

**FROM
IMAGINATION
INTO REALITY**



Physical Competing Software Coding Education ROBOT

saeOn

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altino



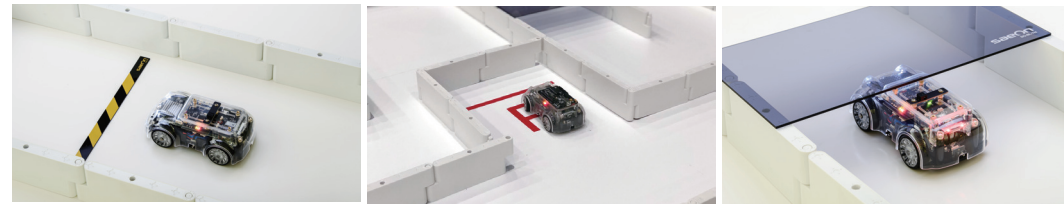
altino lite




iot smart farm

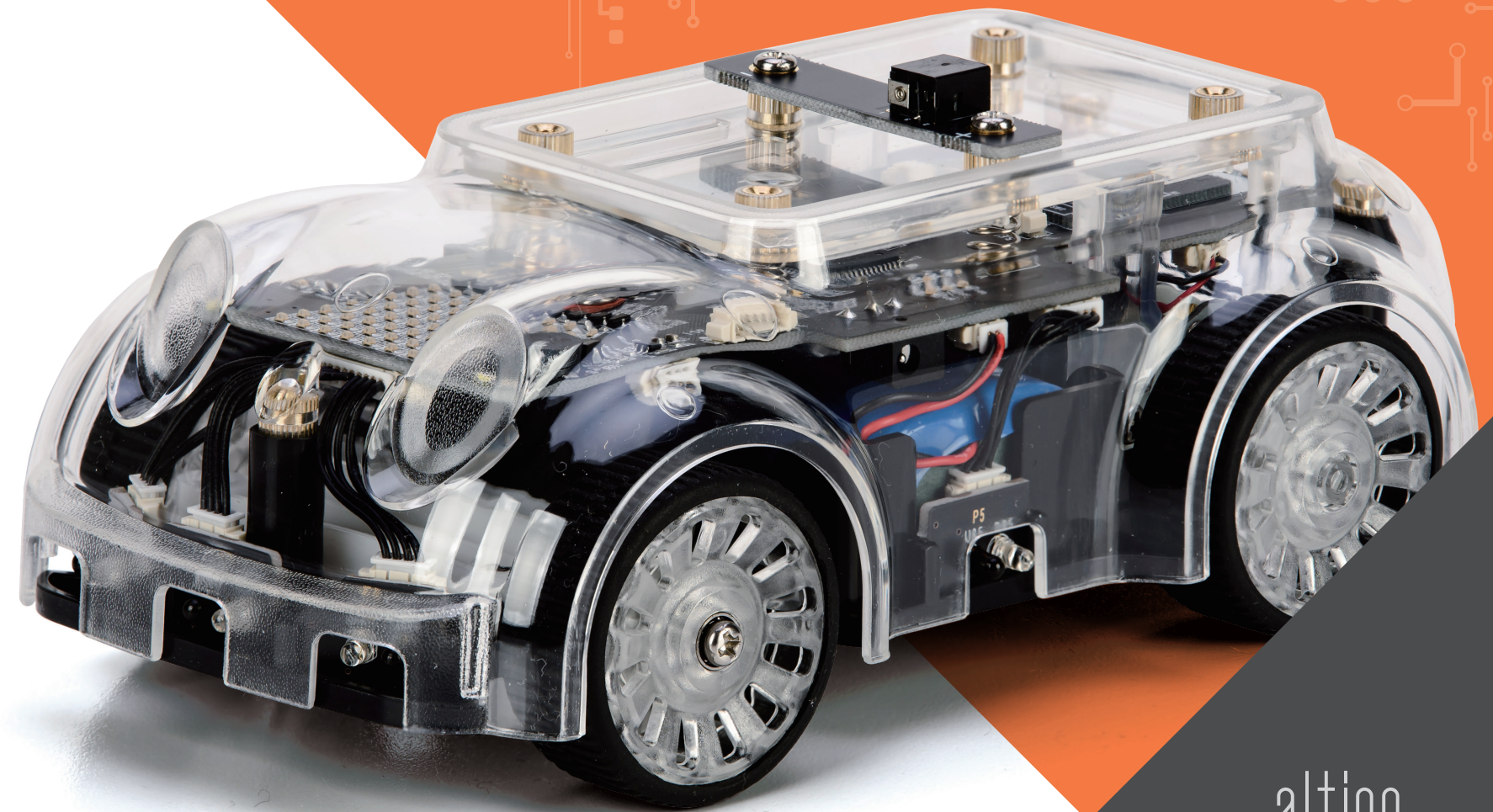


ALTINO INTRODUCTION

ALTINO, a self-driving robot developed for education and research, efficiently performs physical computing based on various functions. It provides students with a creative learning experience. ALTINO is controlled via wireless communication using Bluetooth, and it is equipped with 16 types of sensors and various display devices, facilitating flexible coding education and creative learning using accessories. Robot mechanism education is also achievable using a separate disassembly and assembly model. ALTINO provides textbooks of various educational content levels used from kindergarten and elementary courses up to university courses. Start learning coding in a fun and easy way with ALTINO.

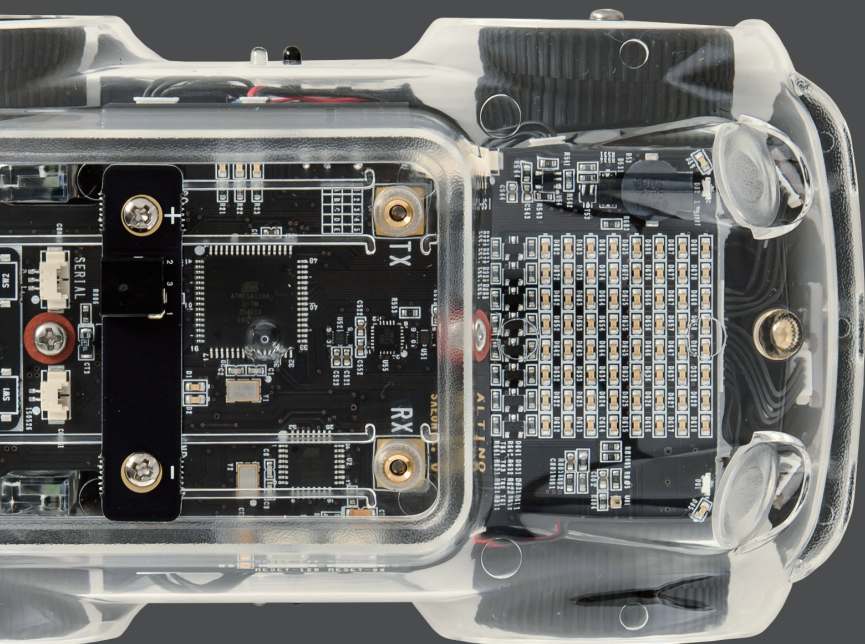


contents [Crayon](#) | [Scratch](#) | [Entry](#) | [Arduino Sketch](#)
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altino

F U N C T I O N



Buzzer (Speaker)

Play the desired music using a range of 1~8 octaves and scales.

