PLAY THE ROBOT
ALTINO

crayon

PHYSICAL COMPUING

SOFTWARE CODING

EDUCATION ROBOT

Raspberry Pi

Scratch

C Language
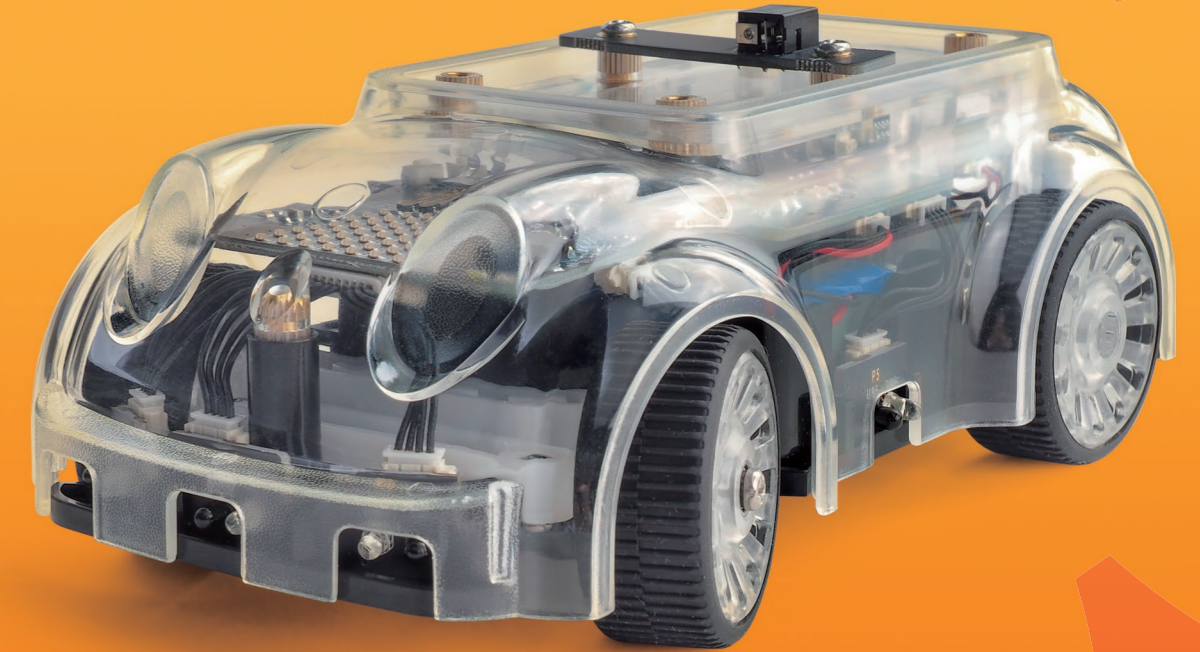
Arduino

Python

Android

saeOn
|주|새온

PHYSICAL COMPUTING

SOFTWARE CODING

EDUCATION ROBOT

PLAY THE ROBOT ALTINO

SCRATCH

Saeon Co.Ltd. From Imagination into Reality

Saeon Co. Ltd.is an enterprise that is ceaselessly striving to provide all of its customers, subcontractors, executives, & employees with new values & vision. In this fast-changing world, Saeon will always lead the way in development of new technology & service for customers with newest products & the newest versions. With the things imagined in our head becoming reality, Saeon Co. Ltd. will incessantly strive & grow to create greater values for customers in every moment.

2013

06   Established Saeon Co. Ltd. corporation

09   Launched 'ALTO', a Manipulator dedicated to
     the Mobile Robotics occupation in an International
     Vocational Training Competition

