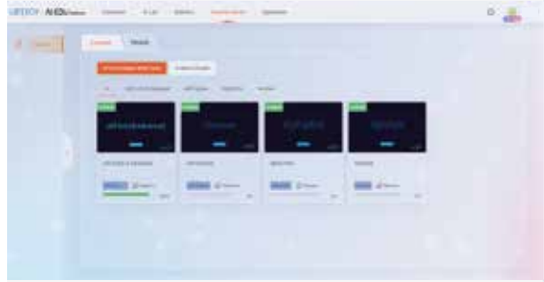
Teaching Center

- Get Curriculum Racecourses
- Prepare for Class
- Have a Class
- Class Management
- Assessment and Evaluation
- Home-school Interaction

AI Traing Center

- AI Training
- AI Knowledge Animation Film
- AI Mini Game





Teacher's Developing Center

- Teacher Online Training
- Teacher Certification

Academic Center

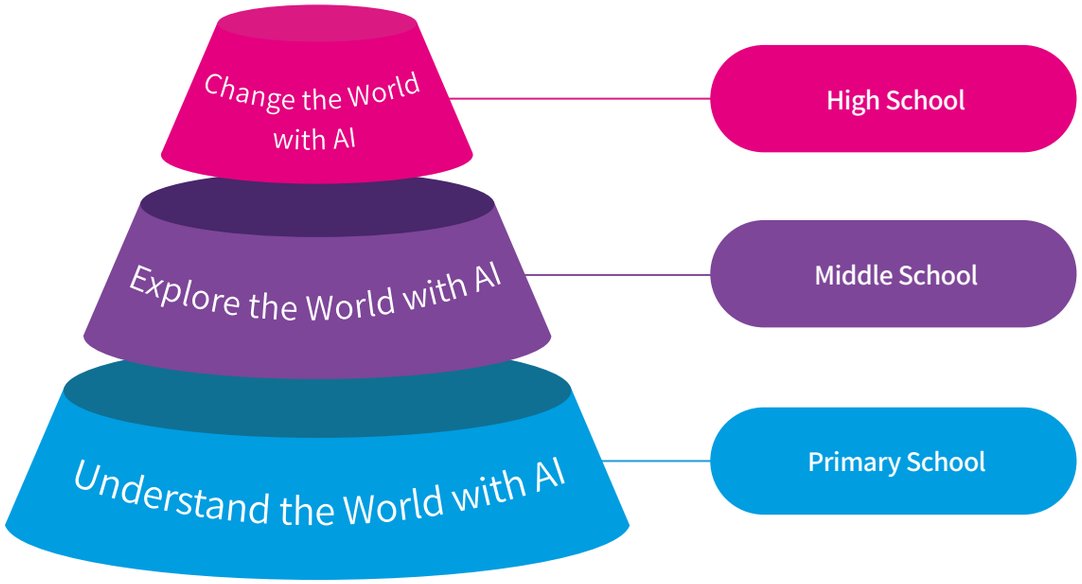
- Test AI Learning Outcomes for Students
- Provide AI teaching basis for teachers
- Driving AI Educational Assessments for Schools



Programming Tools

- Graphical Programming-uCode
- Text Programming Tool-uPython

Curriculum & Teaching Material System



Primary School

- AI Fantasy Zoo
- AI Smart Life
- AI City Guardian
- AI Future Community
- AI Transformer Workshop
- AI Amusement Park

Middle School

- AI Magic World
- AI Super Engineer
- AI Space Exploration

High School

- AI Super Designer
- The Application and Exploration of AI

Understand the world with AI

Curriculum for primary school includes 6 courses, which help students develop their AI knowledge, computational thinking skills, hands-crafting skills, and etc.

Explore the world with AI

Curriculum for middle school includes 3 courses, which has deeper AI knowledge requires students not only learn some knowledge about AI, but need to apply in our daliy life to try to solve some life issues.

Change the world with AI

Based on interdisciplinary practice, RILP is a learning program focusing on actual problem environment. It includes the integration of actual entreprises problem scenarios, the guidance of professional researchers, as well as a top-class, innovative curriculum.

