www.neopianeobot.wixsite.com/english

www.neopia.co.kr

Proposal for education

Robot · Coding · AI

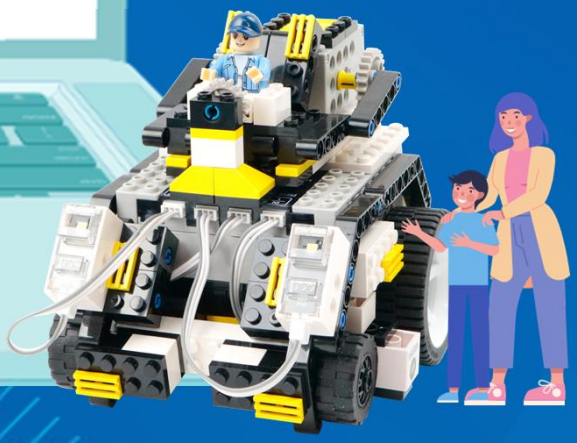

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Table of Contents

Learning Benefit

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Creativity

You will expand your imagination while creating a robot

Self-directed learning

You will create a robot without the help of your teacher

Scientific thinking ability

You will naturally learn scientific principles such as lever. centrifugal force, friction and so on.

Concentration

You will be trained to focus for a long period of time to complete a robot.

Programming

You will have a basic understanding of programming by using 'NEOBOT' APP.

Prerequisite learning

You will prepare for lessons in advance.

Problem-solving skills

You will improve capability and problem-solving skill because you create a robot with limited blocks

Practical ability

You will use a same robot in various ways.

Mathematical thinking ability

You will create a robot with Predetermind size and quantity of blocks.

Space perception

You will construct three dimensional model according to two dimensional manual.

Category of curriculum

Coding & AI
(cellular phone & Computer)
2months


Singe products for home schooling(Toy)

Robot education (Build up system)
1.5 years

S and T step	Basic steps to learn creativity and creation using blocks and motor
B and C step	Course to learn the principles of robot design and sensor, and feel the need for coding
D and E step	Step to directly adjust the robot with a coding program using a cellularphone

Robot & Coding
6months

Electronic circuit
2months

Textbook(Manual) required for product assembly and education is provided only as PDF file.

LEARNING TOOLS ADOPTED IN KOREA TEXTBOOKS

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- NEOPIA products are selected as a educational material for school textbook by the government of Korea

Proposal 1. Coding & AI education curriculum

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NEO Think-car

A to Z of Self driving car
: All about the self-driving car

- **Class** : Self-Driving Car (Coding & AI)
- **Product** : NEO Think-Car
- **Time** : 100 min. / week [3months]
- **Summary**

  - NEO Think-Car is a product that codes and experiences self-driving functions
  - Understanding & learning while making a car with blocks and applying each function of 'Advanced Driver Assisting System (ADAS)' through coding.
  - Learn how to apply coding & AI technology to the robot.

https://youtu.be/RijUs9OatC8

Curriculum concept

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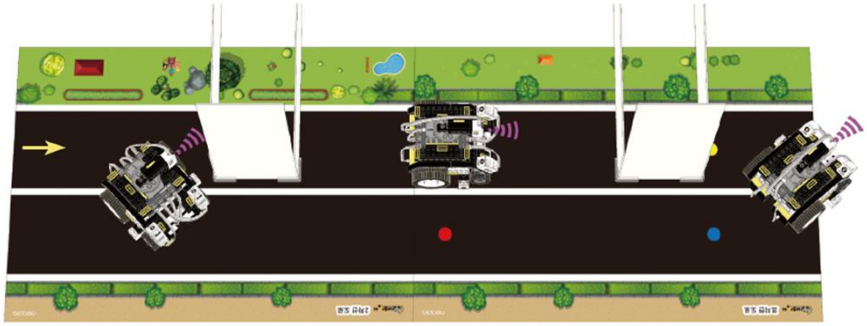
Assembling robot

PC Coding

Cellular phone coding APP apply to the self-driving car

Understanding sensors & AI technology



Key feature of curriculum

1. Overview

- Movements presented in the textbook may can be different depending on several factors such as road condition, obstacles, battery out-put, and motor characteristics. At this moment, the self-driving function can be completed by modifying the program to suit each environment.

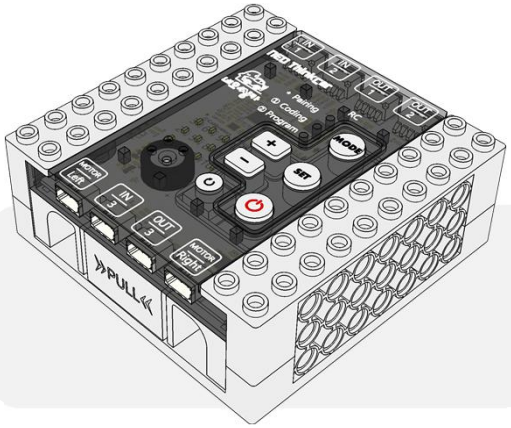
2. Representative robot item that applies the characteristics of sensor well

- Can create and apply robot that fit the situation while understanding the characteristics of various sensors.
- Can be learned intensively essential contents in robot education in a short time.

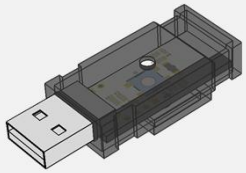
3. Dual coding using cellular phone APP and computer

- Convenient coding with a cellular phone application!
- Systematic coding using the 'Entry' platform operated by portal site ‘Naver’ in Korea!