12   Build own production line

2014

06   Certified as a venture enterprise

08   Launched ALTINO, a Software coding robot

08   Supervised the Mobile Robot Software Coding Exposition
     (The 3rd Robot Convergence Festival)

2015

04   Established a business-affiliated research laboratory
     (Korea Industrial Technlogy Association)

07   Developed an emotion lighting called CELLO

08   Supervised the Mobile Robot Software Coding Exposition
     (The 4th Robot Convergence Festival)

2016

03   Acquired the ALTINO CE certification

04   Acquired the ALTINO FFCC certification

06   ALTINO Malasia launched

07   Cycloid speed reducer launched

08   Supervised the Mobile Robot Software Coding Exposition
     (The 5th Robot Convergence Festival)

09   ALTINO China launched

09   ALTINO Europe launched

10   Supervised the International Unmanned Car Coding Exposition
     (The 1st R-Biz Challenge)

12   Launched ALTINO Hawaii, US

12   Signed a contract with the Oceanit.inc agency in Hawaii, USA

2017

01   Launched ALTINO San Francisco, US

01   Acquired ALTINO IOS9001

08   Supervised the Mobile Robot Software Coding Exposition
     (The 6th Robot Convergence Festival)

09   Supervised the International Unmanned Car Coding Exposition
     (The 2nd R-Biz Challenge)

11   Acquired the IOS9001 for emotion lighting CELLO

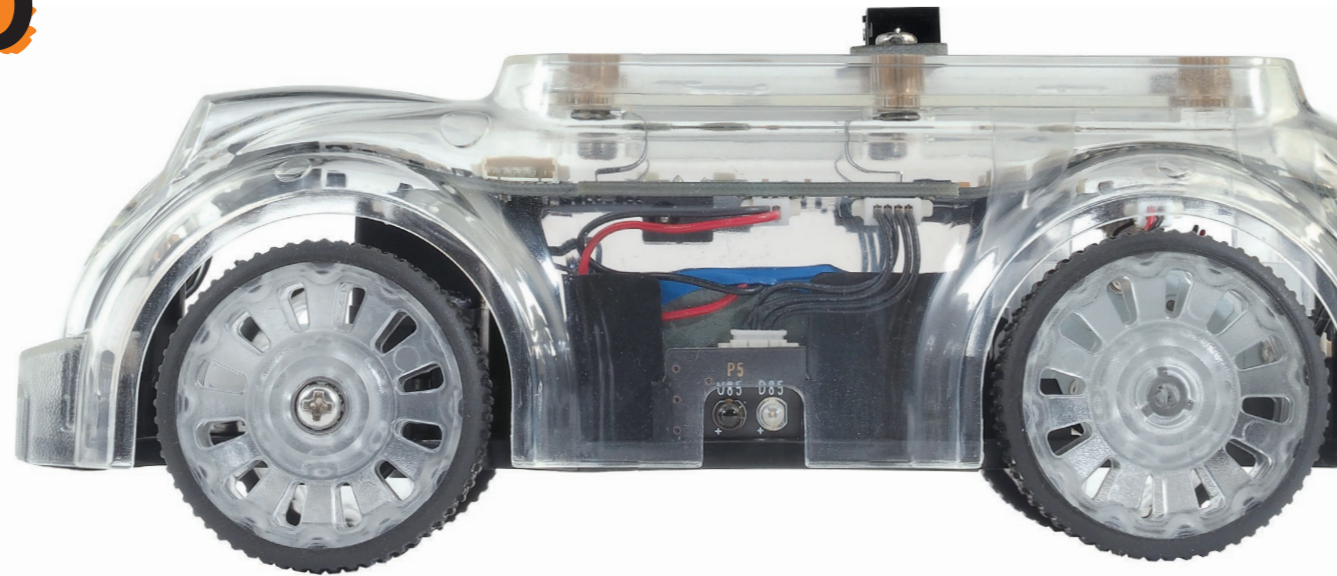11   Signed the KG ITBANK business agreement with KG Group

2018

01   Hosted the 1st Volunteer Service for Coding
     Technology Talent Contribution of Hawaii, US

03   Established an Australian branch of Saeon Co.Ltd.

05   Signed a business agreement with Wellstudy (Teacher Yoon's English Class)

saeOn

PLAY THE ROBOT ALTINO

Elaborate & funny intelligence robot, ALTINO

If you are with the intelligent robot Altino, everything you want will become interesting. Luxurious design will express its own elegance, while the dynamically advanced algorithm technology will present the best solution for more comfortable education, study, & play.

Multiple electronic transmission algorithm

When a car ascends a hill, it changes the gears into a low stage. However, the existing robots try to solve such loss only by the characteristics of the motor & gear head. Our company has realized to allow intelligent transmission by having multiple complex bodies such as the motor, encoder, main processor, power supply controller, etc. inside the robot mutually feedback the data.
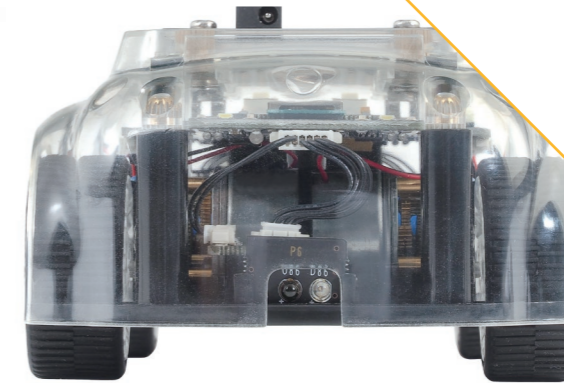
Hybrid control algorithm technology

In general, the concept of hybrid reminds the general public of eco-friendly cars with good fuel economy. However, the purpose of Altino's hybrid is to maximize driving effciency of robots by converging two controllers (PID controller & adaptive controller) for intelligent mutual supplementation of mutual limits. Also, another effect includes the ability to efficiently mange battery consumption.