Mapping of UBTECH AI Education Curriculum for K-12

Recommended Grades	Level	Curriclum Name	Hardware	Software	Programming Language
Primary School	1	AI Fantasy Zoo	uKit AI Controller	uKit EDU App / uCode	Graphical Programming
	2	AI Smart Life	uKit AI Controller	uKit EDU App / uCode	Graphical Programming
	3	AI Amusement Park	uKit AI Controller	uCode	Graphical Programming
	4	AI Future Community	uKit AI Controller	uCode	Graphical Programming
	5	AI Transformer Workshop	uKit AI Controller+uKit Development Board	uCode / uKit Explore APP	Graphical Programming
	6	AI City Guardian	UGOT I	uCode	Graphical Programming
Middle School	7	AI Magic World	uKit Development Board	uCode	Graphical Programming
	8	AI Super Engineer	uKit Development Board	uCode	Graphical Programming
	9	AI Space Exploration	UGOT II	uPython	Python
High School	10	AI Super Designer	Yanshee	Yanshee App / uCode / Python	Graphical Programming / Python
	11	The Application and Exploration of AI	Yanshee	Yanshee App / uCode / Python	Python

Complementary Teaching Materials



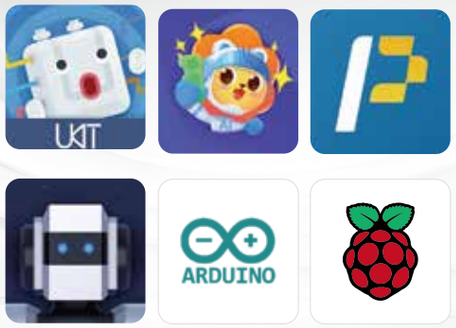
Student’ s Book



Teacher's Book



Evaluation Book

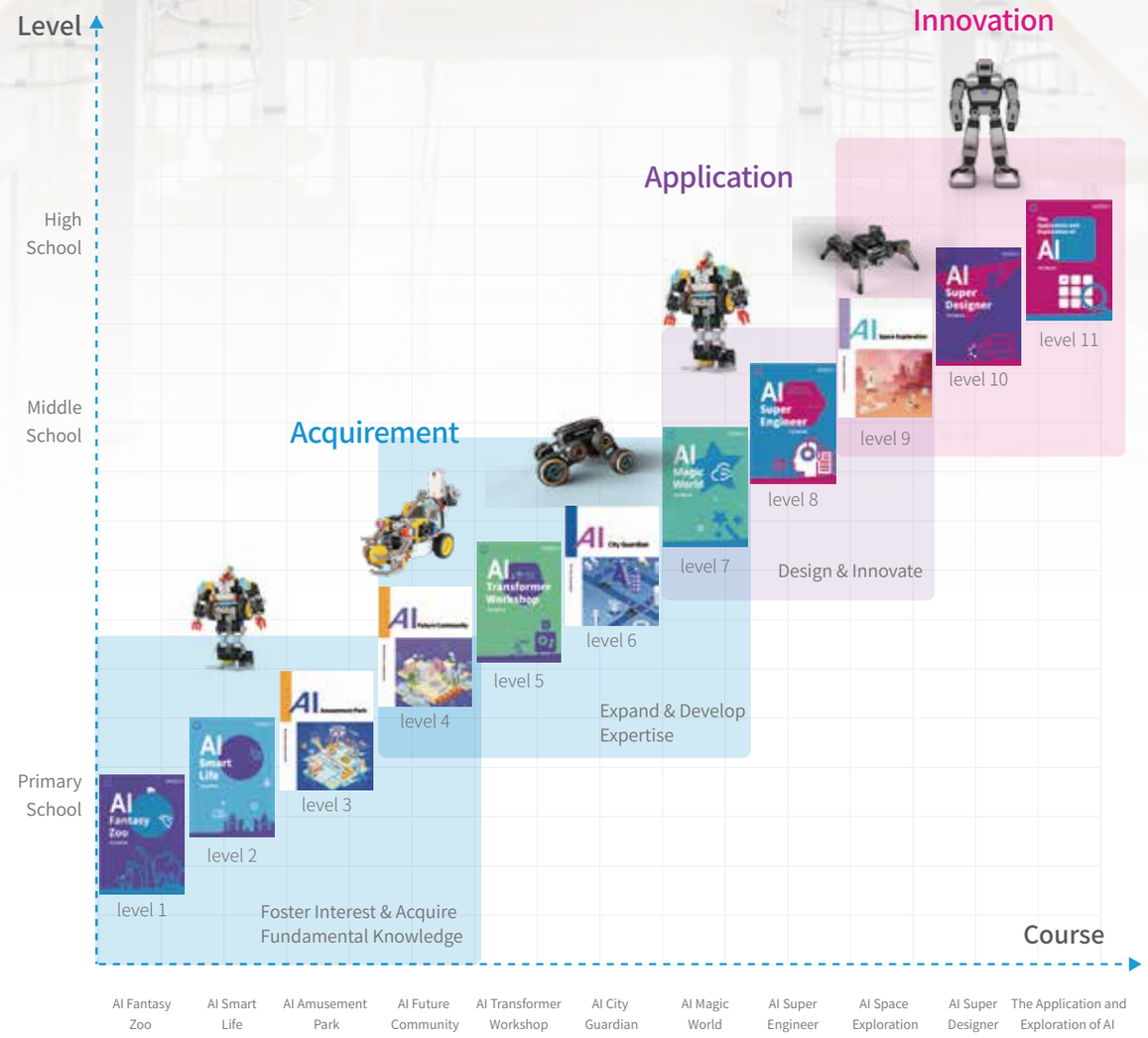


Software Kit



AI Education Platform

AI Hardware Matrix





UKIT AI

Unlimited uKit, Unlimited Creativity

+ Guidance in 3D dynamic building
