Product Description

CnR Tech. Co., Ltd

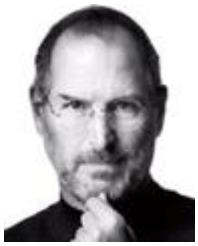
Coding Blocks』

I Market Condition and Product Summary

Coding education is the megatrend!

Market Condition

- Global market expansion for early coding education: **Global Top Trend**
- Compilation of compulsory SW education courses in Korea (From 2018) → Elementary 17 Hours· Secondary 34 Hours
- Mandatory process implemented in many countries: U.S., U.K., China, Japan, India, etc.



"Everyone living in this country must learn computer programming. Because the program teaches you how to think"
[Steve Jobs]

"Let's not just download the game, let's make it ourselves"
[Barack Obama]

❷ Why do we need coding education?

- To develop logical thinking skills: **Logical Thinking**
- Coding → Flowchart → Algorithm → Logic
- **Logical Thinking is essential** to solving problems constantly encountered while living
- To help develop creativity

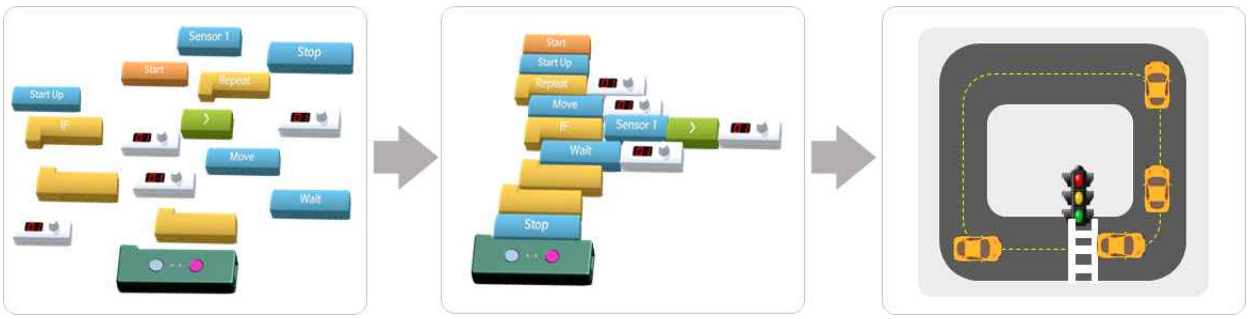
❸ How to teach coding?

- Exclusion of learning by rote
- **Logical thinking training should be emphasized**, not the coding skills
- Generation of interest is essential: Preventing coding surrender

Coding Blocks

NO Computer
NO Cable
NO EPL

- Coding with blocks **without computer**
- Arrange blocks as you draw a flowchart to complete the code
- Coding taught by **five senses**
- Improve logical thinking and creativity



Ⅱ WHY CODING BLOCKS?

Learning out of computer room!

❶ Coding to Learn by Playing without Computer

- Computer is the gateway to the current coding course.
- However, for infants and the lower graders, it is also an obstacle to logical and creative thinking.

〈Top Reasons Not to Allow Kids to Use their Smartphones〉

[Unit: %,(person)]

Question	Total	Infant	Toddler
Total	100.0(220)	100.0(70)	100.0(150)
Risk of Media Addiction	40.0	35.7	42.0
Accessibility of Harmful Content	14.5	14.3	14.7
Hindrance to Cognitive Development	12.7	15.7	11.3
Hindrance to Physical Development	13.2	8.6	15.3
Decline in Social Development	11.8	17.1	9.3
Excessive Exposure to Advertising	4.5	2.9	5.3
Personal Information Disclosure	3.2	5.7	2.0

Parents' negative perception of the use of smart devices. Actual state of exposure and protection measures for infant and child smartphones. Lee Jeong-Rim