8x8 dot matrix

Enables the user's desired expression by controlling the ASCII code coordinates of the characters and special symbols.

Signal lights

3 color indicators act as turn signals.

- Front/Rear light x 4
- Left/Right light x 4
- Brake light x 2

Motor

Stable curve driving is possible by independently controlling the motors of the left and right wheels.

Steering

The mechanism is identical to that of a car with front-wheel steering.

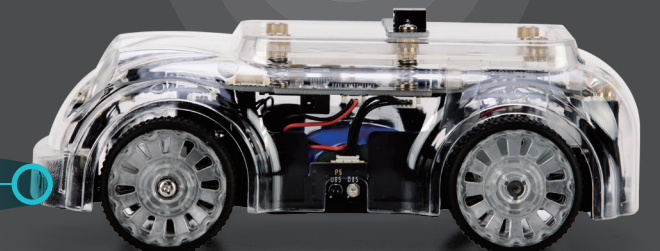
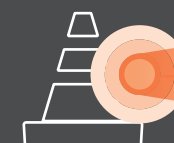
- 01 An educational robot kit used to develop robotics skills and knowledge.
- 02 Sturdy exterior made of solid, reliable materials.
- 03 Experience the automobile functions while coding the unit for self-driving.
- 04 Creative learning environment using various sensors and displays.
- 05 Members work together to attain more creative and improved solutions through collaborative objectives.

Infrared Obstacle Sensor

The emitted infrared rays are bounced off objects to detect obstacles and measure the distance.

Light Sensors

Check the amount of light in real-time. Coding activities can be carried out, such as tunnel missions.



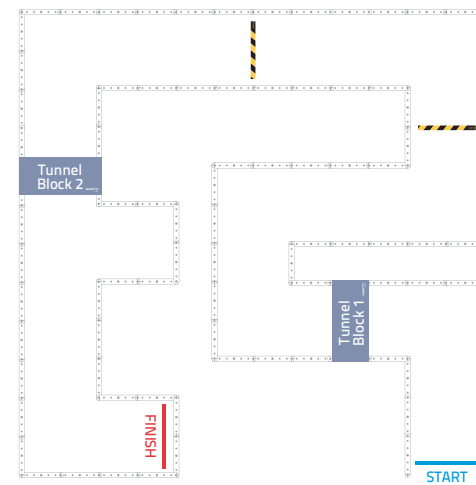
ALTINO COMPONENT

S T E P W I S E
L E A R N I N G

ALTINO Optional Addons



ALTINO Software Coding Textbooks



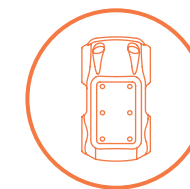
Examples of ALTINO Optional Configurations

Weeks	1st Semester / Topics
1 Week	Installing and connecting the program
2 Week	Driving ALTINO
3 Week	Turning on the lights and activating the speaker sounds of ALTINO
4 Week	Steering ALTINO
5 Week	Learning the control blocks
6 Week	Controlling ALTINO's infrared sensors
7 Week	Controlling ALTINO's light sensors
8 Week	Practice problems using ALTINO's infrared and light sensors
9 Week	Learning the ALTINO dot matrix
10 Week	Printing the ALTINO dot matrix with additional blocks
11 Week	Turning on ALTINO lights and sounds with additional blocks
12 Week	Practice problems using ALTINO's additional blocks
13 Week	Controlling the dot matrix with coordinates
14 Week	Practice problems with one-line control using the dot matrix control blocks with coordinates
15 Week	Practice problems of conditional sentences using the dot matrix control blocks with coordinates
16 Week	Practice problems of double loops using the dot matrix control blocks with coordinates
17 Week	Practice problems using the dot matrix control blocks with coordinates

Weeks	2nd Semester / Topics
1 Week	Controlling ALTINO's 3-axis acceleration sensors
2 Week	Controlling ALTINO's 3-axis acceleration sensors
3 Week	Controlling ALTINO's 3-axis gyro sensors
4 Week	Controlling ALTINO's 3-axis gyro sensors
5 Week	Controlling ALTINO's 3-axis geomagnetic sensors
6 Week	Controlling ALTINO's 3-axis geomagnetic sensors
7 Week	Controlling ALTINO's torque and temperature sensors
8 Week	Practice problems using ALTINO's sensors
9 Week	Practice problems using ALTINO's sensors
10 Week	Challenging application examples 1
11 Week	Challenging application examples 2
12 Week	Challenging application examples 3
13 Week	Challenging application examples 4
14 Week	Challenging application examples 5
15 Week	Challenging application examples 6
16 Week	Challenging application examples 7
17 Week	Comprehensive mission challenge

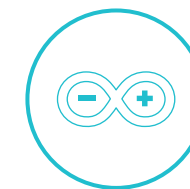
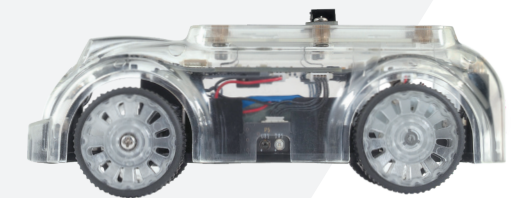
Stepwise Learning using ALTINO

ALTINO is offered in three types: Basic, Arduino, and Raspberry Pi. You can learn 7 programming languages with a single product by mounting Arduino boards and Raspberry Pi onto the basic type.



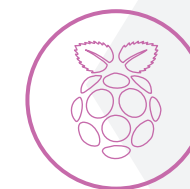
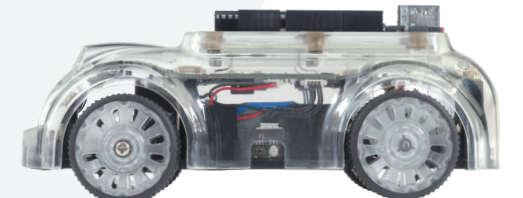
ALTINO STANDARD