+ PRP programming
+ Graphical programming
+ Motion Control
+ Project-based teaching
+ Smart devices for learning and application





UKIT Unleash infinite creativity with uKit



AI Fantasy Zoo Learning Kit

- 30 class hours
- Primary School
- 11 official models(DIY available)
- 600+ componentsand parts
- 5 sensors
- 4 servos
- 1 uKit AI Controller



AI Smart Life Learning Kit

- 30 class hours
- Primary School
- 15 official models (DIY available)
- 1000+ componentsand parts
- 11 sensors
- 4 servos
- 1 uKit AI Controller



AI Amusement Park Kit

- 30 class hours
- Primary School
- 16 official models (DIY available)
- 600+ componentsand parts
- 1 Intelligent Camera Module
- 7 sensors
- 2 servos
- 1 uKit AI Controller



AI Future Community Kit

- 30 class hours
- Primary School
- 12 official models (DIY available)
- 400+ componentsand parts
- 1 Intelligent Camera Module
- 4 sensors
- 4 servos
- 1 uKit AI Controller



AI Transformer Workshop Kit

- 30 class hours
- Primary School
- 9 official models (DIY available)
- 900+ componentsand parts
- 1 Intelligent Camera Module
- 8 sensors
- 16 servos
- 1 uKit AI Controller



AI Magic World Kit

- 30 class hours
- Primary School
- 6 official models (DIY available)
- 600+ componentsand parts
- 1 uKit Development Board
- 9 sensors
- 4 servos