Wheel-driving algorithm

Wheel-driving method is a technology currently used for cars, involving unequal rotation of the left & right wheels upon driving on curves. It is a technique developed to supplement slip due to mechanical structure differences occurring at this time, & it is currently mounted to all cars. Our company has transformed such mechanical structures into an electronic type for mounting onto robots.

Battery Management
Efficient management of battery by the mounting of a sensor for the measurement of battry voltage

Steering Device
Steering movement function in the same form as that of actual cars

Infrared Measurement of Distance
Distance measurement based on an infrared sensor

Measurement of CDS sensor
Measurement of brightness of surroundings by mounting of an CDS sensor

Measurement of Acceleration
Measurement of acceleration for tri-axial directions based on the robot

Dot Matrix
Expressing function of characters through the mounting of an 8x8 dot matrix

Measurement of Temperature
Measurement of temperatures of the robot's body

Remote Control
A function allowing reception of remote control signals
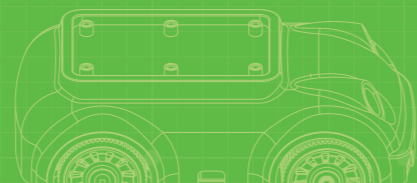
Bluetooth Communication
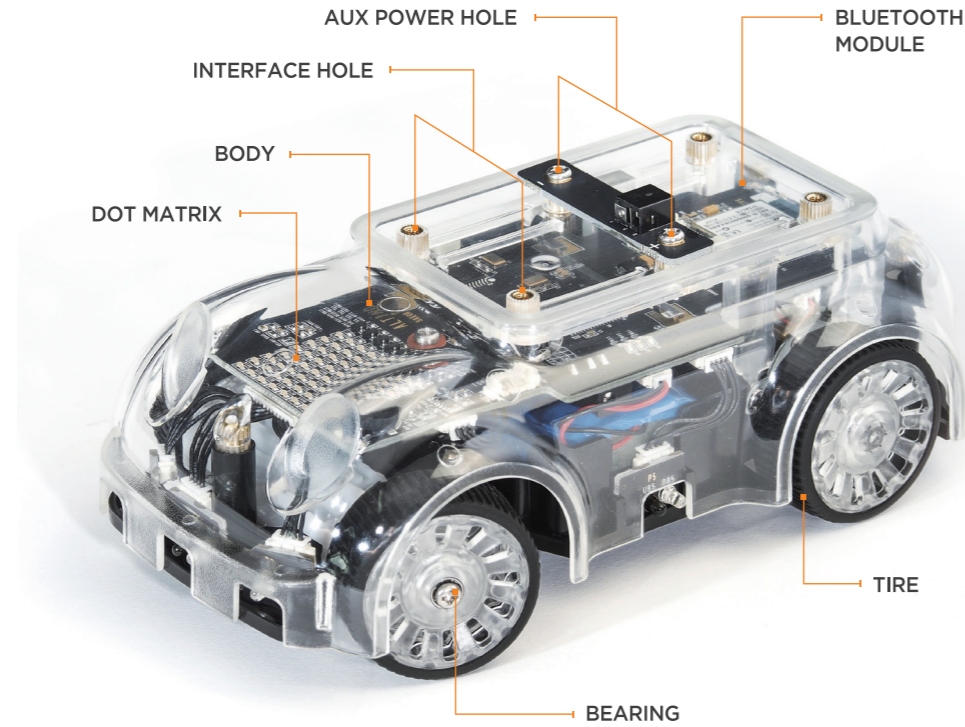Diversifide devices & interfacefunctions with the mounting of Bluetooth 4.2

