CoDrone DIY Rokit Brick



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Controlling codrone with the Rokit Brick

Introduction

1. Enter coding mode from PC

Drone Simulator & Rokit Brick





For instructions on how to download and run 'Rokit Brick for CoDrone', visit our website.

2. What's the 'Rokit Brick'

Rokit Brick is based on "Snap" and has existing Scratch programs such as robots, drones and others.

Scratched SW developed by combining various control functions. The method used is almost the same as Scratch.

HWs such as 'Rockit Smart Series' and 'Codrone' can be controlled in Scratch format.



3. Run the 'Rokit Brick for CoDrone'

(1) Run 'RBCodrone.exe' in the industallation path of 'Rokit Brick for CoDrone'

	icons 🔒	2019-03-27 오전 파일 풀더	
	Iocales	2019-03-27 오전 파일 폴더	
	swiftshader	2019-03-27 오전 파일 폴더	
	O credits	2018-11-20 오전 Opera Web Docu	2,069KB
	d3dcompiler_47.dll	2018-11-20 오전 응용 프로그램 확장	4,245KB
	ffmpeg.dll	2018-11-20 오전 응용 프로그램 확장	1,335KB
	icudtl.dat	2018-11-20 오전 DAT 파일	9,979KB
	libEGL.dll	2018-11-20 오전 응용 프로그램 확장	107KB
	libGLESv2.dll	2018-11-20 오전 응용 프로그램 확장	4,896KB
	natives_blob.bin	2018-11-20 오전 BIN 파일	111KB
_elf.dll	🚳 node.dll	2018-11-20 오전 응용 프로그램 확장	11,511KB
	notification_helper	2018-11-20 오전 응용 프로그램	561KB
Codrone 🥿	🚳 nw.dll	2018-11-20 오전 응용 프로그램 확장	106,988KB
	mw_100_percent	2018-11-20 오전 ALZip PAK File	1,000KB
ources	mw_200_percent	2018-11-20 오전 ALZip PAK File	1,312KB
	🔊 nw_elf.dll	2018-11-20 오전 응용 프로그램 확장	559KB
	RBCodrone	2019-03-12 오후 응용 프로그램	49,930KB
	mage resources	2018-11-20 오전 ALZip PAK File	5,163KB
	v8_context_snapshot.bin	2018-11-20 오전 BIN 파일	1,014KB

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 (2) When the program is running, Run 'CoDroneDIY' with the '< >' Button on the left screen

(3) 'Rokit Brick' runs

normally, as shown in the image on the right



4. Rockit Brick to Drone

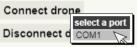
If you have connected your PC and remote control, please make sure your **USB drive** is installed successfully.

After installing the drive and verifying the **COM number**, run **Rokit Brick for Codrone** (RBCodrone, Rockit Brick Codrone).

Click **CodroneDIY** on the bottom left palette to see the drone control blocks and check the two buttons



Connect the controller to the PC, then press the 'Connect to drone' button to connect the PC and the drone.



Even if the drone is turned off by removing the battery during use, there is no need to disconnect the drone, and it is automatically connected when the drone is switched back on.

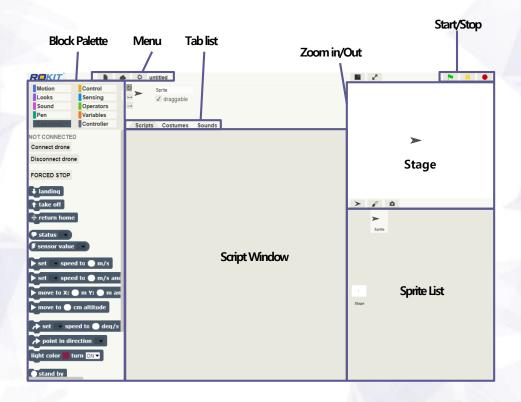
Notices

• Before pressing the Connect to Drone button, the drones and controllers must be paired!