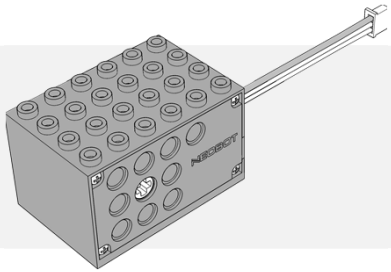
Main parts of NEO Think-Car



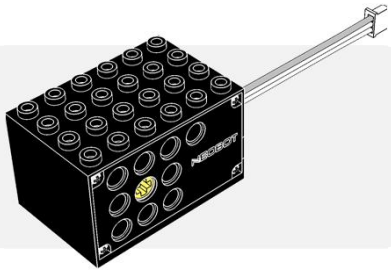
AI CPU
(CPU color can be
changed without notice)



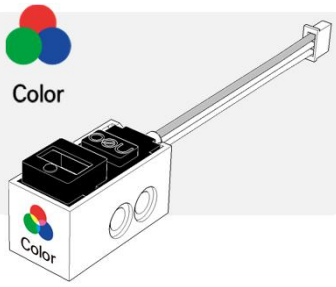
Dongle



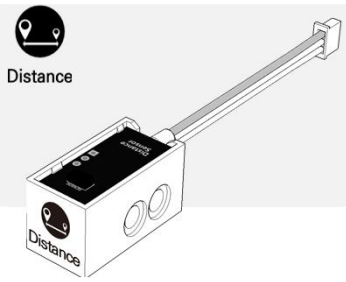
Servo motor



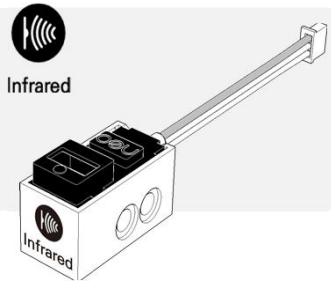
Rotation motor



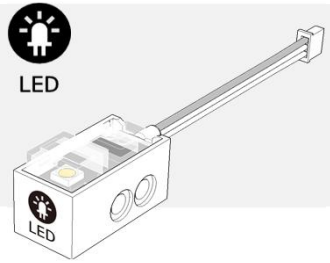
Color sensor



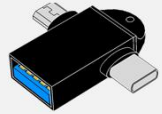
Distance sensor



Infrared sensor



LED block



OTG gender

Introduction of NEO Think-Car contents

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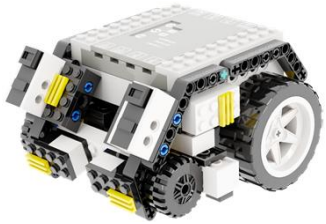
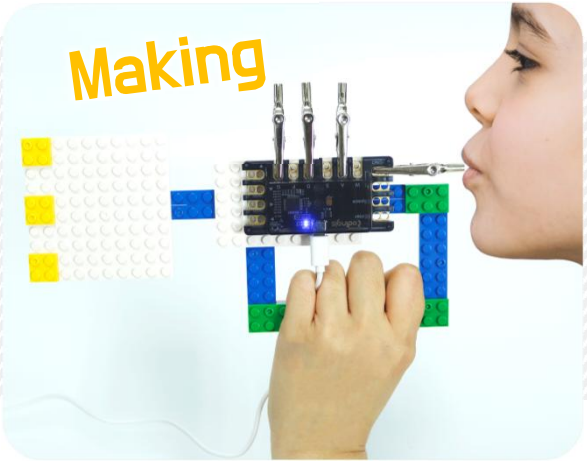
	A-Type	B-Type	C-Type
Car Type			
Practice Content	[Self-driving on general road] 01. Lane Keeping Assist 02. Intelligent Speed Limit Assist 03. Auto Lane Change [Smart Parking Assist System] 08. Rear self-parking	[Self-driving on general road] 04. Adaptive Cruise Control 05. Obstacle Avoidance Driving [Alley(Maze) Self-driving] 06. Wall Detection Driving 07. Auto Alley Driving [Smart Parking Assist System] 09. Parallel Self-parking	[Convenience specifications and AI linkage technology] 10. Driver Easy Access 11. Driver's gaze steering
How to practice	Utilize 2D road map	Utilize 3D road map & obstacles	Apply AI technology
Coding Tool	NEOBOT APPLICATION (Cellular phone or Tablet PC)	NEOBOT APPLICATION (Cellular phone or Tablet PC)	NEOBOT APPLICATION (Cellular phone or Tablet PC)

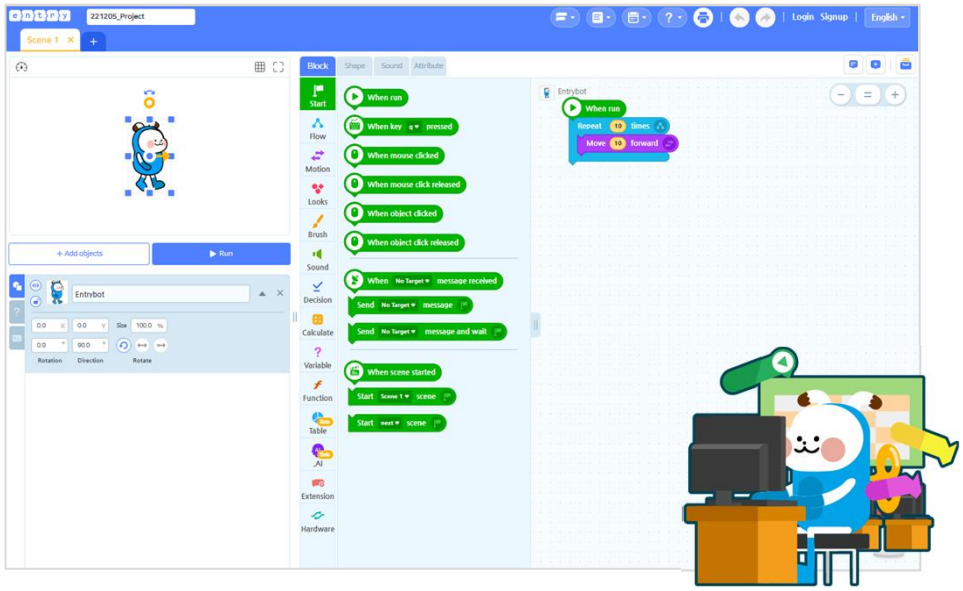
Proposal 1-1. Computer coding curriculum

NEOCODING

- **Class** : Theme coding
- **Product** : Art heme → Sensor theme
- **Time** : 90Min. / Week [6momths]
- **Summary**
  - Learn to code by using the coding platform 'Entry' on a computer.
  - It is easy to use and understand as it is coding by dragging the command word in block image with the mouse.
  - It deals with more fundamental and systematic coding, not coding for controlling robots.

Proposal 1-1. Computer coding curriculum





- Coding education through arts and sports activities such as music, art, and physical education
- Coding education to meet characters in computer

Key feature of curriculum

1. Theme type coding education

- Coding education is conducted through various activities such as music, art, storytelling, and games.
- No time to get bored because there are contents of two different themes.