Crayons | Scratch | Entry
Python | C Language | Android App



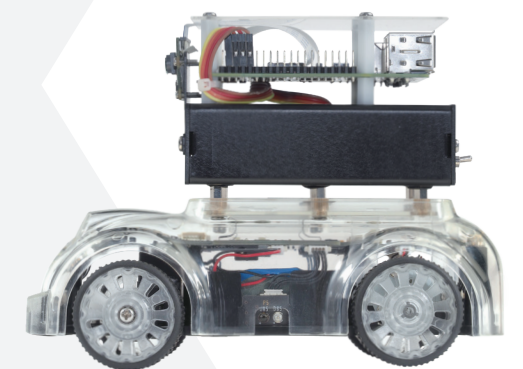
ALTINO ARDUINO

Crayons | Scratch | Entry | Python
Arduino Sketch | C Language | Android App

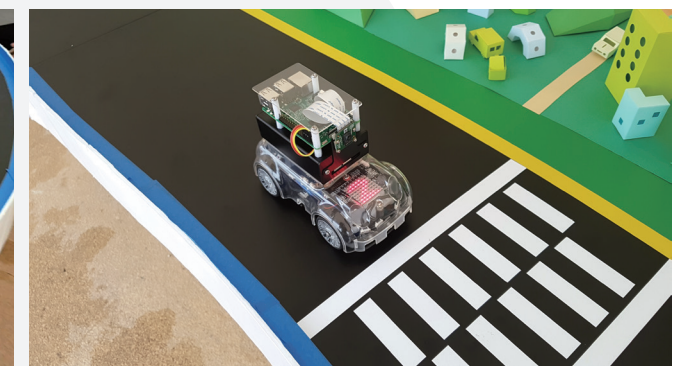


ALTINO RASPBERRY PI

Crayons | Scratch | Entry | Python
C Language | Android App | Raspberry Pi



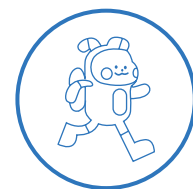
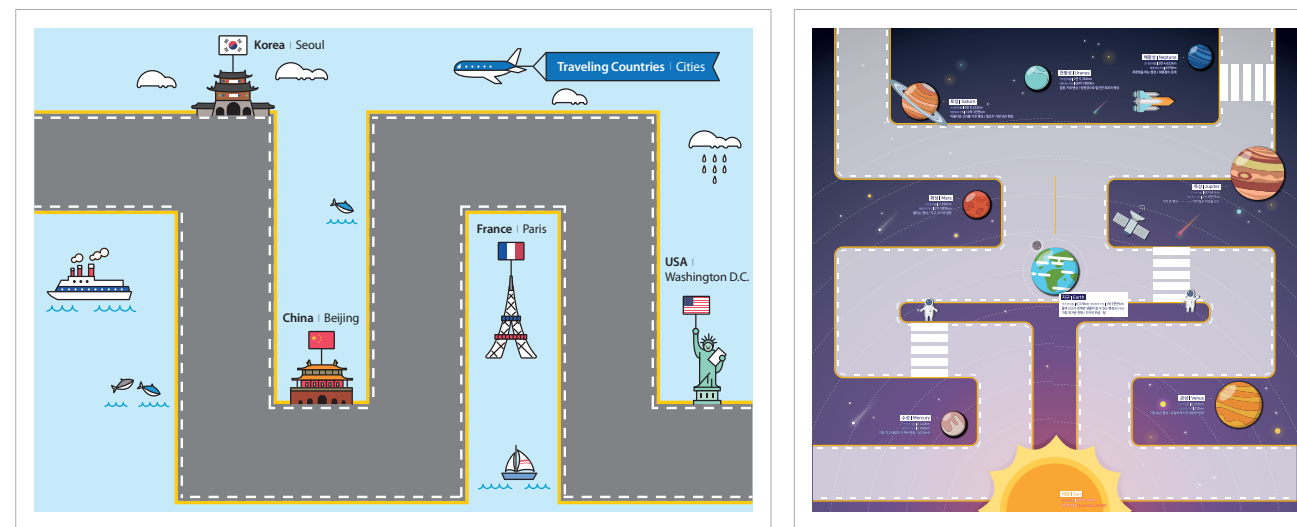
The Raspberry Pi ALTINO type enables self-driving, including changing directions by recognizing arrows through camera-based image processing or determining driving conditions by distinguishing colors.



ALTINO CURRICULUM

contents

Crayon | Scratch | Entry | Arduino Sketch | Python | C Language | Android App | Raspberry Pi



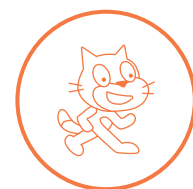
ENTRY

뒷바퀴 구동 좌: 400 우: 400
 조향 중앙 *
 소리 4-옥타브 고기

알티노 코드 센서값
 라이트 전방 켜기
 표시하기 A 표시하기 1행 고기

라이트 0x00 0x00
 소리 0
 조향 0

표시하기 0x00 0x00 0x00 0x00 0x00
 표시하기 켜기 X: 1 Y: 1
 표시하기 끄기 X: 1 Y: 1



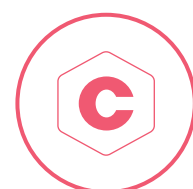
SCRATCH

Go L: 300 R: 300
 Steering Center-0
 Sound 4-Oct Non

Sensor CDS
 Light Forward On
 Display A Display Line-1 Off

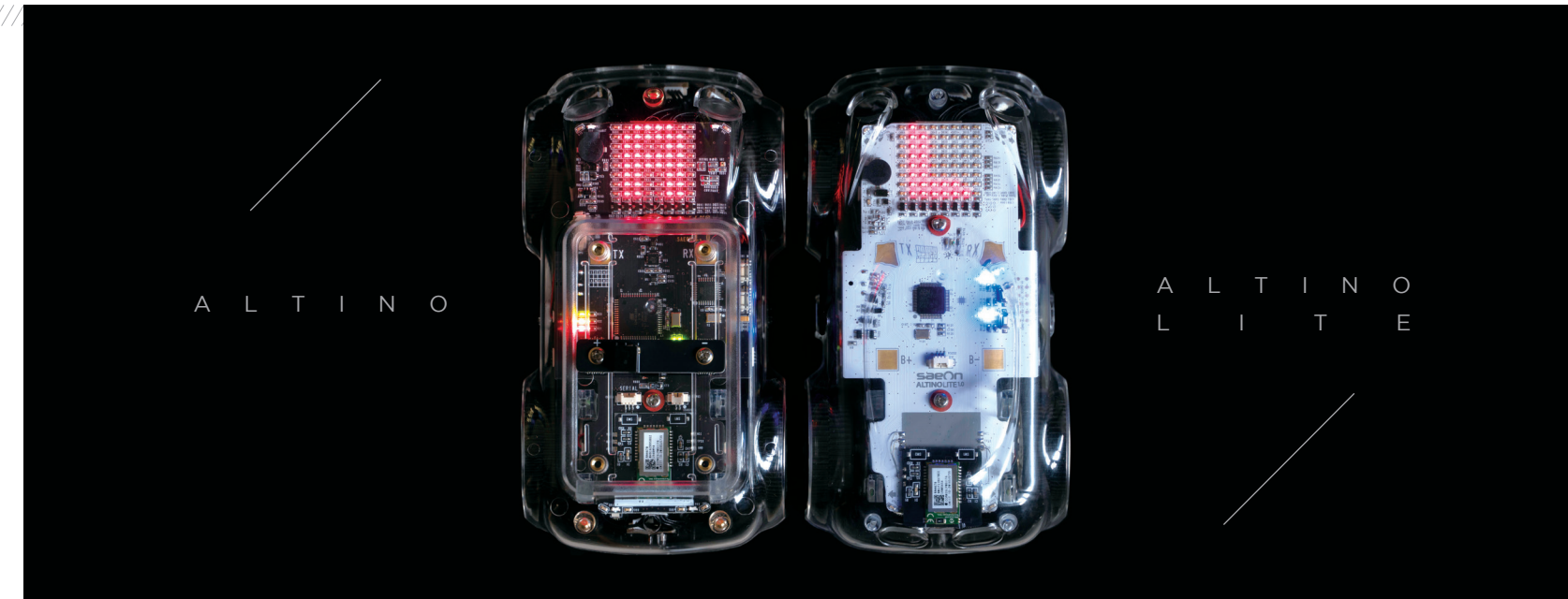
Light 0x00 0x00
 Sound 0
 Steering 0

Display 0x00 0x00 0x00 0x00 0x00
 Display on X: 1 Y: 1
 Display off X: 1 Y: 1



C Language

Go(int left, int right); **Steering**(int steeringvalue); **Sound**(unsigned char buzzer); **Display**(unsigned char ASCII);
DisplayLine(unsigned char dot0, unsigned char dot1, unsigned char dot2, unsigned char dot3, unsigned char dot4, unsigned char dot5, unsigned char dot6, unsigned char dot7); **Led**(long led); **Light**(long led); **Displayon**(int x, int y); **Displayoff**(int x, int y); **SensorData Sensor**(int command);