• If you have too many ports to connect to, check Device Manager.

5. Screen configuration for Rokit Brick

The basic menu and screen layout is similar to 'Scratches in MIT'



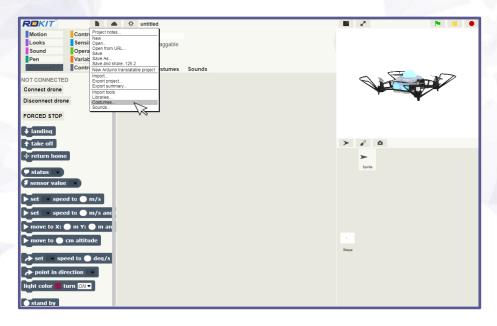
Control Codrone with motion block

Codrone Block Description

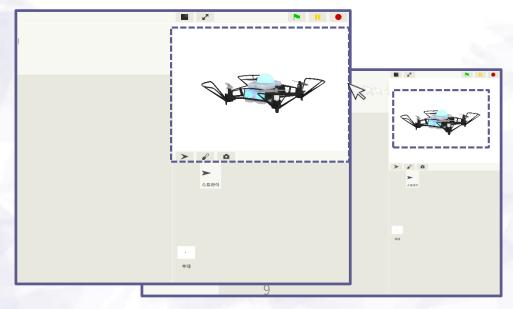
To control codrone with motion block

1. Import Image

From the menu, you can get the desired image using the 'look tab'

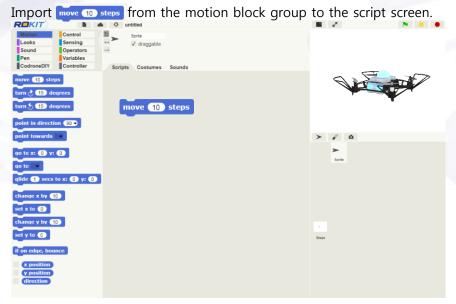


You can resize the stage by dragging the "boundary line" with the mouse.

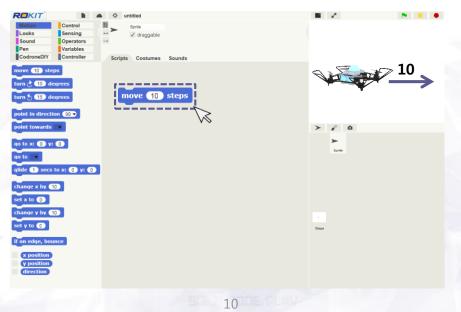


2. Example of moving sprites

1) Move drone sprite (Go straight to codon)



Each time the mouse clicks on the block on the script screen, the drone moves forward by as much as 10.



You can see it right away by clicking on the mouse, and it's usually in the control block group. You start driving using when tidded or when save two presed

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Motion Looks	Control Sensing	Sprite				
Sound		↔ ✓ draggable				
Pen	Variables					
CodroneDIY	Controller	Scripts Costumes	Sounds			
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					Stage	
wait 1 secs						
forever						
repeat 10						

Connect Block when cicked to move costeps, and click on the green flag to move.

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broadcast broadcast message	and wait			
wait 1 secs			Maar	

Drone Homeward Movement

If the drone disappears to the point where it cannot be seen, then it's on the Motion tab [Move to x:0, y:0] Click on block (0 to x: 0 y: 0) to start the home position return to

2) Move drones (move drones continuously)

Connect the infinite repeat block in the control blc () A. To drive. To travel to where drone is not seen as a click.