2. Appropriate Hardware in included

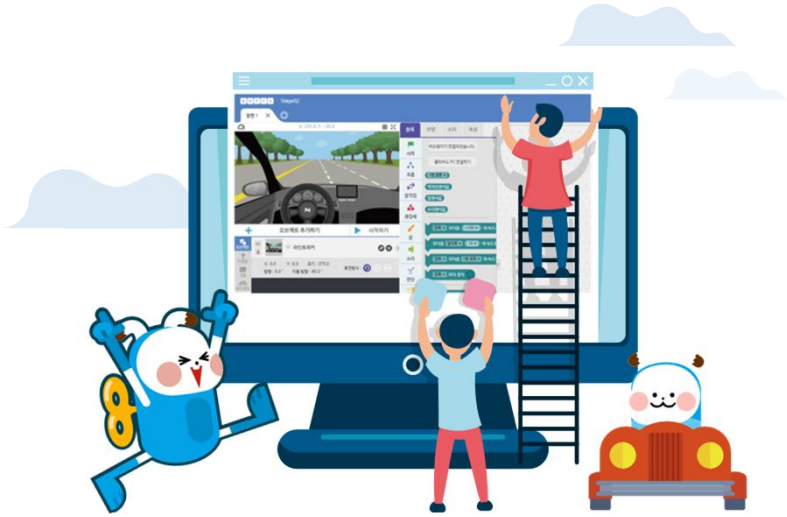
- Without hardware, Quickly becomes boring and no funny.
- It completely different from robot education but fun coding education using hardware.

3. Block image coding

- Until when will it be difficult and complex text coding?

  If the principles are the same, learn to easy!

- Drag & drop method of block images on a computer!



Main parts & characteristic of each themes

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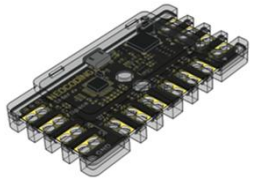
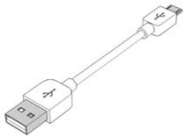
ART Theme



Art board



USB cable

Work sheet
(10pcs)

Earth ring
(ground line)

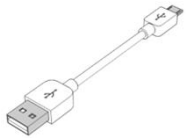
Connect cable

Blocks

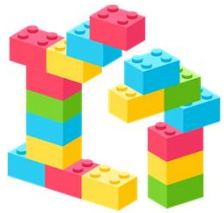
Learn to code through fun activities such as assembling models and playing music, art, and games.

SENSOR Theme

Sensor board



USB cable

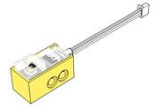


Blocks

Infrared
sensor

Light
sensor

Sound
sensor

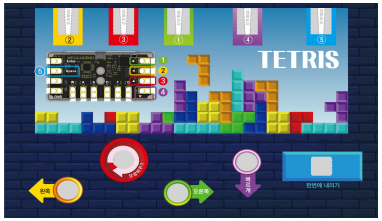


LED block

Learn to code by controlling the character in the computer using sensors connected to the assembling model.