ALTINO

altino

Specification Comparisons

altino lite

ALTINO LITE

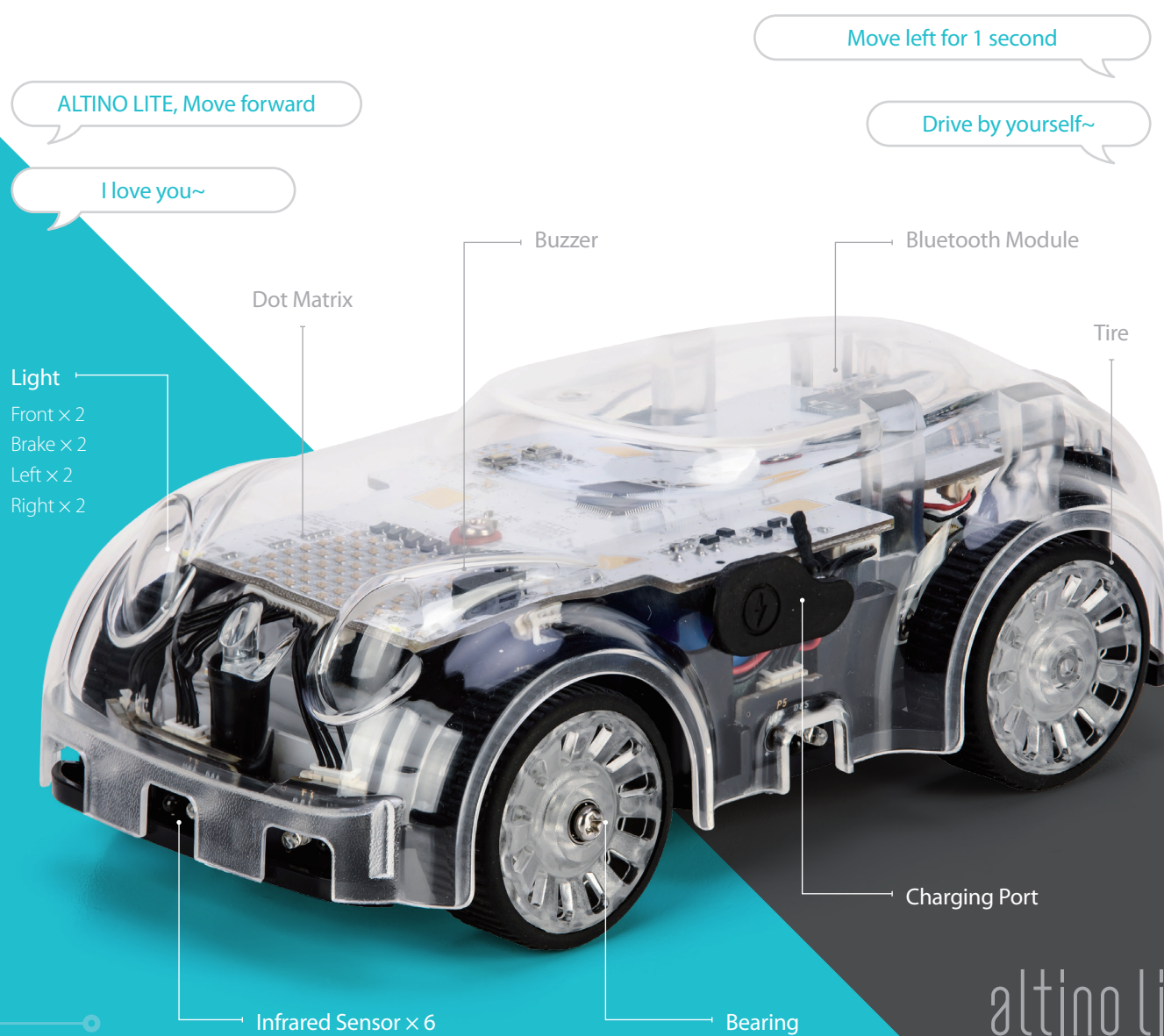
98 x 180 x 63mm / 415g	Dimension / Weight	98 x 180 x 61mm / 398g
Atmega128 / Atmega 88	Processor	STM32F070 (Cortex M0)
Infrared obstacle sensor: 6 EA Light, acceleration, gyro, compass, temperature, infrared receiving modules, steering control	Sensor	Infrared obstacle sensor: 6 EA Light, steering control
Buzzer, Dot Matrix 8 x 8 LED displays: 10 EA	Output device	Buzzer, Dot Matrix 8 x 8 LED displays: 8 EA
DC Geared (250RPM) DC Geared (88RPM)	Motor (RPM)	DC Geared (250RPM) DC Geared (88RPM)
UART (RS232) / Bluetooth	Communication	Bluetooth
Gender	Charging method	Built-in
2KG	Effective load	2KG
Crayon / Entry / Scratch / Python / C Language / Android Studio / Arduino Sketch / Raspberry Pi	Curriculum	Crayon / Entry / Scratch / Python / C Language
Arduino / Raspberry Pi	Mount	/
	Certification	

ALTINO LITE INTRODUCTION

If you would like to start coding and are wondering which language to learn, then we recommend ALTINO LITE!

The AI ALTINO LITE is a self-driving AI robot providing opportunities for diverse language education for elementary and junior high school students. Start your fun and easy coding journey with the AI ALTINO LITE, which can expand your creativity and analytical problem-solving skills through computational thinking based on goal-oriented education for successful self-driving missions.

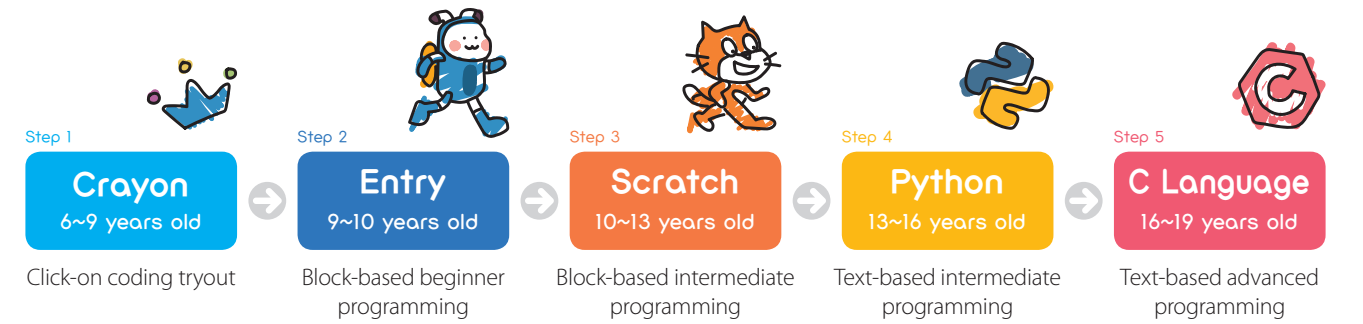
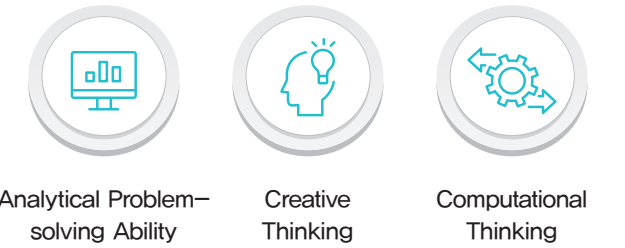
ALTINO LITE AI with Speech Recognition



Programming Language with ALTINO LITE

Offering goal-oriented education aimed at successful self-driving missions can increase analytical problem-solving skills and creativity through computational thinking.