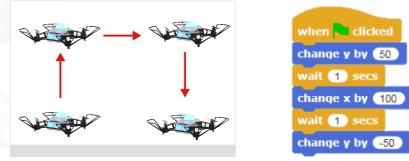
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when I am clicked + when when when I receive	forever move 10 steps	>	
broadcast broadcast		3,6110 [,]	
warp wait 1 secs		Stage	
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To have the drone repeat bouncing on the wall without disappearing out of

the screen: Use	Block if on edge, bounce	
ROKIT 🕨 🔺	🗘 🔅 untitled	N II 🔴
Motion Control Looks Sensing Sound Operators Pen Variables	Sprie ✓ draggable	
CodroneDIY Controller move 10 steps turn (15 degrees turn (15 degrees	Scripts Costumes Sounds	
point in direction (90 - point towards -	forever fi on edge, bounce move 100 steps	> /
qo to x: 0 y: 0 qo to - qlide 1 secs to x: 0 y: 0		> Sorite
change x by 10 set x to 0		_
change y by 10 set y to 0		Stage
x position		

3) Move drones (take-off and move-off landings)

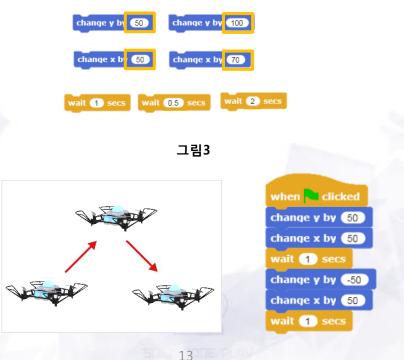
If the drone is to move as shown in Figure 1, it can be coded using the coordinate values and wait 1 secs (Delay) as shown in Figure 2.







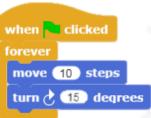
To change the distance of the drone shown in Figure 1, the blocks shown in Figure 3 are: Change the x, y coordinate values. Similarly, the amount of time to wait is entered for the desired time. can be changed into



4) Move Drones (Use variables)

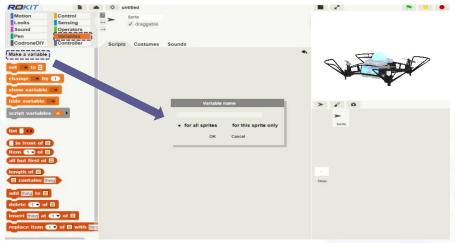
Let's use variables to change the behavior of the drones. First, let's make the code that the drone rotates as shown in the picture below.





Create a variable to change the movement value of the block. variable block group

In , press the Create Variables button and create a variable named A.



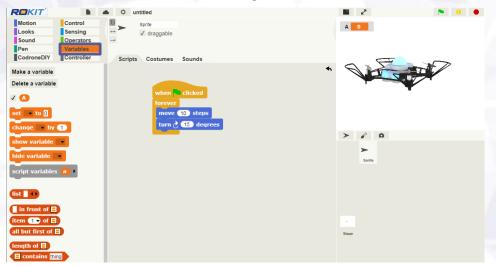
Variable?

move 10 steps

A variable, especially one used a lot in a program, is a non-numeric character that creates space for storing numbers and allows you to put the desired number at any time.

e.g. A = 5, Value = 0

Creating a variable named A creates a variable block group as shown below and creates a variable on the stage.



Drag the A-parameter block created on the left to the part where you want to change it.

Right-click the variable that appears on the stage to select the slider.



And after you've run the stage, you can move the A variable slider on the stage with your mouse, and you can change the variable in real time. You can see that the rotating radius of the drone has become larger and smaller as the price changes.



3. Move drones (take-off and move-off landings)

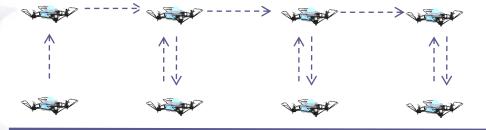
1) Create a "Drone moves back and forth motion reflecting the wall" and make a variable.

Use to adjust the "moving speed."

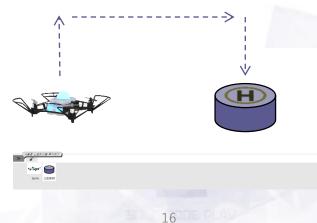


2) Let's create a program that only "repeats three times" the following movements, rather than "no uniform."