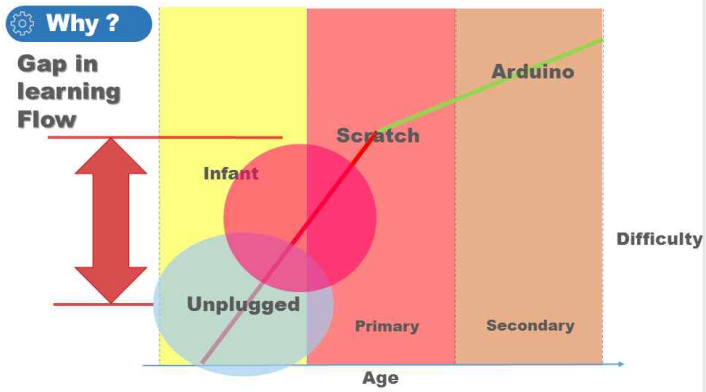
Problems of the Current Curriculum

- Current Training Flow

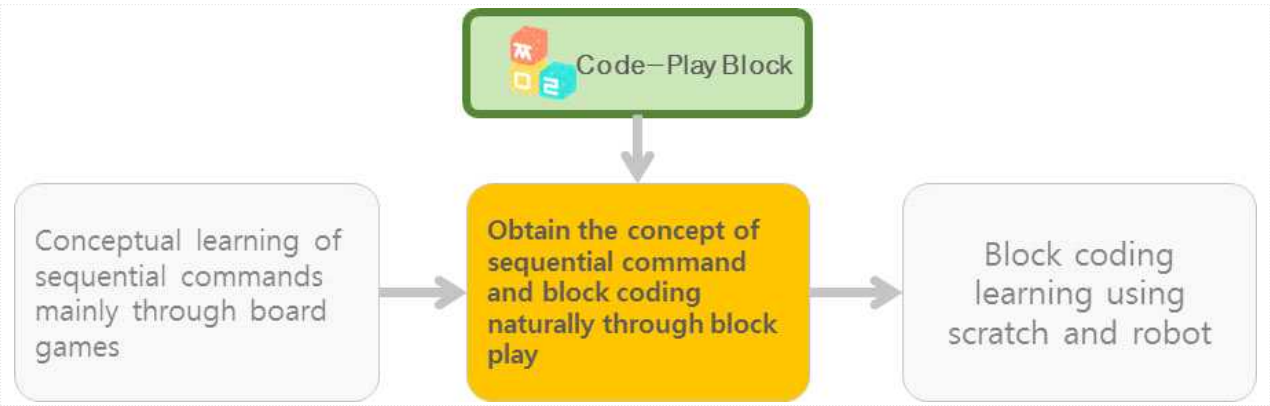
Infant	Elementary Grade 1~3	→	Elementary Grade 4~6
Conceptual learning of sequential commands mainly through board games	–		Block coding learning using scratch and robot

- Problem

· Lack of unplugged teaching aid for infants and lower graders
· The current coding training curriculum ends up in scratch
· The current elementary lower grade curriculum is a mix of board game and scratch
· The difficulty rapidly rises when entering Scratch in the current training curriculum



- Improvement
  · Need a flow that **smooths the entire training curriculum**
  · Need a training aid for children to learn themselves

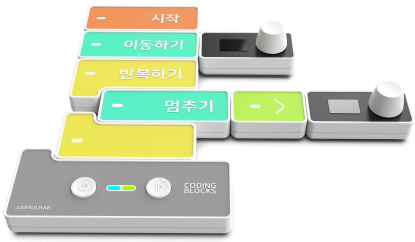


Ⅲ Function and Roles of Products

Coding with Blocks!

Coding with Block

Coding with Blocks	Check Results with Robot
• Real life edition of scratch command block • Assemble blocks and code is completed • Extensibility including repetition, conditions and variables	• Real-time verification of code results via the robot • Coding that children learn by playing with the control of their favorite automotive robot



Ⅳ Features

We code without a computer!

❶ Coding without computer Unrestricted coding classes at a place

❷ Learning the function and structure of scratch through the actual block
Learning naturally through play

❸ Extensibility similar to actual coding → Real-world levels of repeatability, conditions, and variables

❹ Interlink Math and English to other subjects → Move to coordinates (understand coordinate concept), English vocabulary quiz

V Effects

Easy and Fun Coding Class!