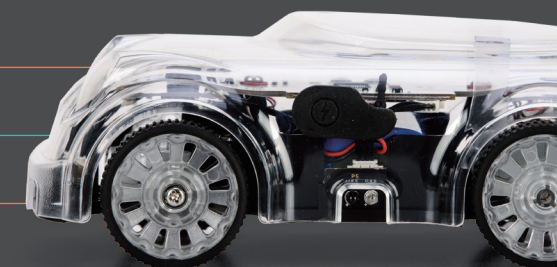
*This computational thinking refers to the thinking process and method that computer scientists employ when solving problems for programming.



Product Specifications

Dimensions / Ground Clearance / Weight	98mm x 180mm x 61mm / 12mm / 398g	Input sensors	Infrared obstacle sensor: 6 EA (Front: 3 EA, Left/Right: 1 EA each, Rear: 1 EA) Steering control sensor: 1 EA, Light sensor: 1EA
Material	TPU, PC, ABS	Output sensors	Buzzer: 1 EA, Dot matrix 8x8 LED: 8 EA (Front: 2 EA, Left/Right: 2 EA each, Brake: 2 EA)
Processor	STM32F070 (Cortex M0)	Communication	Bluetooth
Driving / Steering Motor	DC Geared Motor / 20:1 / 250RPM / 3.5~8VDC x 2EA DC Geared Motor / 220:1 / 55RPM / 2.5~6VDC	Battery	Li-ion, 7.4VDC / 2600mAh
Drive System	Front (steer), Rear (electronic wheel drive)	Charger	Input 100~240VAC / 47~63Hz, Output 8.4V / 1200mA
Wheels	Diameter: 40mm / Width: 17mm	Usage time	6H
Speed	Up to 50 cm/s		
Effective Load	2Kg max		

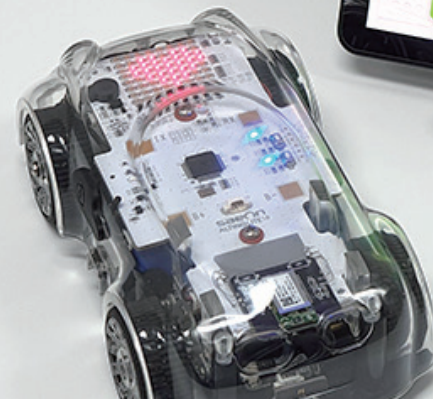
- 01 Experience the automobile functions while coding for self-driving.
- 02 See immediate results while the car recognizes its surroundings.
- 03 Voice-code ALTINO LITE through AI speech recognition.
- 04 Play with it like an RC car, as it is made of solid exterior materials.
- 05 Learn coding with 5 different programming languages.
- 06 Code anywhere you go with PCs, tablets, or smartphones, each offering exclusive programming.



altino lite

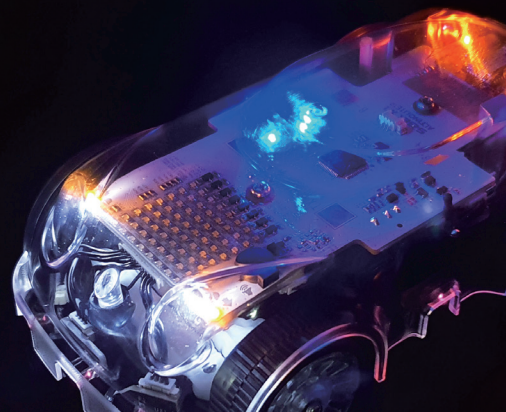
FUNCTION 1

It displays text and pictures.



FUNCTION 2

Display the driving status with lights.



FUNCTION 3

Play your desired music.



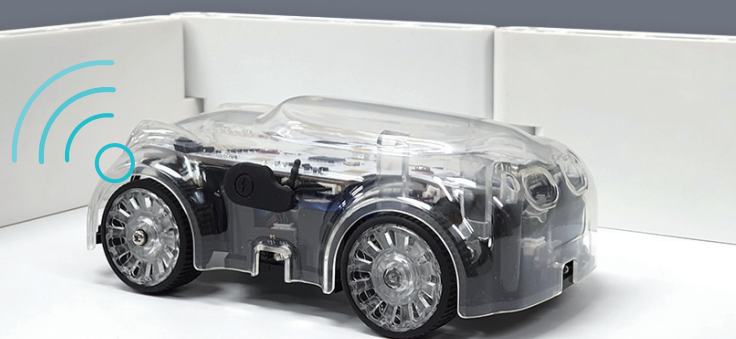
FUNCTION 4

Control the speed and direction.



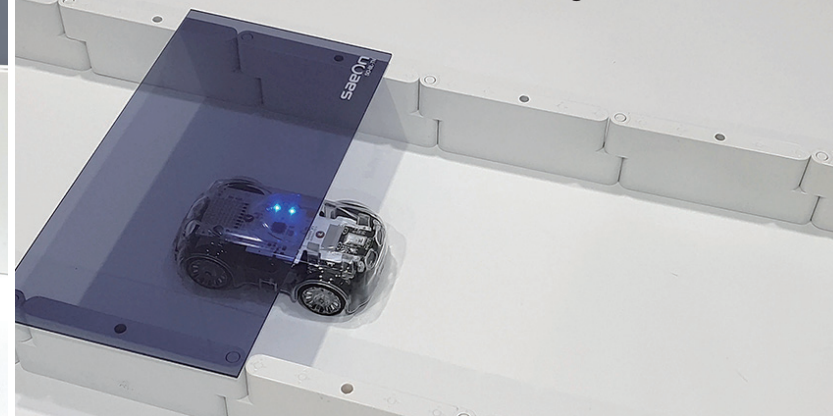
FUNCTION 5

Detect obstacles.

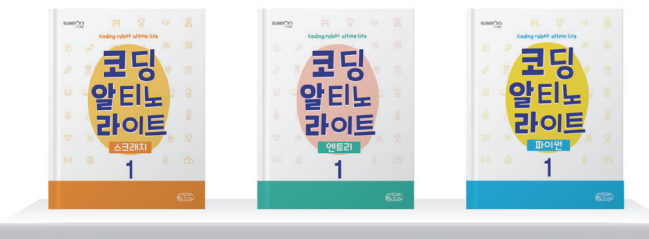


FUNCTION 6

Measure the amount of light.