Try to minimize the number of blocks used.



3) After creating a landing site through the addition of a new sprite, Implementing the drone landing at the landing site in a variety of ways



To control codrones with motion blocks

Codrone Block Description

To control a codrone with an operating blocks of motion

1. CoDrone DIY Block Description: Motion Block

take off	Take off the drone. All flight actions are executed after this block.
+ landing	Drones landed.
+ return home	The drone is back where it first took off.
stand by	Rotate the drone's propeller to create a flight standby. * Subsequently, it can be taken off by the throttle control.
🗘 sensor reset	Reset the drone's sensor. ※ Run the drone on a flat floor.
🗩 status STATE 🔹	Tells us the drone's flight status. (Air/Landing/Takeoff/Flight, etc.)
🗩 status CONTROL 🔹	Indicates whether the drone is controlled based on speed (position) or oiler (position/etitude)
Status MOVEMENT	Tells you what type of flight behavior you're doing. (Standby/Hovering/Moving/Return Home)
status HEADLESS •	Tells the drone what the standard of direction is when flying. (Headless / Normal)
status SENSOR ORIENTATION •	Referring to the Angle Measurement Sensor to inform you of the current state of the drone (Normal / Start Flip / Flip)
🗩 status BATTERY 🔻	Marked as % battery remaining for drone

2. Codron DIY Block Description – Sensor Value Block

🖲 sensor value ROLL -	Tells you how much the drone's fuselage is tilted from side to side at an angle.
🕫 sensor value PITCH 🔹	Tells us how much the drone's fuselage is tilted up and down at an angle.
🗲 sensor value YAW 🔹	Tells you how far and left the drone's fuselage has rotated.
sensor value ALTITUDE	Tells us how far the drone is floating on the ground in cm.
sensor value POSITION X	Tells you the displacement value of the X-axis that the drone moved from the hovering point
🗲 sensor value POSITION Y 🔹	Tells you the displacement value of the Y-axis that the drone moved from the hovering point
sensor value POSITION Z	Tells you the displacement value of the Z-axis that the drone moved from the hovering point
sensor value TEMPERATURE	Informs us of the internal temperature of the drone.
sensor value PRESSURE	Tells you the ambient air pressure measured by the drone



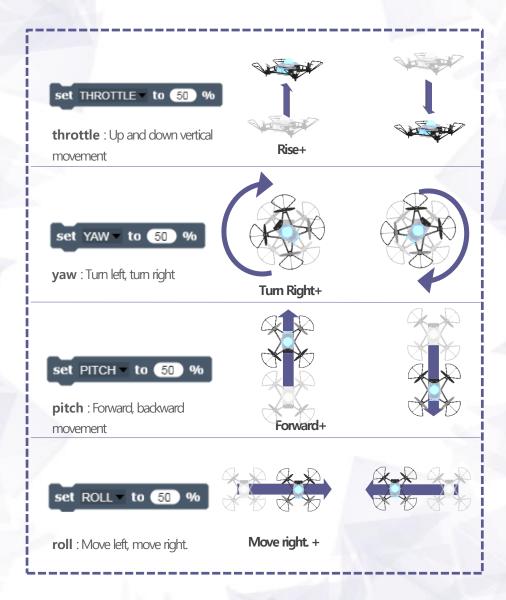
3. Codrone DIY Block Description - Action Block

 \times The control block value below has a value between -100 and 100, and the unit is output (%).

set speed to m/s	Sets the drone's value to m/s based on X,Y,Z
set speed to m/s and time to seconds	After flying at a set speed in the direction of a constant coordinate, stop and hover (direction option is the same as the control block above).
• move to X: • m Y: • m and Z: • m at • m/s	Use to move the X, Y, and Z axes to one block.
▶ move to ● cm altitude	Drone will be moving at the altitude set by the ground.
set speed to deq/s	Sets the left and right rotation values of the drone.
point in direction	The drone rotates to the 0,90,-180,-90 positions.
light color turn ON T	Adjusts the LED color of the front of the drone
roll 🔵 pitch 🌑 yaw 🌑 throttie 🌑	Used to execute four roll/pitch/yaw /throttle actions in one block.
set to %	Controls the roll/pitch/throttle/youw value of the drone to percentage.