Introduction of Art theme contents

https://youtu.be/p-KhLvR2GME



Chapter. 1

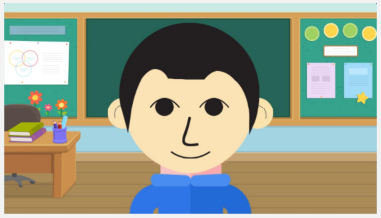
Making art theme

Chapter. 5

Monster beat box

Chapter. 9

Our neighborhood Olympics



Chapter. 2

Express avatar emotion

Chapter. 6

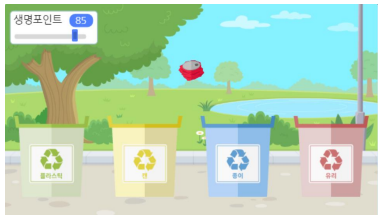
Cane fishing

Chapter. 10

Smart world travel

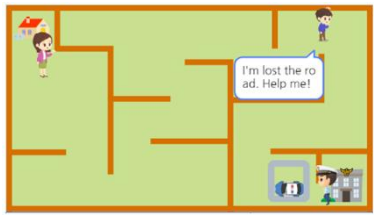
Chapter. 3

Guitarist



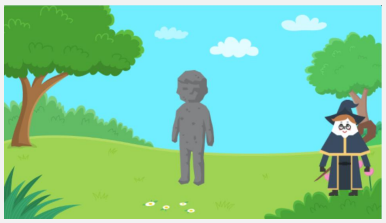
Chapter. 7

Throwing away trash



Chapter. 11

Korean super hero

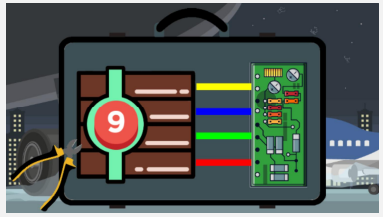


Chapter. 4

Wizard

Chapter. 8

Reveille



Chapter. 12

Dismantling Bomb

Introduction of Sensor theme contents

https://youtu.be/p-KhLvR2GME

Chapter. 1

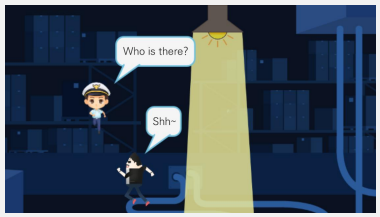
Space trip

Chapter. 5

Do-Re-Mi Game

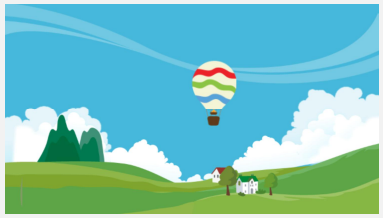
Chapter. 9

Penalty kick



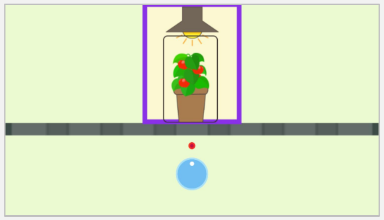
Chapter. 2

Catch a thief



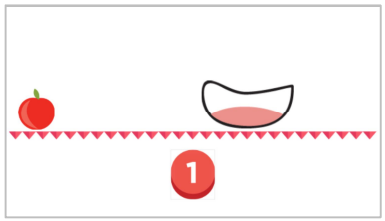
Chapter. 6

Air balloon



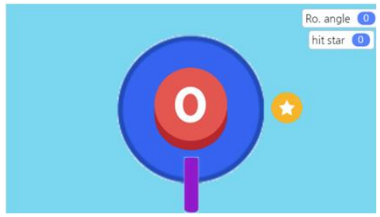
Chapter. 10

Growing plants



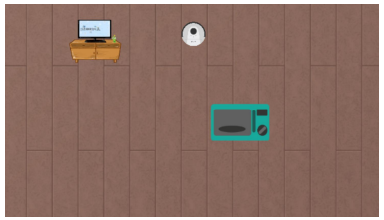
Chapter. 3

Eat everything



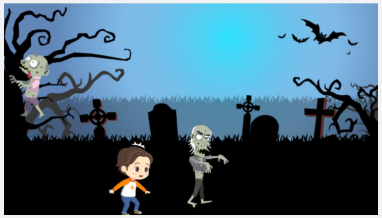
Chapter. 7

Looking for Star



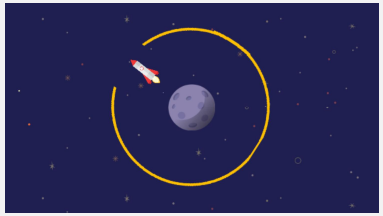
Chapter. 11

Robot Vacuum



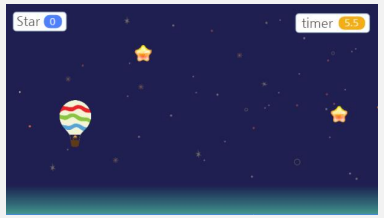
Chapter. 4

Invisible Cloak



Chapter. 8

Planet escape



Chapter. 12

Balloon travel

Proposal 2. Single Products (Block Robot Type)

- **Product** : Neobot Start, Neobot Home, Neobot Special — Total 3 Types
- **Final User** : For individual
- **Summary**
  - Recommended if you want to learn & to play robots slowly by yourself, not in group classes.
  - This product can be used both for learning and for toy.

NEOBOT HOME : https://youtu.be/hJdXaPtihSY

Can be learned robots in your own way at anytime and place you want!

Proposal 2. Single Products (Block Robot Type)

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1. Neobot Start

- Using blocks only without CPU, Motor, and Remote controller
- Composed products to learn the principles of mechanical structure and science

2. Neobot Home

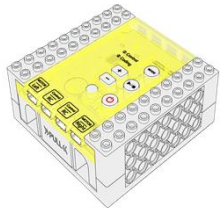
- Using CPU to run robots
- The step of controlling robots with a remote controller can be compressed and experience.

3. Neobot Special

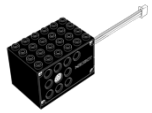
- Provide two controllers for controlling robots
- Can be used at home schooling, robot institute, club activities, and easy to manage and economical.

Main parts of each products

Neobot Start



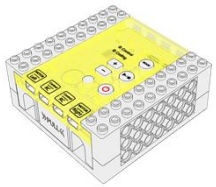
Yellow CPU



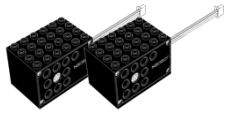
DC motor

Blocks

Neobot Home



Yellow CPU



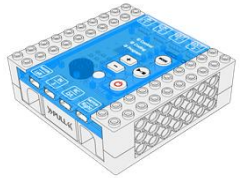
DC motor

Wireless remote controller

Remote receiver

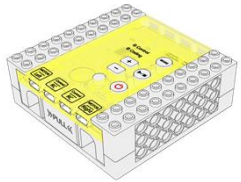
Blocks

Neobot Special



Blue CPU

DC motor



Yellow CPU

Wireless remote controller

Infrared sensor

Remote receiver

Proposal 3. Curriculum for Robot education

NEOBOT

S T B C D E

- **Class** : STEAM education Robot
- **Product** : Neobot S → T → B → C → D → Neobot E
- **Time** : 90 Min. / Week [18 months]
- **Summary**
  - Learn how to create a robot with blocks.
  - Operates robots by remote controller & sensor manipulation, and coding.
  - Essential basic curriculum of robot education.

Key feature of curriculum

1. Education for robot assembly

- How can I make a robot better? : Try to make lots of robot repeatedly.
- Then why block robot is better? Blocks are frames that are easy to assemble and disassemble, and that you can learn repeatedly!
- Any type of imaginable robot can be assembled with blocks! 100% compatible with other blocks!

2. Fun-oriented education

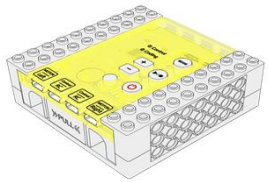
- Other robots, Don't you think it's difficult? If you feel that, you may cannot continue learning for a long time.
- The education direction what Neobot pursues is a 'SUSTAINABLE' education!
- Especially, Children can learn robots naturally by creating, controlling robots, and playing games from Neobot S to Neobot E.

3. Systematic robot education

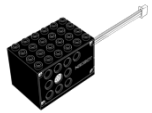
- Children can learn the sensor and how to apply programs to robots from Neobot C.
- Robot education is completed after learning how to code directly with a cellphone in Neobot D & E.

Main parts of each steps

Neobot S



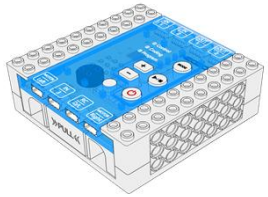
Yellow CPU



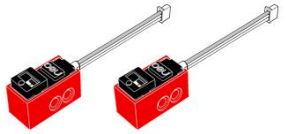
DC motor

Controlling with a wired remote controller

Neobot C



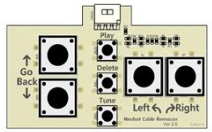
Blue CPU



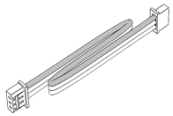
Infrared sensor

A robot controlled by a sensor based on a stored program

Neobot T



Wired remote controller



RC cable

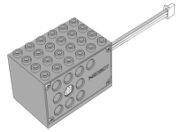
DC motor

Controlling with a wired remote controller

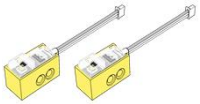
Neobot D

APP & OTG set

RC cable



Servo motor



LED block

Robot controls after direct coding with cellphone APP

Neobot B

Wireless remote controller

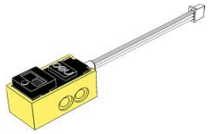
Remote receiver

Using Wireless remote controller with sensor

Neobot E

Distance sensor

Light sensor



Color sensor

Robot controls after direct coding with cellphone APP

Annual Curriculum – Neobot S (For 3 months)