ALTINO LITE CURRICULUM



3 Curriculum Levels for Each Programming Language

Scratch | Entry | Python



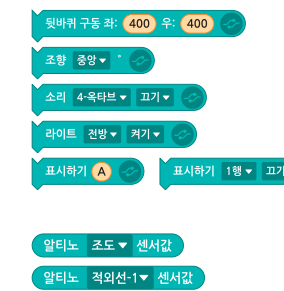
One-year Curriculum

Basic Advanced Mastery

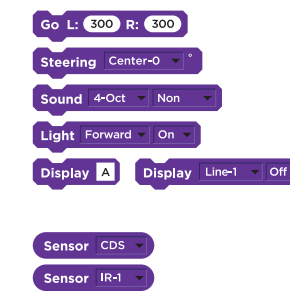
01 Basic 12-week course

Driving the ALTINO LITE
 Setting the ALTINO LITE's direction
 Turning on the ALTINO LITE's lights
 Producing sounds with the ALTINO LITE
 Controlling the ALTINO LITE's display
 Control blocks
 Controlling the ALTINO LITE's light sensors
 Controlling the ALTINO LITE's infrared sensor

Entry



Scratch



Python

Go(300, 300)
 Steering(1)
 Sound(0)
 Light(0x0000)
 Display('A')
 data.CDSSensor
 data.IRSensor[0]

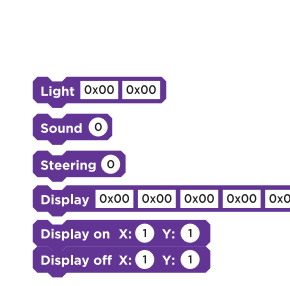
02 Advanced 12-week course

Data block
 Learning decimal and hexadecimal numbers
 Turning on the ALTINO LITE's lights
 Producing sounds with the ALTINO LITE
 Setting the ALTINO LITE's direction
 Controlling the ALTINO LITE's display [numbers]
 Controlling the ALTINO LITE's display [coordinates]
 Learning about self-driving

Entry



Scratch

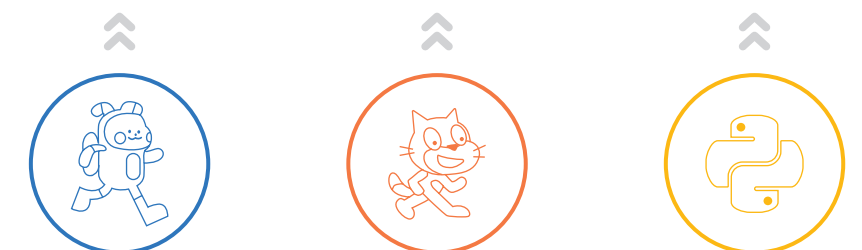


Python

DisplayLine(0x00,...)
 Displayon(1,1)
 Displayoff X: 1 Y: 1
 Displayon(1,1)

03 Mastery 12-week course

Exercise problems
 Self-driving mission
 Cooperative mission



IoT SMART FARM INTRODUCTION

Smart farming is rapidly emerging as a new future growth industry and it is gaining attention as a promising future career. The necessity of understanding its core concepts is increasing as departments related to smart farms are being established one after another at Korea's universities.

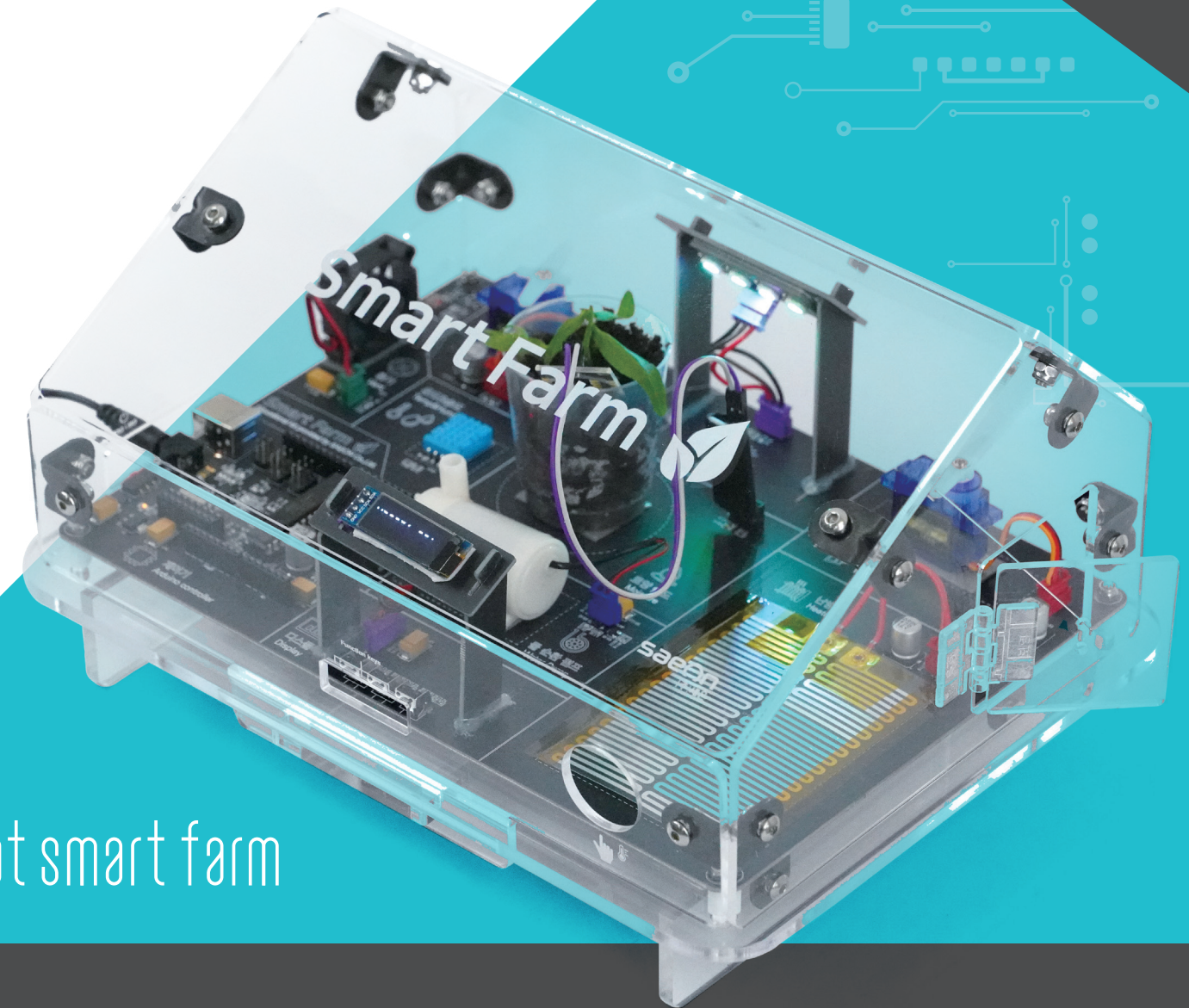
- 01 Assemble while directly checking the sensors used.
- 02 Experience technical training for employment and entrepreneurship.
- 03 Access the Arduino-based, IoT Smart Farm control programs.
- 04 Develop algorithms by utilizing Smart Farm-related server technologies.
- 05 Access the interlocking So-IS 2 library from external environments.
- 06 Monitor and control the IoT Smart Farm systems through PCs and Android Apps.