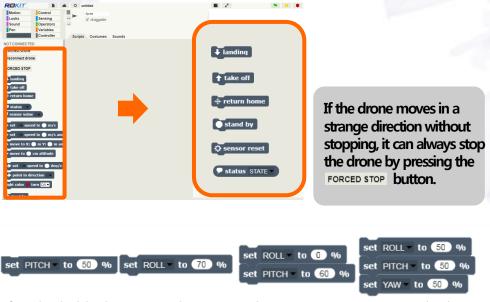
3. Codrone DIY Block Description - Action Block

All values have values between -100 and 100.



3. Codrone DIY Block Description - Action Block

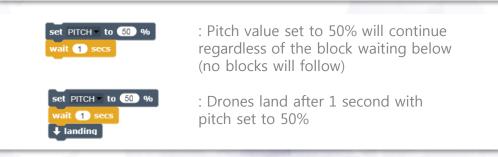
Connecting the board from the Codrone tab results in code blocks that allow control of the codrone.



If multiple blocks are overlapping and inconvenient to use, multiple values can be changed to one block below at the same time. A value left blank is considered zero.

roll 50 pitch 60 yaw -30 throttle 0

The addition of a waiting block (delay block) will continue to hold the specified control value for a specified period of time before the action of the next block is executed.



Control CoDrone DIY with Rockit Brick Example of a CoDrone DIY exercise

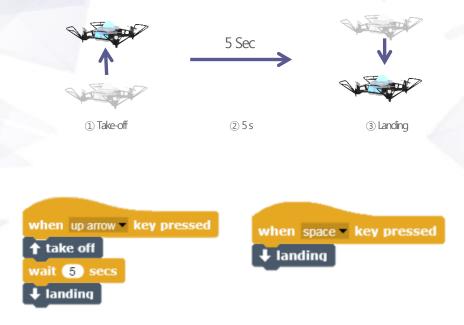
Please make sure to check the following before the code.

- 1) Check the hovering status.
- 2) Check the gas mode.
- 3) Clear the angle value of the block to 0.

1. Example of flying Codrone DIY-spaces

The Codron mini-tab has a drone / you / pitch / roll / dexterity. There are several drone control blocks to operate.

Let's combine these and existing scratch blocks to code your own drones.



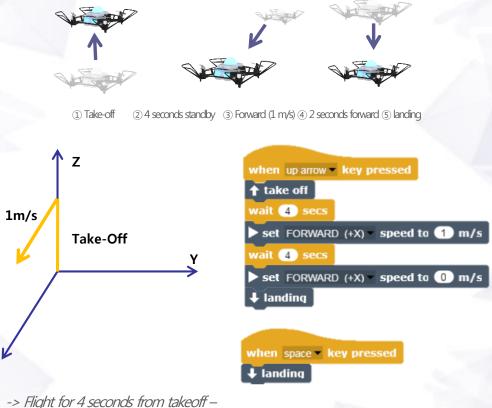
TIP!

Wait five seconds after the take-off block, after the take-off, Not waiting five seconds, but after the drone received the takeoff order,

It means waiting for 5 seconds.

2. Example of mini-movement of a codon with a locketbrick

An example of a green flag button that pops up in the air for a while and stops by hand



- > Forward at a speed of 1 m/s (+ direction of X-axis)
- -> Wait 2 seconds before landing

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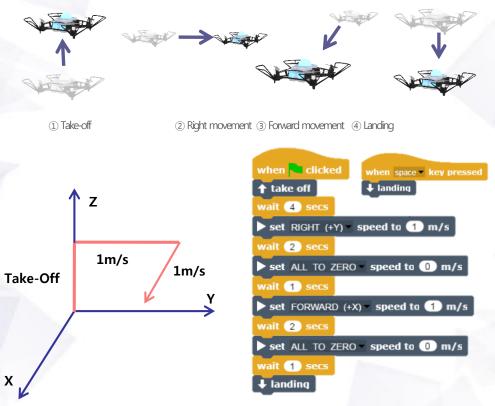
TIP! You must land while zeroing the forward speed to land vertically.