Lv.1 : Start

https://youtu.be/xzD4uXGiA9c

Gadget Arm

A long tool to pick things out of reach

Neo Spinner

A top has an acceleration structure to spin fast

Shoot-Car

A car to move with elasticity of rubber band

Acrobatic Man

A robot to move with back tumbling

Balancing Butterfly

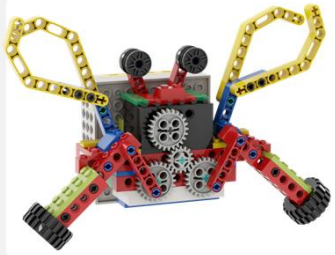
A robot is long lasting on the twirling branches

King Frog

A robot can run fast & take off shoes and run

Athlete Monkey

A robot can playing on the iron bar



Neo Crab

A robot can go around town with crab's steps

Bike Factory

A robot can go forward far away

Space Shuttle

A robot has a simulator function for pilot

Health Bot

A robot can lifting heavy barbell

Neo Beagle

A robot can change the shape of the legs and run

Annual Curriculum – Neobot T (For 3 months)

Lv.2 : Training

https://youtu.be/2TogULYKN74

Ski jump

A ski jump that glides down from a downhill

Dancing boy

A top has an acceleration structure to spin fast

Tyrant Tyranno

A robot can mov & meshing up blocks by two legs

Transformer robot KABI

A robot can be transformed for Car & Airplane

Duck family

A mammy & baby duck are moving together

A tea cup ride

A robot that spins round and round in the amusement park

Wild horse

A robot that running with widely

Flyer III

A robot controller by remote controller

Rickshaw driver

A robot pulled by the big eyes driver

Ladybug

A robot moved on six legs

Stone pitcher

A robot can throwing stones

Push Man

A robot that converts circular motion into linear motion

Annual Curriculum – Neobot B (For 3 months)

Lv.3 : Best

https://youtu.be/Zw1gzjtRHe0

Fire-Gun

A gun that looks like a shooter game gun

Wrinkle-Monster

A robot to make wrinkled paper with gears

Rudolph-Sleigh

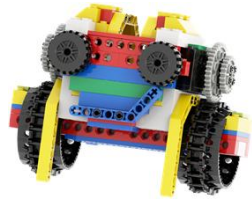
A Robot moves with a wireless remote controller

Big-Benny

A Neo-Benny to grow up more

Walking-Heli

A Propeller is rotating during walk



Guide-Bot

A robot can be learn about the caterpillar

Neo-Soldier

A robot can move with the caterpillar

Stag beetle-Bot

A robot which has arms to catch the prey

Mechanic-Car

A robot is racing on the playground

Pelican-Dice

A robot to throw a dice when sops suddenly

Running-Bug

A robot which can moves 4 legs

Stricker

A small tank that can move through enemy lines

Annual Curriculum – Neobot C (For 3 months)

Lv.4 : Challenge

https://youtu.be/fvzgRW1uyJ8

Penguini

A penguin shape piggy bag which can dance when you put a coin into it

Neo-Cleaner

A robot vacuum to clean up your surroundings

Dile-E

A crocodile which closes its mouth according to different probabilities

Army-Benny

A robot which installed by caterpillars

Soccer-Bot V2

A striker and goalpost equipped with sensors

Dice-Bot

A robot that throws dices automatically

Jeep-Car

A robot which equipped with detection sensor

Waterwheel

A robot which pounds grain by the power of water

Chaser

A robot which chasing the block color road

Roy

A robot which following me

Neo-Hanyman

A robot which plays 'Rock – Scissors – Paper' game

Car-Port

A garage which has an automatic door system

Annual Curriculum – Neobot D (For 3 months)

Lv.5 : Dream

https://youtu.be/HLVxS-1yM5w

Neo-Helicopter

When you make it take off, the propeller rotates and the light(LED) turns on automatically.

Flag-Bot

Try to play the blue and white flag game using the cellular phone APP.

Golf-Bot

It is a golf robot made to putt using a servo motor.

Vending Machine

Let's make a vending machine where blocks come out when you insert money.

Finger Basketball Machine

Try to shoot with flicking your finger. When the basketball goes into the rim, the buzzer sounds and the LED lights up.

NEO Robot-Arm

If touching two infrared sensors with thumb and index finger at same time, the robot arm to close tongs to grab an object.

Power-Truck

Control the direction & truck loader of the truck with remote controller.

Drawing-Bot

Shall we make a Drawing-Bot and draw a nice pattern picture?

Conveyor System

Shall we make a conveyor system to classify blocks by size?

Mars-Benny

The Benny has been upgraded to a Mars rover. Lights on also the LED in the eye automatically when combined.

NEO-Tank

The gun barrel can also move left and right with a servo motor.

Boxing-Bot

It is a cute boxing robot that does push-ups and also hits punching bag.

Annual Curriculum – Neobot E (For 3 months)

Lv.6 : Extension

https://youtu.be/yJozcL9PAqo

Goalkeeper-Bot

Let's make a goalkeeper who protects the goal and try coding it to block the goal.

The UFO

It can be learn the color sensor value according to the color.

Dancing Gorilla

It can be learn the features and commands of servo motors.

Battle Cruiser

It is possible to understand the principle that blocks are fired by a rotating motor.

Horror Ferris wheel

It is possible to understand the feature and value of the distance sensor.

Fork lift

It can be learn how a forklift works.

Driving simulator

It can be learn what the simulator device is.

Pteranodon

It can be learn what the Pteranodon is.

Neo Knight

It can be understand the life of a knight who was active in the Middle Ages.

Robot factory

It can be understand what the robotic engineer doing.