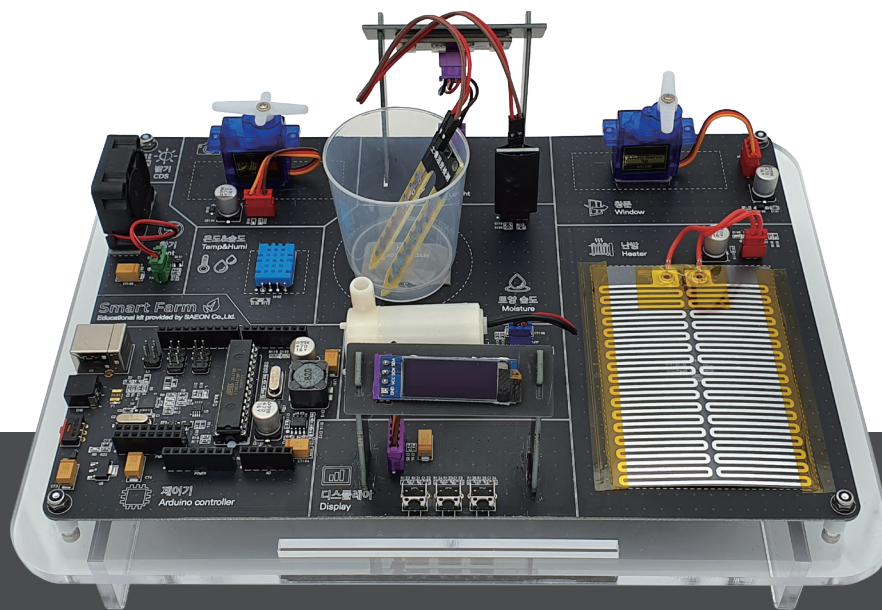
Educational Effect
The IoT Smart Farm is a training kit that helps students build a farm and automatically control the optimal growing environment based on big data.



How to Use
The app allows you to remotely manage your crops and monitor their condition.

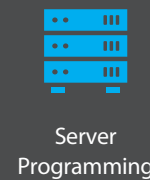


iot smart farm



Support Program

Let us monitor the situation by coding the servers and apps to manage the light, temperature, and humidity levels necessary for plants to grow through the IoT Smart Farm.



Arduino Sketch

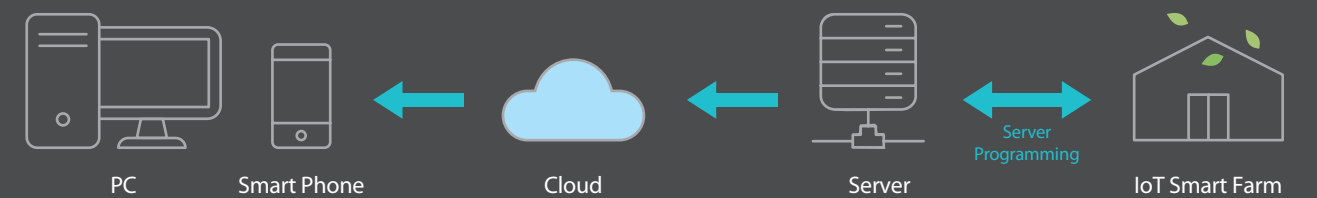


Android Studio



C Programming

IoT Smart Farm network configuration



- 01 IoT Smart Farm theories and trends >>
- 02 IoT Smart Farm assembly >>
- 03 Program installation and understanding >>
- 04 PC-based network programming >>
- 05 Android app programming

IoT SMART FARM APPLICATION

It is an environmental monitoring system through which sensors check the changing climate and environmental data collected at the forefront. The system analyzes data, performs calculations, and yields accurate control data within the integrated control system based on the aforementioned comprehensively collected data. You can receive accurate, rapid feedback from the calculated control data.

Arduino Sketch Programming



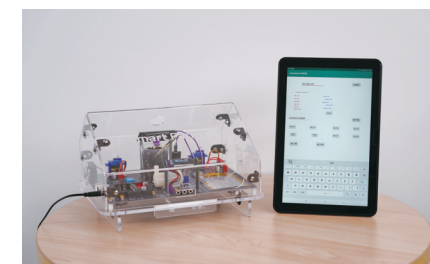
1. Covers a basic understanding of Arduino Sketch.
2. All sensors are open source and controllable.

Server Construction and Remote Control



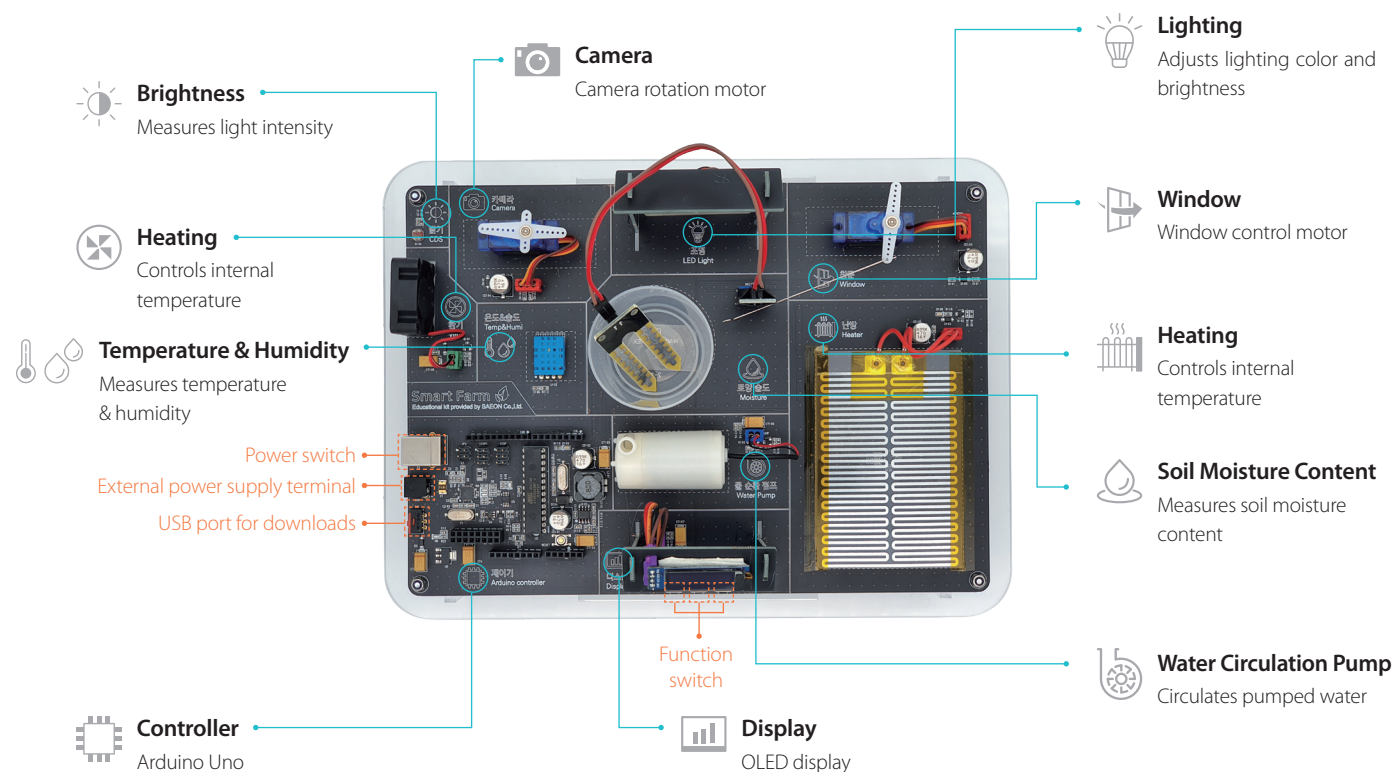
1. Serially receive the sensor data to deliver it to the web.
2. Network programming allows clients to share the server's data.