3. Example of codron DIY combination

Green Flag Button) 1 m/s in the right direction (+ direction of the Y-axis) for 2 seconds when dicked.

Moving at speed and advancing in 1 m/s in the forward direction

(+direction of the X-axis) for the next 2 seconds.



TAKE-OFF -> MOVE RIGHT TO 1 m/s FOR 2 SECOND -> GO 1 m/s FOR 2 SECOND -> LANDING

TIP!

When changing the direction of the drone's movement, clear the speed and direction and give it about a second after releasing it, eliminating inertia that can affect the next movement, resulting in a distinctive separation of each movement.

4. Control Drone LEDs

Blinking as the drone's LEDs continue to change in different colors

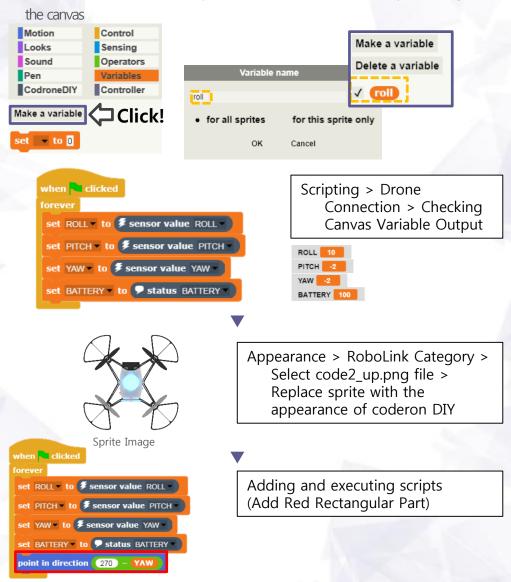


TIP!

When you turn off the LED with the LED Off option on the LED control block, the LED color designation does not matter which color it is.

5. Output sensor values for drones

Create a block of variables to display posture control values and battery remaining on

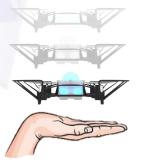


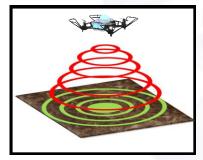
TIP!

The setting of the angle value (270 degrees in the example) may vary depending on which direction Sprite's character is based on at the beginning.

6. Example of altitude detection

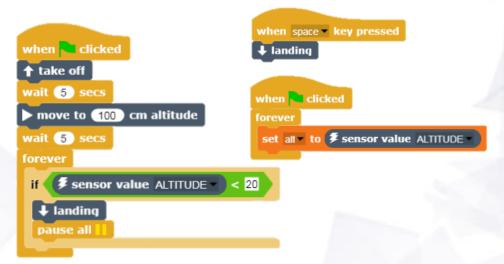
Landing if an object or hand is detected underneath the drone while hovering.





Object Detection

Take-off -> Keep altitude at approximately 1m -> Check sensor value in flight -> sensor value below 20cm -> landing



TIP!

Blocks can be used in more than one script, as shown in the example above. This example used blocks for two scripts when the flag button was clicked. At this point, pressing the flag button executes all scripts starting with this block simultaneously.

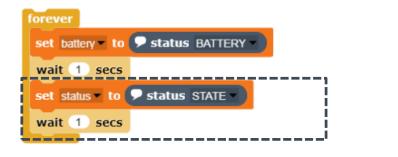
7. Example of receiving code drone sensor values – receive battery values and drone status

Example of receiving the battery value of a cord and the status of a drone

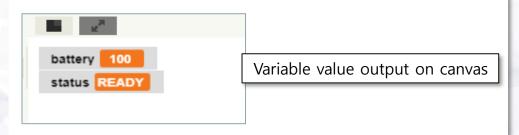
1) Receive battery values for code DIY



2) Receiving the battery value and drone status of cordon DIY



You can receive battery values and check flight status using various blocks.