Reduce effort and time to prepare for class

General Physical Computing	Coding Blocks
• Computer room reservation : 10 minutes • Check normal operation of the computer : 15 minutes • Check the installation of teaching aids and cable : 10 minutes	• Just pull out the blocks and it's prepared~!

❷ Improve Class Engagement

- In general physical computing classes, focus on the physical tools reduces interest in the real SW.
- Improve classroom engagement by assembling blocks by touching them with hands
- Play block to generate interest in SW

❸ Maximizing Learning Effect

- Easily understand concepts with an intuitive approach
- Fast to acquire concepts for block coding
- Coding naturally learned through play
- LED blinks to indicate sequential flow of code
- Understanding the behavior of code through debugging

Ⅵ Product Configuration

Product Base Configuration

Division	Quantity	Block type
Basic Block	2	Start Block, Brain Block
Order Block	10	Move(5), LED On, LED Off, Sound, Wait(2)
Condition Block	5	If, Else, Repeat, Close(2)
Memory Block	1	Function
Number Block	12	2 ~ 7
Direction Block	9	arrow
Sensor Block	3	Light Sensor, Front Sensor, Bottom Sensor
Dial Block	2	Dial Number Block
Robot	1	Code-bot "Choco"
Base Configuration : total 44 blocks + 1 robot		

❷ Product Configuration Picture

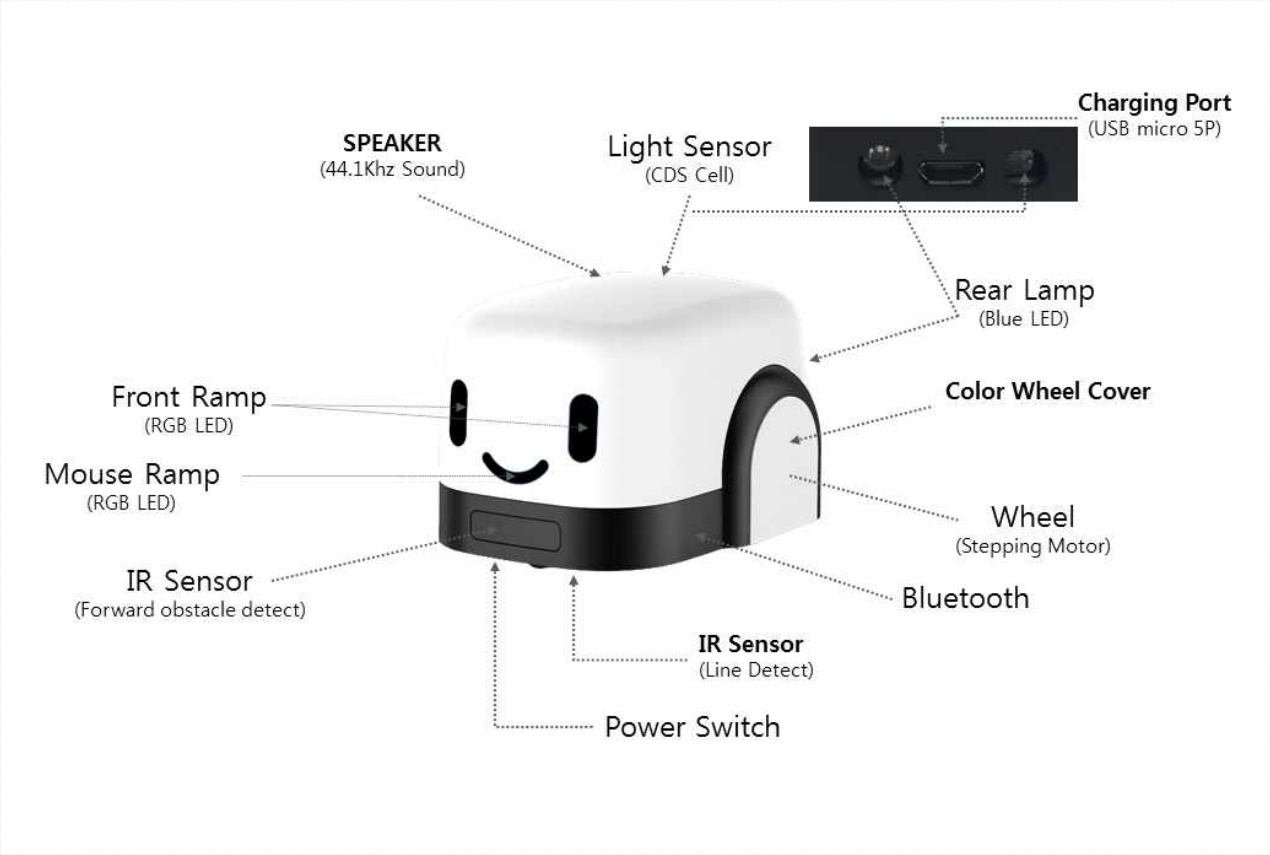
<Code Play Block Standard Package Configuration>