Magnetic Measurment
Allows recognition of absolute bearing at current positions

PHYSICAL COMPETING
SOFTWARE CODING
EDUCATION ROBOT

AUX POWER HOLE

INTERFACE HOLE

BLUETOOTH MODULE

BODY

DOT MATRIX

TIRE

BEARING

SPECIFICASTION

PLAY THE ROBOT
ALTINO

Size
98mm x 180mm x 63mm (L x W x H)
Ground clearance : 12mm

Material
PC, K Resin, ABS

Motor
DC Geared Motor(250RPM / 30:1 / 3.5-8VDC)
DC Geared Motor(88RPM / 220:1 / 2.5-6VDC)

Processor
Atmega 128, Atmega 88 Dual Processor

Wheel
4 wheel driving to front wheel driving

Battery
Li-ion cell, 7.4v 2600mAh

Payload
Less than 2kg
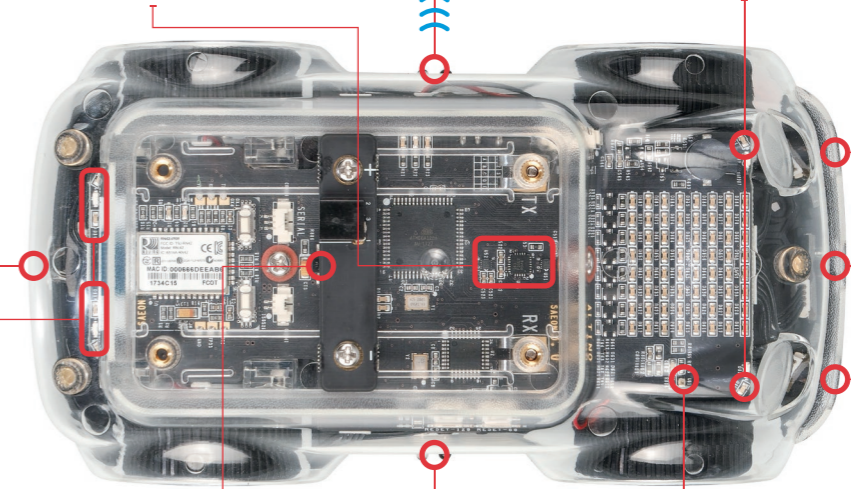
Speed
Max. 50cm/s

INERTIAL MEASUREMENT UNIT SENSOR
(3AXIS-ACCELERATION / GYROSCOPE / COMPASS)

SIDE(L) IR SENSOR

FRONT STATUS INDICATOR LIGHT
☐ WHITE x 2   ■ ORANGE x 2

REAR IR SENSOR

FRONT IR SENSOR

REAR STATUS INDICATOR LIGHT
■ RED x 2
☐ WHITE x 2
■ ORANGE x 2

IR RECEIVER   SIDE(R) IR SENSOR   TEMPERATURE / CDS SENSOR

Display
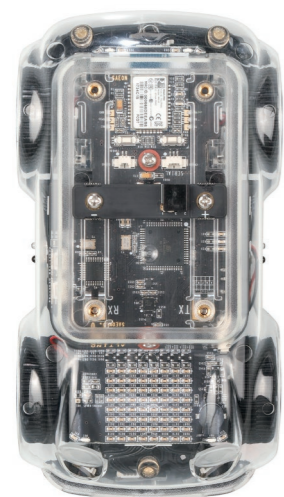Dot matrix 8x8, State display lamp 13ea, Buzzer 1ea

Communication
UART(RS232), Bluetooth 4.2

Sensor
Infrared sensor for obstacle sensing : 6sets
Steering control sensor : 1ea
CDS sensor : 1ea
IR sensor : 1ea

Magnetic sensor : 1ea
Gyroscope sensor : 1ea
Acceleration sensor : 1ea
Temperature sensor : 1ea

Charger
(Input) 100-240VAC / 50-60Hz
(Output) 8.4V 1200mAh
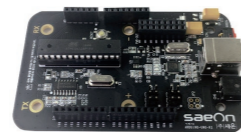
Base Components

ALTINO

CASE

ALTINO STATION

CHARGER
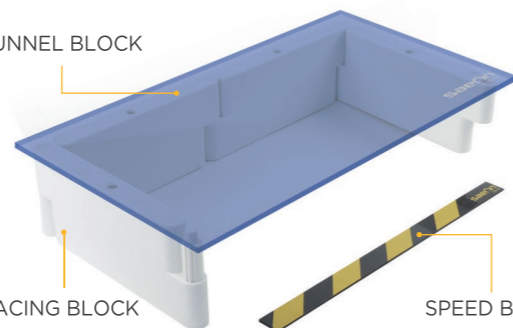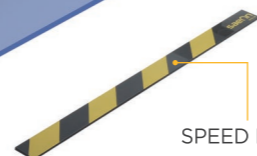
Option Components