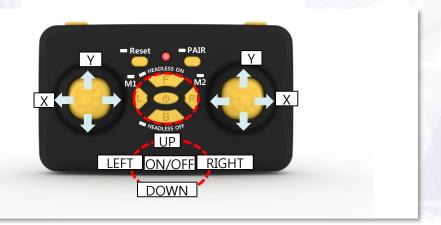
Control Codrone DIY with rockit brick

Controlling

Using the Controller

Try creating a script that uses buttons or joystick on a controller to make interesting actions.

Controller Block : Appears by clicking the Controller tab on the palette.







Button Status Notification:

UP: None of the buttons on the controller is pressed. PRESS: One of the buttons on the controller is pressed. DOWN: One of the buttons on the controller is just being pressed.



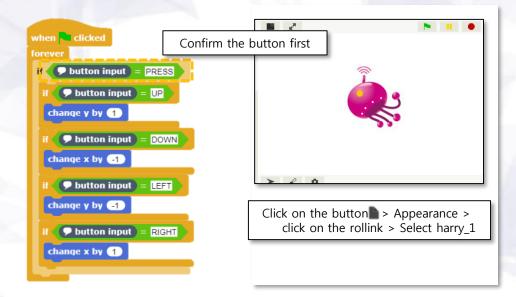
Tells me which button is pressed (see figure above)

left joystick

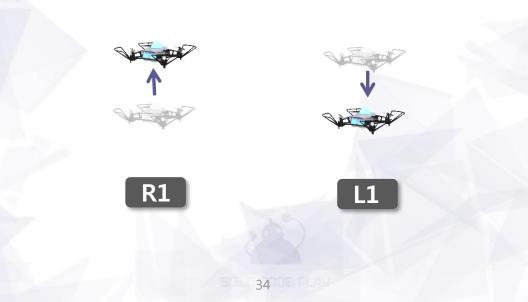
VALUE X VALUE Y DIRECTION EVENT Left / Right joystick status alert
X value: Tells the change in the direction of the X-axis as a value from -100 to +100
(-: Left, +: Right)
Y-value: Shows changes in the y-axis direction as values from -100 to +100
(+: Up, -: Down)
Direction: The orientation (position) of the joystick is abbreviated as shown below.
Informed
Event: Detects and displays changes in the direction of the joystick (IN/OUT/STAY)

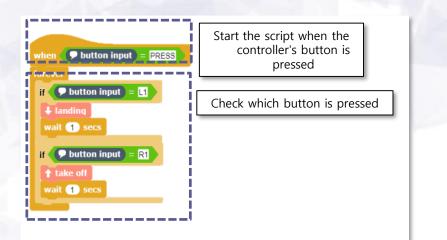


1. Move the sprite on the canvas with the direction key of the controller



2. Press the R1 button on the controller to take off, press the L1 button to land, and press the H button to return to the origin of takeoff.





3. Create a drone virtual-control exercise program with the controller

- Left joystick Y-axis: Drone sprite. take-off or landing control
- Left joystick X-axis: Drone sprite. left and right rotation
- Right joystick X-axis: Drone sprite. left and right parallel shift
- Right joystick Y-axis: Drone sprite. back and forth movement