Aegis warship

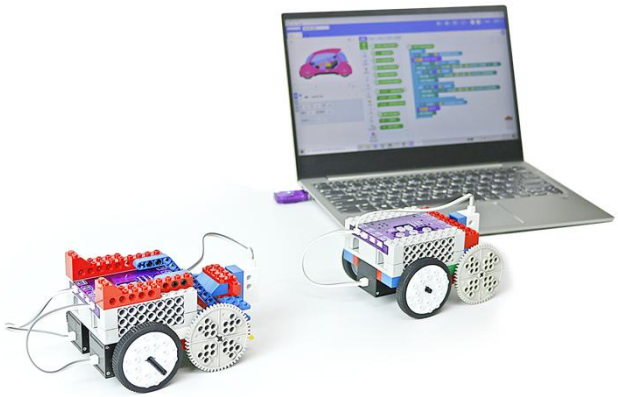
It can be learn about the functions of the Aegis ship.

Ichthyosaur

It can be learn about the ecology of shark.

Proposal 4. Robot & Coding education curriculum

NEO SoCo



- **Class** : Robot & Coding(AI)
- **Product** : Neo SoCo
- **Time** : 90 min. / week [2months]
- **Summary**

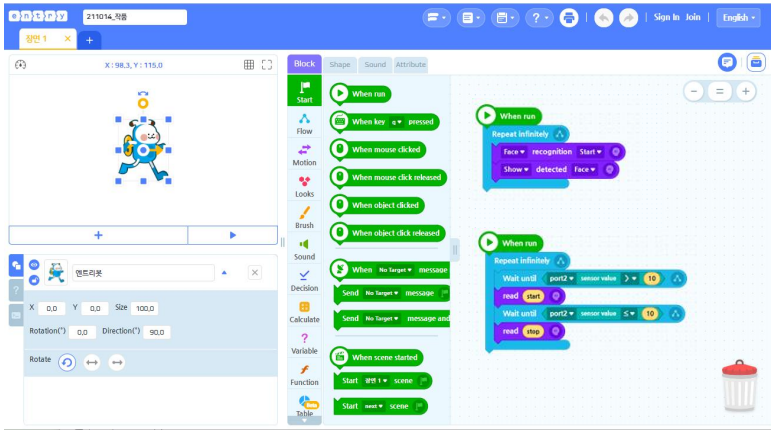
  - Recommendable curriculum for children who want to learn robots, AI and coding in a short time.
  - Understanding coding while controlling representative robots designed to understand sensor characteristics.
  - Learn how to apply AI technology to the robot.

https://youtu.be/fXWByO_q7Io

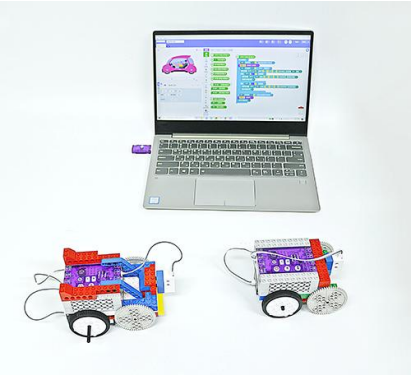
Curriculum concept

Assembling robot

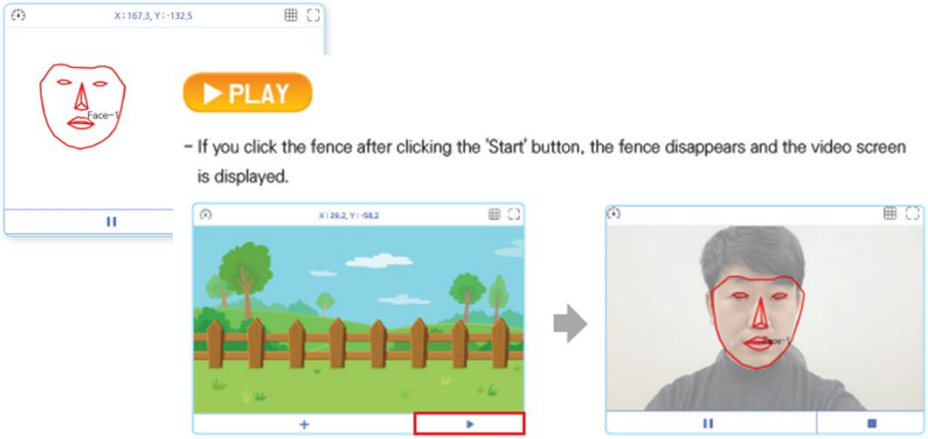
PC Coding



Apply Robot & Coding



Understanding sensors & AI technology



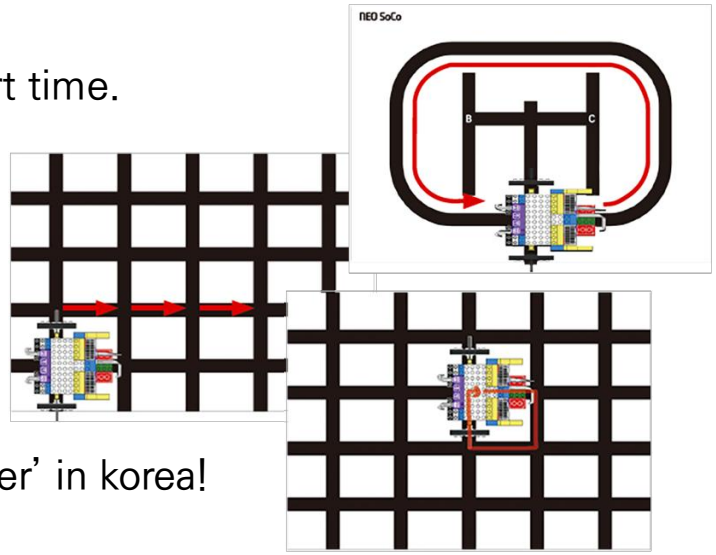
Key feature of curriculum

1. AI introductory training

- Learn AI skills and learn how to apply them to robots
- Create your own AI robot using machine learning

2. Representative robot item that applies the characteristics of sensor well

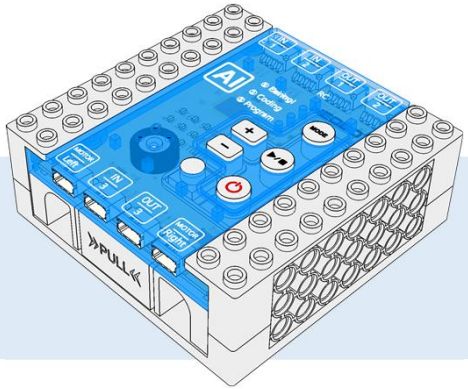
- Can create and apply robot that fit the situation while understanding the characteristics of various sensors.
- Can be learned intensively essential contents in robot education in a short time.