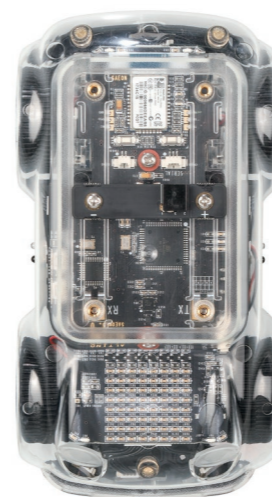ARDUINO BOARD

RASPBERRY PI

TUNNEL BLOCK

RACING BLOCK

SPEED BUMP

Recommended Components

ALTINO x 1

RACING BLOCK x 20

TUNNEL BLOCK x 2

SPEED BUMP x 2
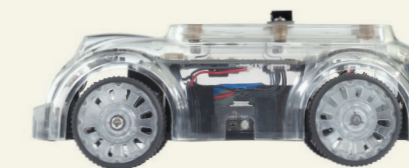
ALTINO STANDARD
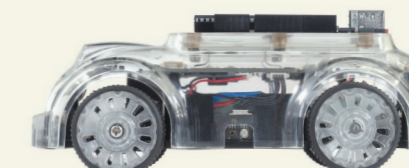
ALTINO ARDUINO
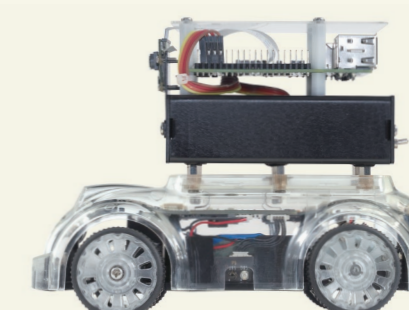
ALTINO RASPBERRY PI

SCRATCH
PROGRAMMING
WITH **ALTINO**
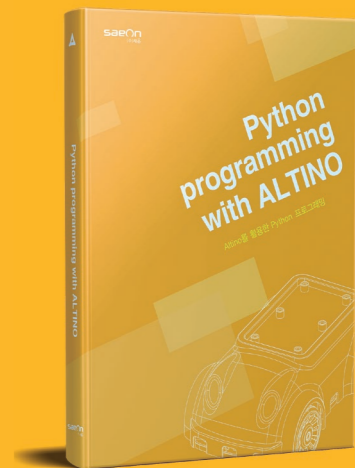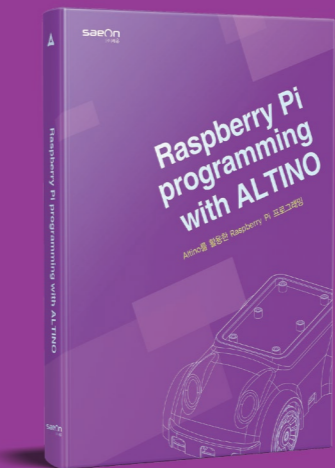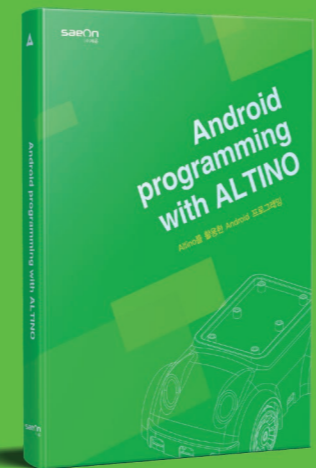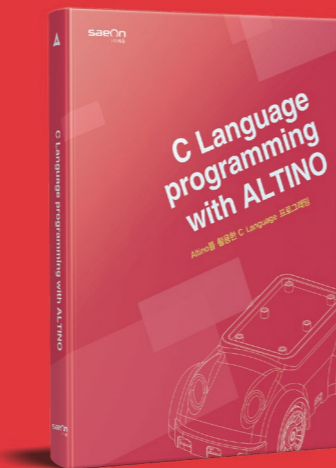
ARDUINO
PROGRAMMING
WITH **ALTINO**

C LANGUAGE
PROGRAMMING
WITH **ALTINO**

ANDROID
PROGRAMMING
WITH **ALTINO**

RASPBERRY PI
PROGRAMMING
WITH **ALTINO**

PYTHON
PROGRAMMING
WITH **ALTINO**

Scratch programming with ALTINO

Arduino programming with ALTINO

C Language programming with ALTINO

Android programming with ALTINO

Raspberry Pi programming with ALTINO

Python programming with ALTINO

SCRATCH
PROGRAMMING WITH UTILIZATION OF **ALTINO**

Scratch is an educational programming language & environment designed for the purpose of accumulating experience in computer coding through graphic environments for children.