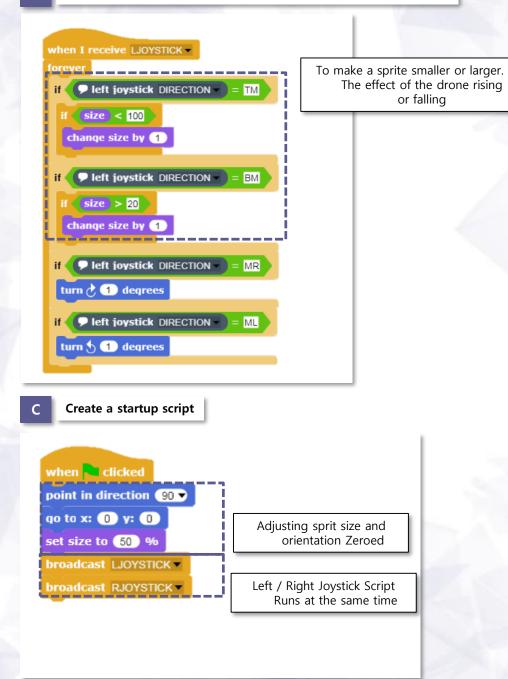
Sprite is click > Shap > Click on rollink > select codronDIY_up

Create Right Joystick Partial Script (Pre-Left and Left)





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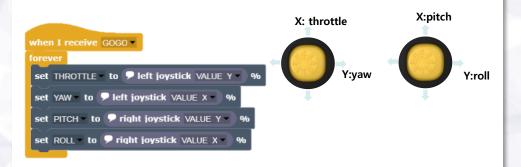


4. Write a script to control a drone like RC mode with the controller

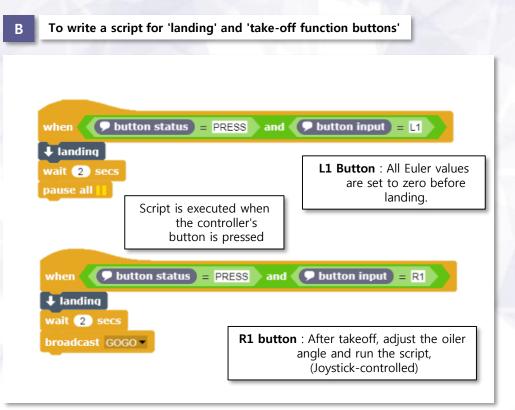




Create a script to adjust the value of the Euler angle with the left and right joysticks



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When L1 is pressed (landed) the roll/ pitch/yow/roll value is set to zero because the Euler values that were previously executed during the next run can affect the flight.

If it doesn't clear up to zero, when it lands and takes off again, The remaining values may cause the drone to fly in an unintended direction.

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Controlling Codrone DIY with Rockit Brick

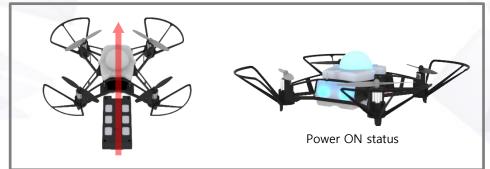
Appendix

Appendix 1 – Pairing

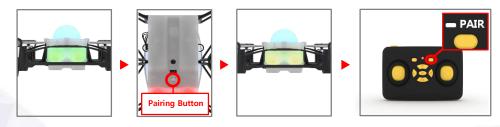
1. Power on drones

When the drone's battery is combined as shown in the image below, the drone powers up.

* However, it does not turn on when the drone's battery is discharged. Please try this work after charging it with a dedicated charger that has been ascended together.



2. Pair drones



If the controller is on and the drone is on, press the pairing button at the bottom of the drone.
 Hold the button and the LED on the front of the drone will be ready to pair with a yellow light.
 At this time, if you press the PAIR button on the controller, the drone and the controller are

paired.

- Pairing keeps the pairing going without the need to pair each time the drone or controller is turned on.

- Pairing may not be possible in one attempt, depending on the situation or environment. In this case, please proceed with the above process several times.

Appendix 2 – Charging the Drone Battery

Please check the remaining battery quantity indicator such as the controller while the drone is connected.

If charging is required, the battery must be charged using the designated battery charger. (See image below)

When the battery is connected, the LED on the charger lights up and turns off when it is fully charged.