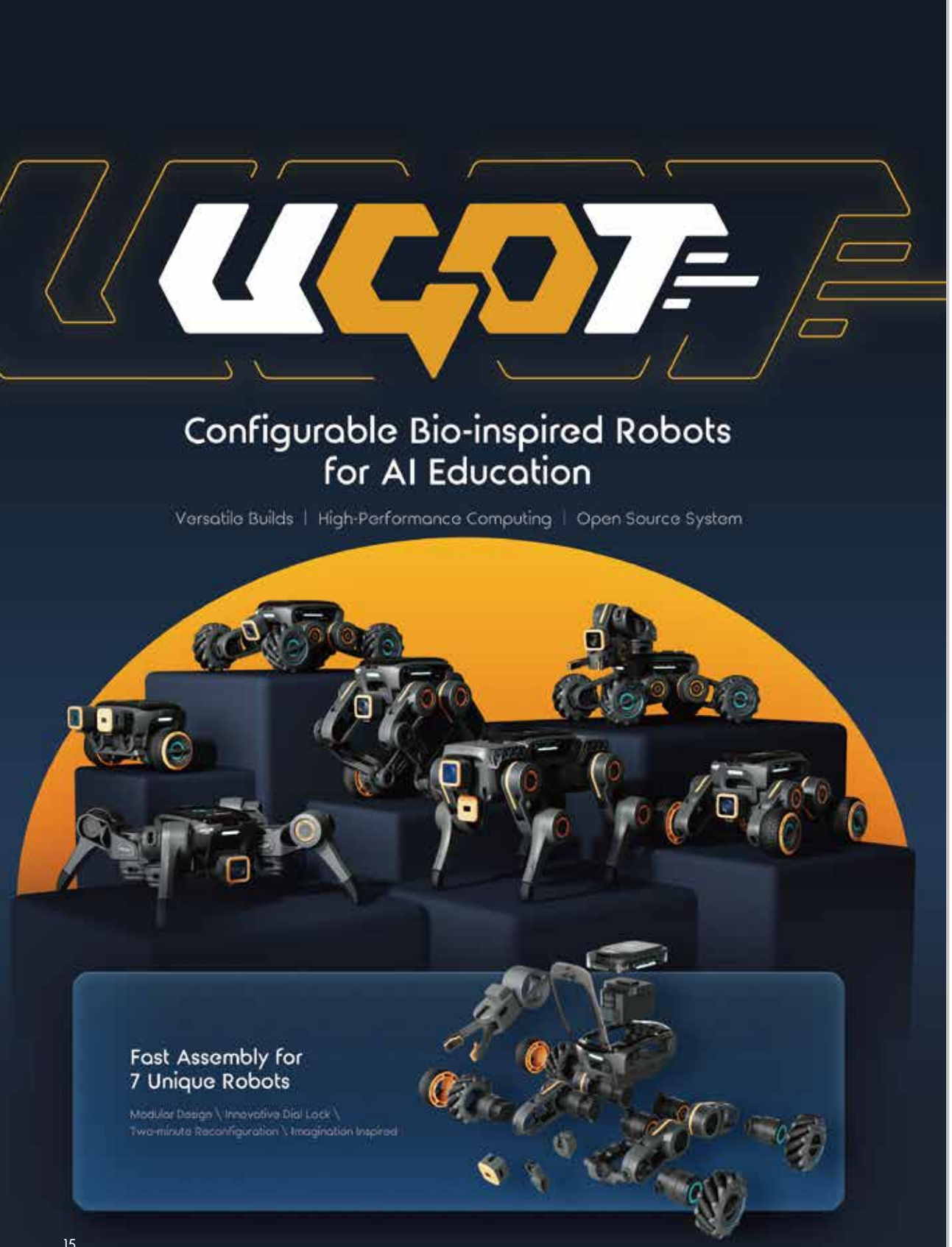
AI Super Engineer Kit

- 30 class hours
- Primary School
- 10 official models (DIY available)
- 1100+ componentsand parts
- 1 uKit Development Board
- 7 sensors
- 16 servos

UGOT

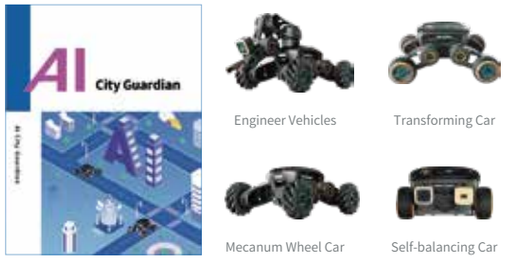
Configurable Bio-inspired Robots for AI Education

Versatile Builds | High-Performance Computing | Open Source System



AI City Guardian Kit





Topics **15**
Class Hours **30**

Recommended for
Primary/Grade5-6

Curriculum Description

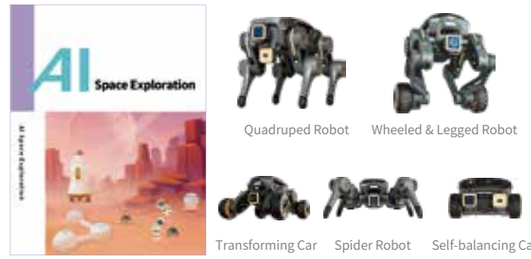
Based on the problems that may be encountered in real life,the course constructs virtual story situations, guides the students to use AI technologies such as intelligent voice and machine vision to realize the various functions of UGOT to help the city to solve a variety of emergency problems and to cultivate students' problem-solving ability and social responsibility.