01 WEEK Finding out about Altino system

02 WEEK Installing the program

03 WEEK Operating Altino Lite

04 WEEK Creating songs with Altino speaker

05 WEEK Making Altino display board

06 WEEK Moving around Altino

07 WEEK Sensing data by using Altino

08 WEEK Trying out the operator by using Altino

09 WEEK Trying out for statements by using Altino

10 WEEK Trying out conditional statements by using Altino

11 WEEK Trying out an event by using Altino

12 WEEK Trying out observation by using Altino

13 WEEK Trying out sound movement by using Altino

14 WEEK Pass the racing course by using Altino

15 WEEK obstacles by using Altino Passing through

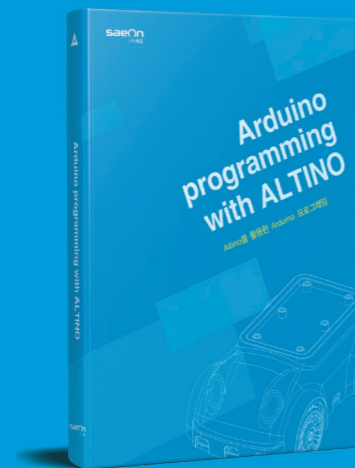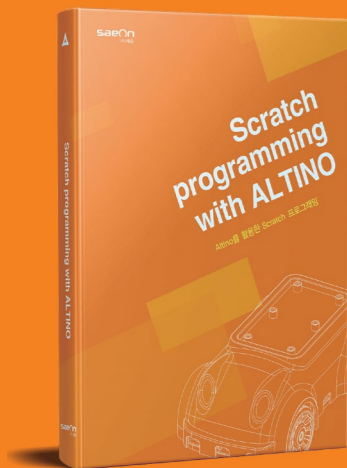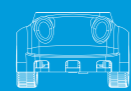# ARDUINO
PROGRAMMING WITH UTILIZATION OF **ALTINO**

Arduino refers to a software development environment to make digital devices with interactive objects that can sense & control the world.

01 WEEK Understanding Altino system

02 WEEK Installing the sketch

03 WEEK Controlling Altino motor

04 WEEK Controlling Altino buzzer & 10 LED's

05 WEEK Controlling Altino Dot matrix

06 WEEK Controlling Altino sensors

07 WEEK Understanding data/variables by using Altino

08 WEEK Understanding operators by using Altino

09 WEEK Understanding conditional statements by using Altino

10 WEEK Understanding statements by using Altino

11 WEEK Understanding arrays by using Altino

12 WEEK Understanding functions by using Altino

C LANGUAGE
PROGRAMMING
WITH UTILIZATION
OF ALTINO

C-language is a programming language designed essentially to allow for use in all computer systems, & is used frequently for development of systems, applications, and programs