Ⅶ Detail Function

Detail Function by blocks

Name	Block	Role of the Block
Start	Start	It means that all commands are started. The "START" block should always be on top.
Move	Move	It's a command to move the robot. You can adjust the direction using direction blocks.
Turn on LED	LED On	Turn on the robot's lamp. You can adjust the position of the lamp using the direction block, and you can adjust the color using the number block.
Turn off LED	LED Off	Turn off the lamp on the robot.
Make Sound	Sound	The robot makes a sound. When you connect a number block, you can make the robot make the sound of cars, robot, puppy, cat, chicken, tiger or and lion, depending on the number.
Wait	Wait	The robot waits without performing any action. You can set the time to wait by connecting the number block or the dial block.
If	IF	It can be connected to the sensor block. If "□□" is detected by the "□□" sensor...
Repeat	Repeat	From here, the command blocks up until the 'CLOSE' block are repeated.
Else	Else	Number of repetitions when connecting a number block.
Close block		Mark the ends of the "IF" and "REPEAT" blocks.
Function	Function	It remembers the combined command blocks at once.
Number block	2 3 7	2, 3, 4, 5, 6, 7
Direction Block		It controls the direction of the robot according to the direction inserted.
Sensor block	Light Sensor / Front Sensor / Line Sensor	It is used together with the "FRONT SENSOR", "BOTTOM SENSOR", "LIGHT SENSOR" and "IF" blocks.
Dial block		It acts like a number block. You can change the number by turning the dial. (Possible to choose from 0.1 to 99.)
Brain block		It must always be at the bottom. It collects all the commands under the "START" block and sends them to the robot.

Robot Detail Function



❸ Robot H/W Specification

- Processor : Cortex M4
- Bluetooth: BLE 4.0
- 44.1Khz Sound, Speaker
- Sensor: 2 Infrared Sensors, Light Sensor
- LED : 3 RGB LED, 1 Blue LED
- Driving Part : 2 Stepping Motor (5V)
- Battery: Lithium Ion, 2000mAh

Ⅷ Company Introduction

Category	Contents
Company Name	CnR Tech. Co., Ltd
Established Date	February 02, 2015
C.E.O.	Deok-Soo HAN
Address	#713, 11-41, Simin-daero 327beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea Gwanyang-dong, 1744) Anyang Creative Industry Promotion Agency
Capital	KRW 110,000,000 (Face Value: KRW 1,000)
Business Area	SW Education Contents, Smart Toy, IoT Module
Team Members	5
Contact	(Tel)070-4821-4328 (Fax)031-422-4328
Accomplishments (Patent/Award/Aid Project)	3 Patent Registration, 2 Design Registration, 3 Application for Forign Individual Country (EP, U.S., China) 2018 E-Learning Korea Award Excellence Company Contest Aid Project: Completed 4 projects including Start-Up growth (2018) Performing the Gyeonggi Province Technology Development Project and the Network-type Support Project (2019)
Homepage	http://www.candr.co.kr http://www.jjomulrak.com