AI Skills and Competency Literacy

Human-Computer Interaction	Intelligent Speech	Machine Vision
Information consciousness	Computational thinking	Digital Learning and Innovation

AI Space Exploration Kit





Topics **14**
Class Hours **30**

Recommended for
Middle School/Grade7-8

Curriculum Description

With interstellar exploration as the background, the course integrates science and technology into science fiction story contexts, constructing virtual scenarios such as flight plans, lunar exploration, cave exploration, and Mars base. Through these topics, the course guides students to use intelligent speech, machine vision and other artificial intelligence technologies to realize the functions of UGOT and help scientists to solve various urgent problems encountered in the process of interstellar exploration, and cultivate students' problem-solving ability and sense of social responsibility.

AI Skills and Competency Literacy

Human-Computer Interaction	Intelligent Speech	Machine Vision
Information consciousness	Computational thinking	Digital Learning and Innovation

yanshee

Raspberry Pi + STM32 Structure
Detachable modular design



Stereo Speaker + Highly Sensitive MIC
Intelligent voice recognition and interaction

Sensor Application
Collect data accurately and perceive the world



8MP Camera and FPV Supported
Intelligent visual recognition and visual tracking
View the world in FPV (first-person view) mode

Extendable Interface
Compatible with various sensors and peripheral devices

17 Anthropomorphic Servo Motors
Bring smooth and life-like movements

The sensors below are supported:

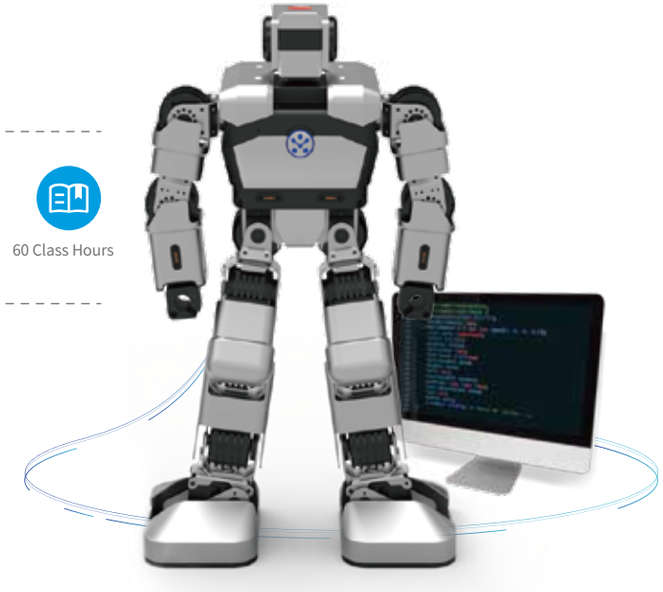
- Infrared Sensor •
- Capacitive Touch Sensor •
- Pressure Sensor •
- Temperature & Humidity Sensor •



Various programming languages, such as Python, C/C++, Java, Blockly, Perl.

User friendly App is available on both iOS and Android devices.

Infinite Raspberry Pi Robot
Infinite Maker Possibilities



- High School (senior) +University
- 17 Servos
- Gyroscope
- Toolkit
- 60 Class Hours
- From Python Programming to AI research
- Open Source Platform
- AI & Robotics Application and Development
- Diverse Extensible Interfaces



- Topics 14
- Class Hours 30
- Recommended for High School /Grade10-11



- Topics 12
- Class Hours 30
- Recommended for High School /Grade11-12

Curriculum Description

Through this class, learn the basics of Python related algorithms with the support of Yanshee. Use typical cases in life as examples to guide students to think of algorithms and learn basics of grammars, sorting method, recursion operation, binary tree, greedy algorithm and other algorithms. Learn the Python algorithms to broaden students' thinking and vision. Stimulate students' interest in algorithms, and cultivate an attitude of careful study.