01 WEEK Understanding Altino system
02 WEEK Using Visual C
03 WEEK Controlling Altino motor
04 WEEK Controlling Altino buzzer & 10 LED's
05 WEEK Controlling Altino Dot matrix
06 WEEK Controlling Altino sensors
07 WEEK Understanding data / variables by using Altino
08 WEEK Understanding operators by using Altino
09 WEEK Understanding conditional statements by using Altino
10 WEEK Understanding for statements by using Altino
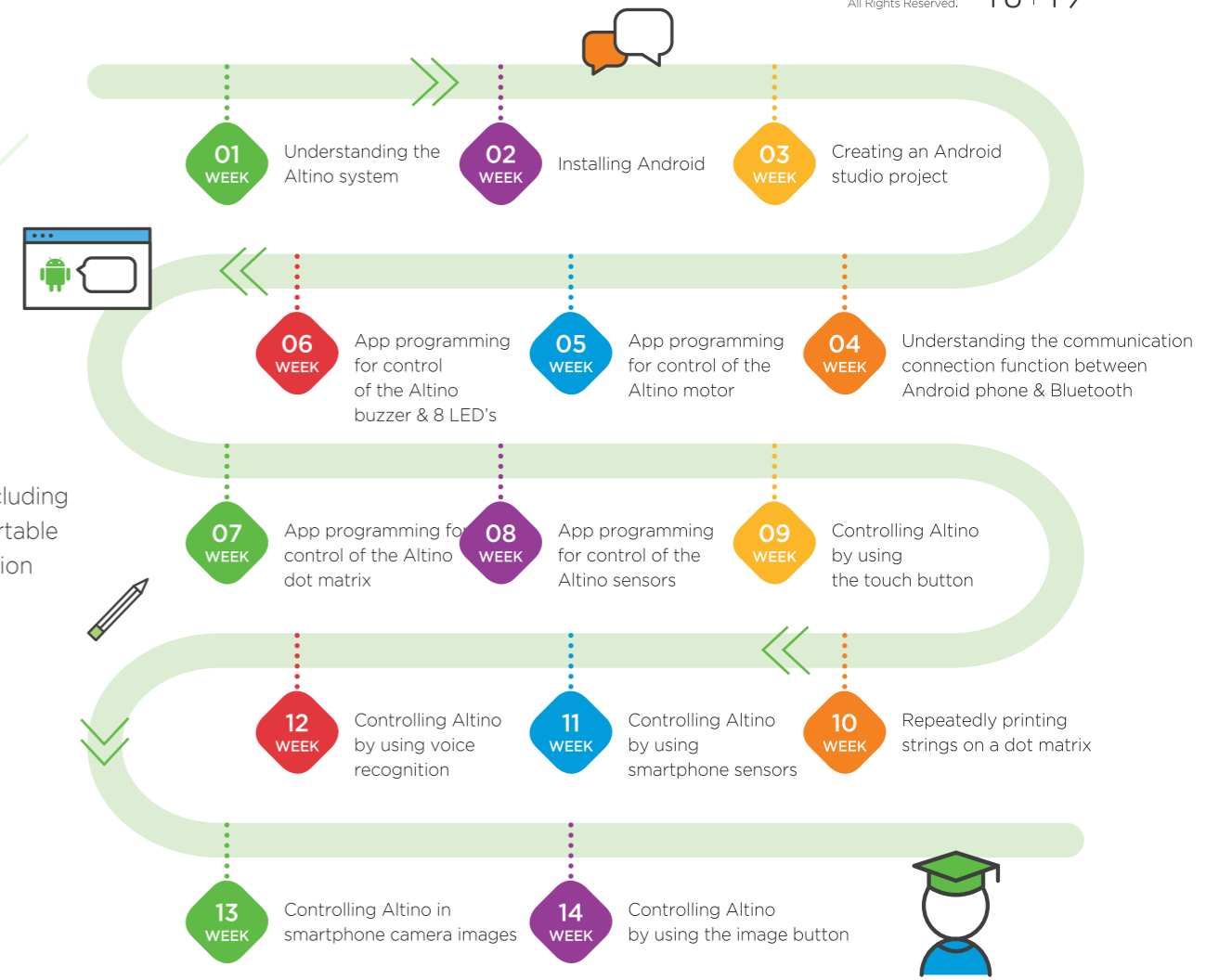**11 WEEK** Understanding functions by using Altino
12 WEEK Understanding arrays by using Altino
13 WEEK Understanding structures by using Altino
14 WEEK Understanding file I/O by using Altino
15 WEEK Autonomously driving by using Altino
16 WEEK Controlling Altino based on dialog box

ANDROID
PROGRAMMING
WITH UTILIZATION
OF ALTINO

Android is a software operation system including the operation system & middleware for portable devices, user interfaces, standard application programs, etc.

01 WEEK Understanding the Altino system
02 WEEK Installing Android
03 WEEK Creating an Android studio project
04 WEEK Understanding the communication connection function between Android phone & Bluetooth
05 WEEK App programming for control of the Altino motor
06 WEEK App programming for control of the Altino buzzer & 8 LED's
07 WEEK App programming for control of the Altino dot matrix
08 WEEK App programming for control of the Altino sensors
09 WEEK Controlling Altino by using the touch button
10 WEEK Repeatedly printing strings on a dot matrix
11 WEEK Controlling Altino by using smartphone sensors
12 WEEK Controlling Altino by using voice recognition
13 WEEK Controlling Altino in smartphone camera images
14 WEEK Controlling Altino by using the image button