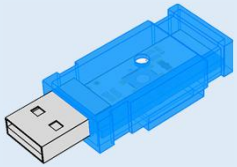
3. Dual coding using cellphone APP and computer

- Convenient coding with a cellphone application!
- Systematic coding using the ‘Entry’ platform operated by portal site ‘Naver’ in korea!

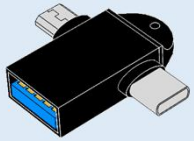
Main parts of Neo SoCo



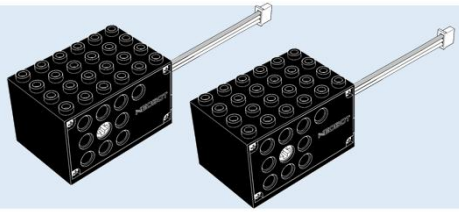
AI CPU
(CPU color can be changed without notice)



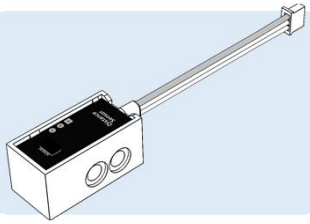
Dongle



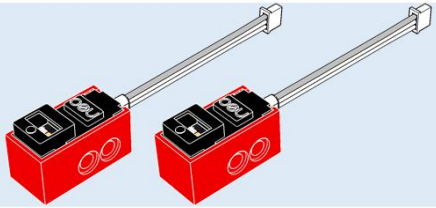
OTG



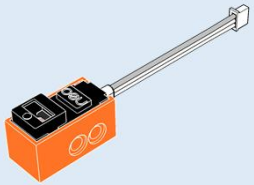
DC motor



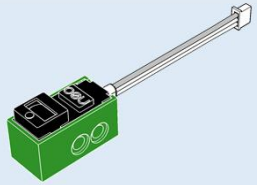
Distance sensor



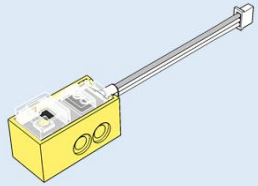
Infrared sensor



Light sensor



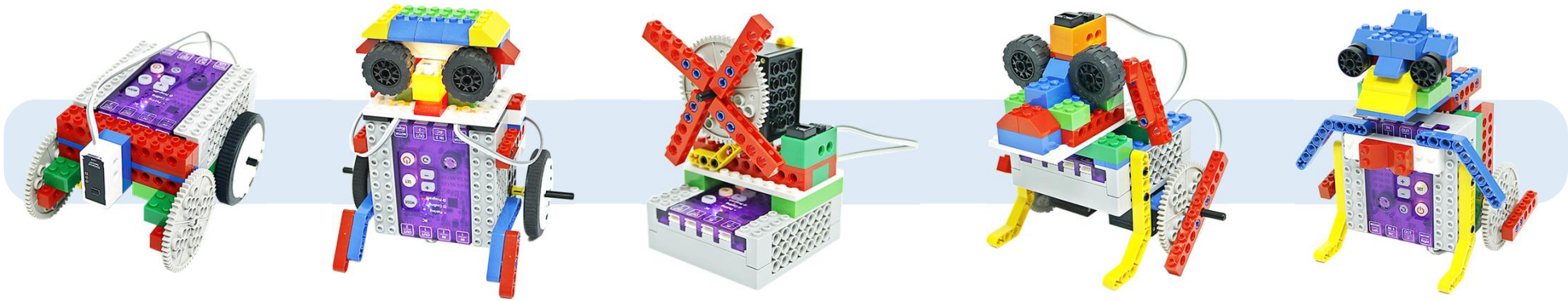
Sound sensor



LED block

Introduction of Neo SoCo contents

neopia



Proposal 5. Education curriculum of electronic goods

NEO CIRCUIT

- **Products** : Neo Circuit, Neo Sound
- **Time** : 30 min. / Week [2months ~ 5 months]
- **Summary**
  - It starts with a basic electric/electronic curriculum using electronic parts, and covers application circuits.
  - By making and using Bluetooth speakers with circuits, we can understand what is electronic circuits.