Curriculum Description

Learn and explore the AI field by AI applications in various industries and sectors. Through this class, understand the development and principle of AI technologies and the applications of the AI technologies in society and life. Enable students to understand how AI helps people improve working efficiency and living quality based on typical applications of AI, and guide students to think of and learn the basics of AI, including study fields of AI, machine learning, and artificial neural network. By looking to the future development of AI, image the future society and broaden the thinking and vision of students. Motivate students' interest in AI and help them establish a correct view of scientific and technological application.

AI Core Literacy and Skills

Face Recognition	Speech Synthesis	Machine Learning
Sensing	HMI	Technology and Algorithm

AI Core Literacy and Skills

Neural Network	Machine Learning	Sensing
HMI	Technology and Algorithm	Social Responsblity

Software and Programming Tools

uKit Edu APP

iOS

- Graphical Programming
- PRP Pose-record-play
- Remote Control
- 3D Building Guidance

uCode

- Graphical Programming
- AI Hardware Open Patform
- Upload Mode for Advanced Programming
- 3D Building Guidance

Yanshee APP

iOS

- Graphical Programming
- PRP Pose-record-play
- Remote Control
- Centralized control

uPython

- Graphical Programming
- code completion
- Software and hardware interaction
- Visual library management

uKit Explore

- Graphical Programming
  C/C++ Programming
- Import Arduino IDE
  C Language Code Programming

Teacher Training & Support System

Implement AI teacher training at different levels

Expert Training (5-10% teachers)
Foster expert teachers who lead and demonstrate:
AI teaching innovation ability and AI scientific research innovation ability

Advanced Training (20-30% teachers)
Foster senior teachers who can do well in AI courses:
school-based research and development ability of AI courses,
AI competition guidance ability and AI teaching innovation ability

Initial Training (100% teachers in relative disciplines)
Foster teachers who can teach AI courses:
AI teacher literacy and AI teaching application ability

UBTECH Certificate for AI Teacher



Assessment & Evaluation System

Provide scientific basis for promoting digitalization and quality monitoring of AI education

AI Education evaluation	Formative assessment	Summative assessment	School AI education data panel
Target	**For students :** tracking the progress and performance, guiding personalized learning **For teachers :** tracking teaching progress, precisely teaching **For schools :** data-based monitoring, educational decision-making	Test AI Learning Outcomes for Students Provide AI teaching basis for teachers Driving AI Educational Assessments for Schools	 Dual dimensions of teacher & students Real-time dynamic visualization
Method	AI Platform Course Process Data Acquisition Evaluation(Completion of works, quizzes in class, etc.)	AI platform micro-certification assessment(objective questions and programming task questions)	
Output	AI Academic Evaluation Report 	AI Level Certification Report 	

Robotics Competition and Events System



Robo Genius Artificial Intelligence and Robotics Global Challenge is UBTECH's growth platform for robotics and AI education for young people. It enriches their learning of AI and robotics through competitions, experiences, and other activities. It includes official and external competitions in robotics, AI, online programming, 3D virtual simulation, etc. This provides multidimensional support for comprehensive student development.

50+
Participating cities worldwide

170+
Number of events in a year

46, 000+
Number of players

23, 000+
Number of teams



Scenario-Oriented Solutions

AI Center Solution
Deploy in main cities

AI Lab Solution
Deploy in schools

AI E-Learning Solution
Smart cloud platform for all

Scenario 1: AI Education Center Solution

International hub for AI talents in city: centralizes resources for schools, universities, enterprises, formulate and implements national AI training programs, raises the achievement by organizing high-level AI events. It reinforces the image of “global hub for AI talents” for Doha, expand the global vision and influence of the country.