Android App Control



1. Create an app capable of individually controlling IoT Smart Farms with speech recognition.
2. Check the values of all sensors.

IoT Smart Farm Configuration



IoT Smart Farm components



IoT Smart Farm



USB2.0 cable



Power adapter

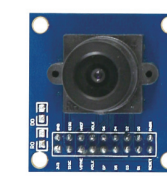


Product case

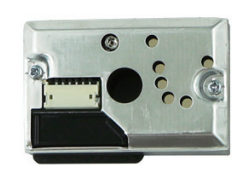
+ Optional components



CO2 Sensor



Camera



Fine-Dust Sensor

Product Specifications

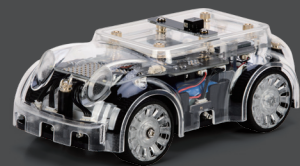
		iot smart farm
Device	Processor	ATmega382
	I/O	ATmega16U2
	Case	USB2.0 x 1
	Size	Acryl
	Communication	265mm x 194mm x 155mm
System	In	USB2.0
	Out	DC8.4V 1.5A USB2.0
	Pump	DIO 14pin / AD6pin / DC 5V, 2A
	Heating	5V / 400mA / 500cc/min / 2W
	FAN Motor @ Driver	5V / 600mA / max (80°C) / 4V~30V Accuracy (±1.5°C@25°C)
Sensor	Servo Motor	Low side switching Driver / Power supply (+5V~+35V) Peak Current (3.2A) / 5V / 500mA / 2W / 120° /sec
	RGB LED	2EA / 4.8V~7.2V / 0.2~0.7A / Angle (0°~270°) / Torqu (108Kgf.cm)
	OLED	5V / 250mA / 1W / 20lm
	Soil Moisture	5V / 200mA / I2C / 128 x 32
	Ambient Light Sensor	5V / 100mA / 0~5V Analog
	Temperature and humidity	5V 100mA / 5VTTL Serial wire communication
		5V 100mA / 20~50 kΩ / Ambient Temp (-30°C~+70°C)

SAEON HISTORY

Saeon Ltd.,
from Imagination
to Reality



altino



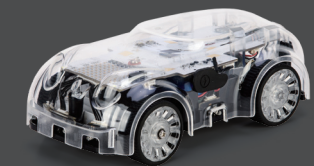
cello



iot smart farm



altino lite



2013

- Founded SAEON Inc.

2014

- Launched ALTINO
- Certified as a Venture Company

2015

- Launched the Evocative Light CELLO
- Set up a Corporate Research Institute

2016

- Launched the Cycloid Reducer

2017

- Promotion in San Francisco, U.S.A.
- Won the Grand Prize at the e-Learning/EduTech Business Model Contest (MOTIE*)
- * Ministry of Trade, Industry, and Energy

2018

- Opened the SAEON Australia Office
- Won the Grand Prize at the Excellent e-Learning Business Contest (Minister of Education)
- Won the Presidential Award at the R-Biz Challenge

2019

- Launched the IoT Smart Farm
- Moved to a new office
- Signed a business agreement with the Korean Multicultural Youth Association
- Hosted the 2nd Coding Technology Talent Sharing Event in Hawaii, U.S.A.

2020

- Launched the ALTINO LITE
- Won the Excellence Award from the Edu Plus Awards (Korea Education Frontier Association)
- Launched JAM, a contactless solution
- Selected as a contactless service provider by the Ministry of SMEs and Startups



Saeon Ltd. constantly strives to provide new values and innovative vision to customers, partners, and employees. In a rapidly changing world, Saeon will always take the lead in developing novel technologies and services for customers with fresh products and innovative visions. Bringing imagination into reality, Saeon endeavors to continue growing to create greater value to customers with each passing moment.



SAEON FIELD OF BUSINESS



Saeon Ltd. is committed to realizing customer-centric, value-oriented management.

Saeon is striving to lead both the development and future of AI and Robotics technology through creative thinking and innovative value creation. We present the highest level of services based on our accumulated technology and experience for major domestic and international companies, as well as many other customers.

R&D

- Educational Robot/Kit Development
- Program Content Development

R&D Service

National Projects

ETRI / KAIST / KIMM
KAERI / DAEJEON TP

Education Solutions

- Teacher/Lecturer Training
- Organization and Operation of Teacher/Lecturer Pools
- Business Competitions
- Educational University Camps
- Talent Development through Elementary/Middle/High School Education
- Online LMS Video Solutions

YOUTUBE Channel
Saeon Coding Lab



We will continue our research to enable students to enjoy stress-free coding with intuitive hardware, and to empower educators to teach more efficiently across various formats through the Saeon products.



Founded
2013



Academy
260 Schools



Exports
15 Countries



Educational & Research Institutes
31 Organizations



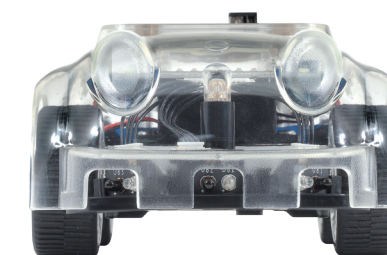
Professional Instructors
548 People

Together with Saeon

We attain customer satisfaction through trust-based impression, open-ended creation, and research and challenges.

- Education in various forms, such as elective year after school programs, clubs, and camps
- Registered as a standard platform for the PDE3 curriculum in the U.S.
- Issuance of levels 1 and 2 of the Robot Coding Instructor Certificates
- Training specialized instructors for coding education [ALTINO SW Coding World in Naver Band]

ALTINO's usability and performance are highly rated and regarded in Korea and the United States.



COMPETITIVE EXHIBITION



Korean Domestic Competitions

Mobile Robot Software Coding Contest

- Gold Mayor Award
- Silver Superintendent of Education Award
- Bronze Saeon Director Award

International Competitions

Driverless Vehicle Mission Challenge

- Grand Prize Presidential Award
- Gold Minister Award
- Silver KIRIA (Korea Institute for Robot Industry Advancement) Award
- Bronze ICROS (Institute of Control, Robotics, and Systems) Award

Talent Sharing

Winners of the Saeon International Competitions are entitled to participate in the Hawaii Talent Sharing Event (U.S.) for continuing coding education.



GLOBAL NETWORK

Hawaii, USA_ **Oceanit**



San Francisco, USA_ **Robot Lab**



Free Lessons
1-12 Grade
Beginner



Visual Programming (VPL) with Autonomous Cars
7-9 Grade
Intermediate



Physics with Autonomous Cars
8-11 Grade
Intermediate



United States of America



saeon

Saeon HQ



Australia



Brookvale, Australia_ **Saeon Australia**

ALTINO

ALTINO LITE

IoT SMART FARM



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