SAEON

EXPOSITION

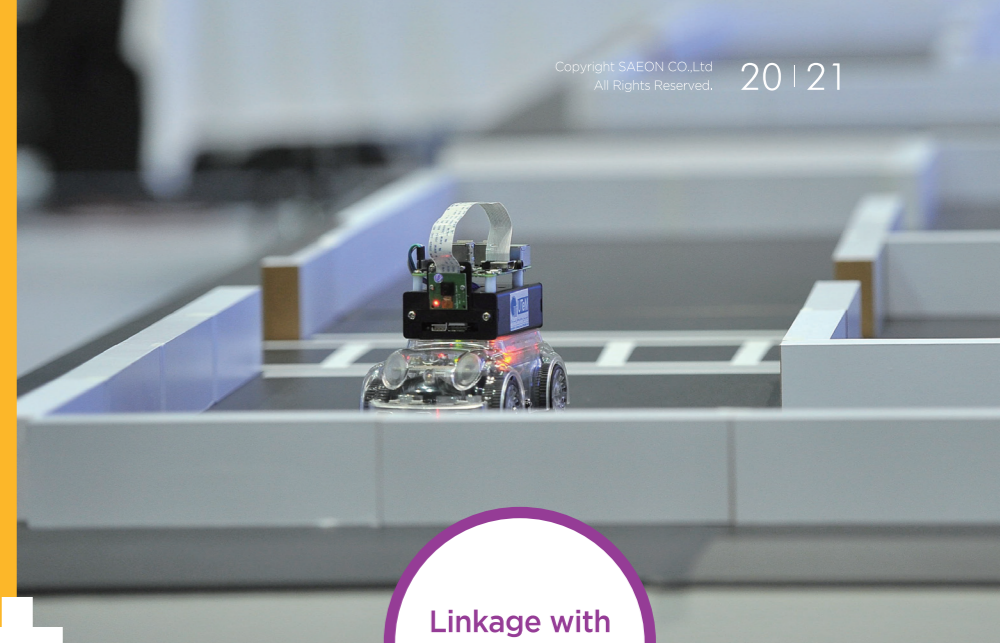**Consciousness for Objective**

Motivation

Cultivation of specialists

Linkage with employment

UNMANNED CAR

Aug.8 Software coding exposition

1st rank Mayor award
2nd rank Superintendent award
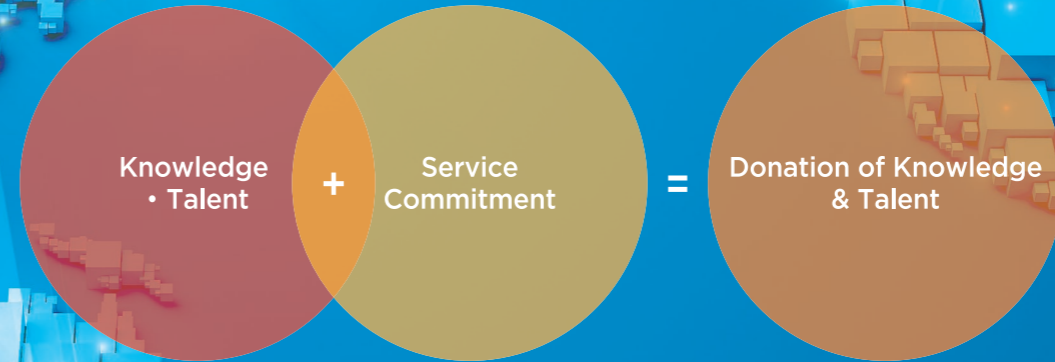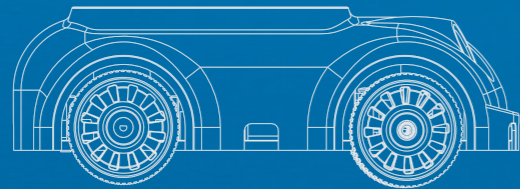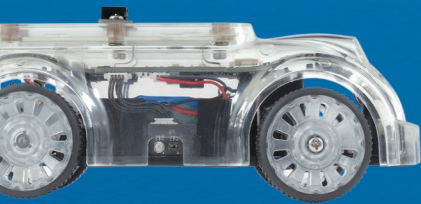
Sep.9 - Oct.10 Mission challenge for unmanned cars

Grand Prize Presidential award
Gold Prize Minister ward
Silver Prize Director of Korean Institute for Robot
Industry Advancement award
Bronze Prize President of Control Robot System
Society award

** Winners' opportunities to be selected for overseas talent
donation & sharing events

PLAY THE ROBOT
ALTINO

Making Imagination Real

A Business of Creative Innovation
SAEON Co., Ltd.

Knowledge · Talent **+** Service Commitment **=** Donation of Knowledge & Talent

PLAY THE ROBOT
ALTINO