AI Experience

Academic Center

- Exhibition
- Activities



AI Training

AI Training Center

- K-12 AI training
- Practical training
- Teacher's training
- General training



AI Innovation

AI R&D Center

- Shared R&D platform with equipment & technical support
- Academic research and product innovation



AI Exchange

AI Event Center

- AI competition
- AI conference

Scenario 2: AI Lab Solution

The AI Labs built in schools are equipped with curriculum recourses, hardware, software, teaching platform, etc. The teachers are well-trained and prepared for implementing AI courses in their own schools, under the guidance of the policy to promote and insure AI education nationwide.



K-12 School Labs

Academic Center

- Curriculum
- Equipment
- Platform
- Competition…



Vocational School Labs

AI Training Center

- Curriculum
- Equipment
- R&D platform
- Practical training
- Certification…

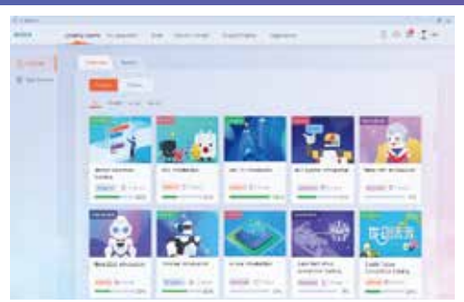
Scenario 3: E-learning Platform Solution

A multi-dimensional AI education and creation platform ntegrating learning, teaching, and creating.



Learning

- Systematic digital AI curriclum
- 3D immersive self-driven learning scenarios
- Programming tools with low coding difficulty and strong AI attributes



Teaching

- Online teacher’ s training programs
- Rich AI digital teaching resources
- Virtual class videos & animations
- Course creating & editing tool
- Studetent progress evaluation & analysis system



Creating

- 3D scenario designing tools
- Praphic programming tools
- Text programming tools
- Virtural test & competition field
- Uploading & sharing platform

AI EDUCATION CASE



AI Education Global Network

UBTECH has global AI education networks in more than 40 countries across regions including America, Europe, Asia, Africa, Australia.



North America
US
Strategic cooperation in AI education with State of Utah



Western Europe
France
RoboCup Junior Competition



Eastern Europe
Poland
UBTECH robots in local schools



Eastern Europe
Russia
AI Lab in Kidburg



Asia-Pacific
Korea
The First UKIT Competition



North America
Mexico
UBTECH robots in local schools

South America
Brazil



Africa
Kenya



Southeast Asia
Indonesia



Asia-Pacific
Australia

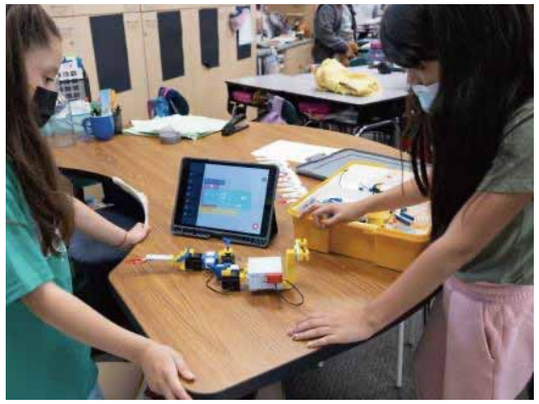


UBTECH AI Education Case – America

UBTECH AI Future Intelligent Maker, the systematic curriculum were selected by the academic committee as a sample of case study. UBTECH AI Education Program has been deployed in JUAB junior high school ,ALLEN ISD STEM center etc. in Los Angeles.













UBTECH AI Education Case - Singapore

In collaboration with IMDA, UBTECH has brought the AI Education to local schools through the ‘Lab on Wheels’ and ‘Values in Action’ program, served more than 110,000 students over the years.











UBTECH AI Education Case – Korea

300 pre-schools in Seoul City South Korea had deployed UBTECH’ s Alpha Mini robot for AI Education.











South Korea

South Korea trials robots in preschools to prepare children for high-tech future

The 25cm-tall robots that sing, dance and do kung-fu used as teaching aids in 300 childcare centres across Seoul

Agence France-Presse

Thu 25 Nov 2021 05.10 GMT

UBTECH AI Education Case – Vietnam

UBTECH cooperates with Vietnam National University-HCM to complete the localization of AI education curriculum, and officially publish and use them locally.