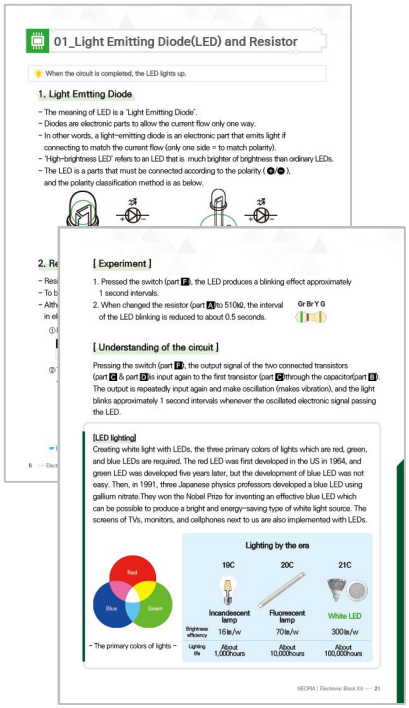
NEO Sound

Neo Circuit : https://youtu.be/fSIljg7PWDU

NEO Sound : https://youtu.be/gDdaY8c_K3g

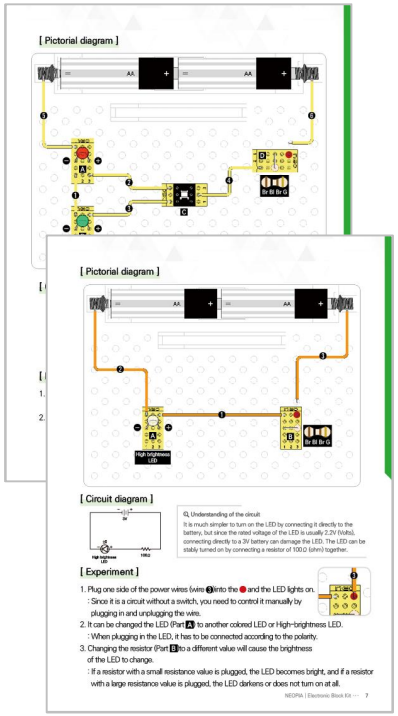
Curriculum concept

SETP 01



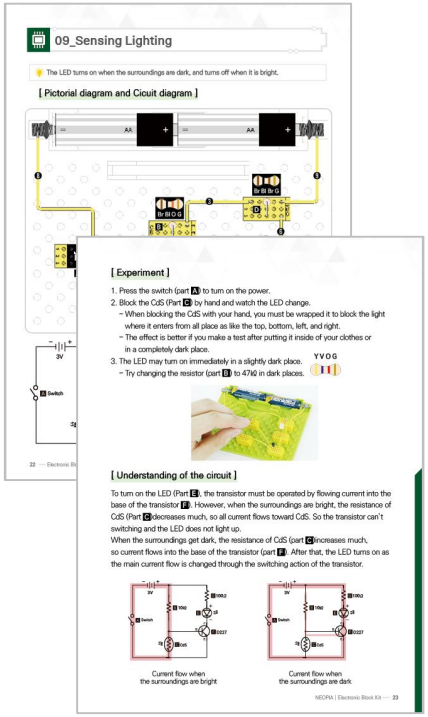
Learn the feature of electronic parts

SETP 02



Making the basic electronic circuit

SETP 03



Making the applied electronic circuit

DIY

Making a Bluetooth speaker that applied with an electronic circuit

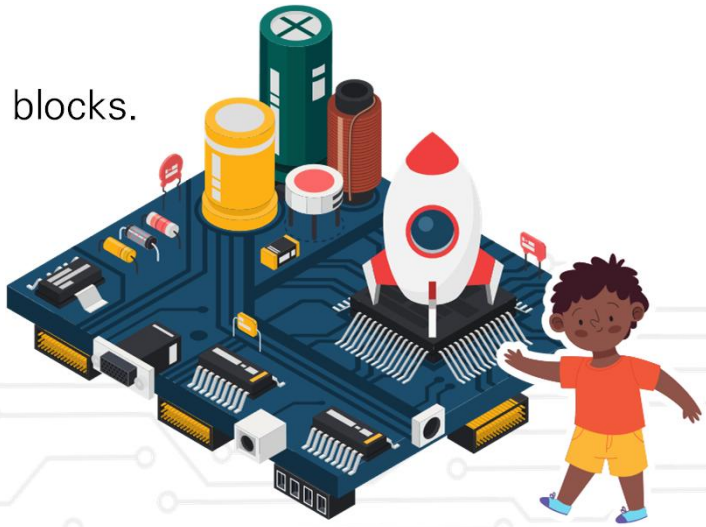
Key feature of product

1. Neo Circuit

- It is formed by plugging parts and wires into a baseplate without any tools
- It is a products to learn electronic circuit with the easiest and convenience way.

2. Neo Sound (DIY)

- Can understand the process how to apply electronic circuit learned with Neo Circuit to real products.
- Makes Speaker by connecting amplifiers, speaker, and switches through blocks.



Main parts of Neo Circuit & Neo Sound

Neo Circuit


Electronic Block


Baseplate


Spring + Pole


Spring − Pole

Wire Yellow 70mm

Wire Orange 100mm

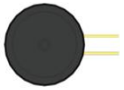

LED Green


LED Red


High-brightness LED


Switch On / Off


Switch Push

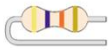

Speaker

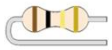

100Ω (Br Bl Br G)

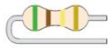

1kΩ (Br Bl R G)

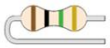

4.7kΩ (Y V R G)


10kΩ (Br Bl O G)


47kΩ (Y V O G)


100kΩ (Br Bl Y G)


510kΩ (Gr Br Y G)


1MΩ (Br Bl Gr G)


CdS

Melody IC 66T11L

Melody IC 66T32L

Transist or D227

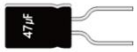
Transist or A642

Myler Capacitor 0.022μF (223)

Myler Capacitor 0.1μF (104)

Myler Capacitor 0.22μF (224)

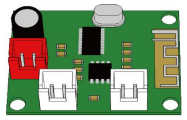
Electrolytic Capacitor 3.3μF

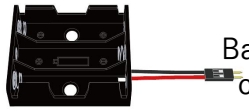


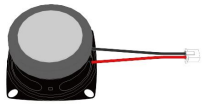
Electrolytic Capacitor 47μF

Electrolytic Capacitor 220μF

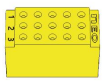
Neo Sound

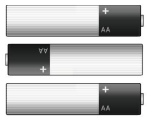

Bluetooth module


Battery case


Speaker (5W)


Switch


Electronic block


AA size (3ea)


Pictorial diagram


Power wires


Blocks

Introduction of Neo Circuit contents

Understanding of electronic parts

01_ Light emitting Diode(LED) and Resistor

02_ Switch

03_ CdS Cell

04_ Melody IC

05_ Transistor

06_ Capacitor

Basic electronic parts

07_ Electronic Buzzer

08_ Blinking LED

09_ Sensing Lighting

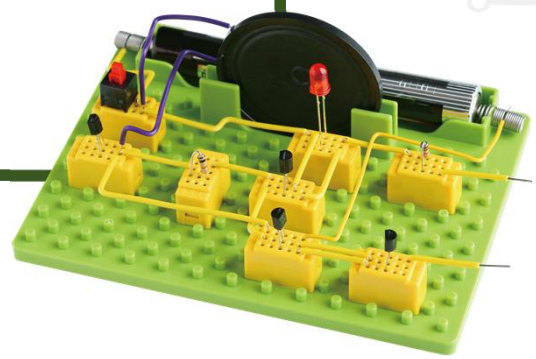
10_ Burglar Alarm

11_ Auto Alarm

12_ Love Chain

13_ Electronic Siren

14_ Electronic Blinker



Introduction of Neo Sound contents(DIY)

Thank you for your attention!

NEOPIA Co., Ltd T. 82-32-265-7700 F. 82-32-260-7202

302Ho, 129 Gaetbeol-ro(Songdo-Dong), Yeonsu-gu, Incheon, Korea. 21999

PIC : jhcho@neobot.co.kr / M.P : +82 (0) 10 3325 9085