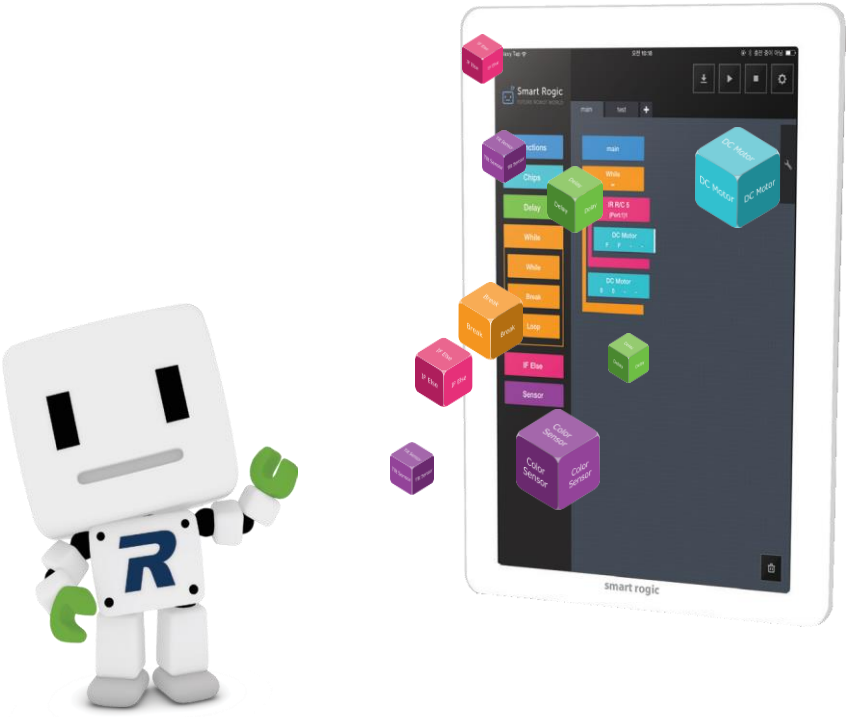
Chrome Rogic Manual



List

1. Rogic Program Instruction 4
1.1 Rogic 4
1.2 Cable and Power connection 8
1.3 Initial Screen 9
1.4 Menu Function 10
1.4.1 Menu. 10
1.5 Additional Function 12
1.5.1 Comment 12
1.6 Moving Chip 14
1.7 Connecting Chip 15
1.8 Deleting Chip 16
1.9 Inserting the chip between the chips 17
1.10 Deleting the chip between the chips. 18
1.11 Copy and paste chips 20
1.12 Hiding Chip 21
1.13 Download and Run the robot 22
1.14 Exit 23

2. Chip Explanation 24
2.1 Functions 24
2.1.1 New Function Chip 24
2.1.2 Using generated functions 26
2.2 Chips 27
2.2.1 Start Chip 27
2.2.2 DC Motor Chip 27
2.2.3 Servo Chip 29
2.2.4 Voice Chip 31
2.2.5 On Chip 31
2.2.6 Off Chip 32
2.2.7 Variable Chip 33
2.2.8 Calculate Chip 38
2.3 Delay 39
2.3.1 Delay Chip 39

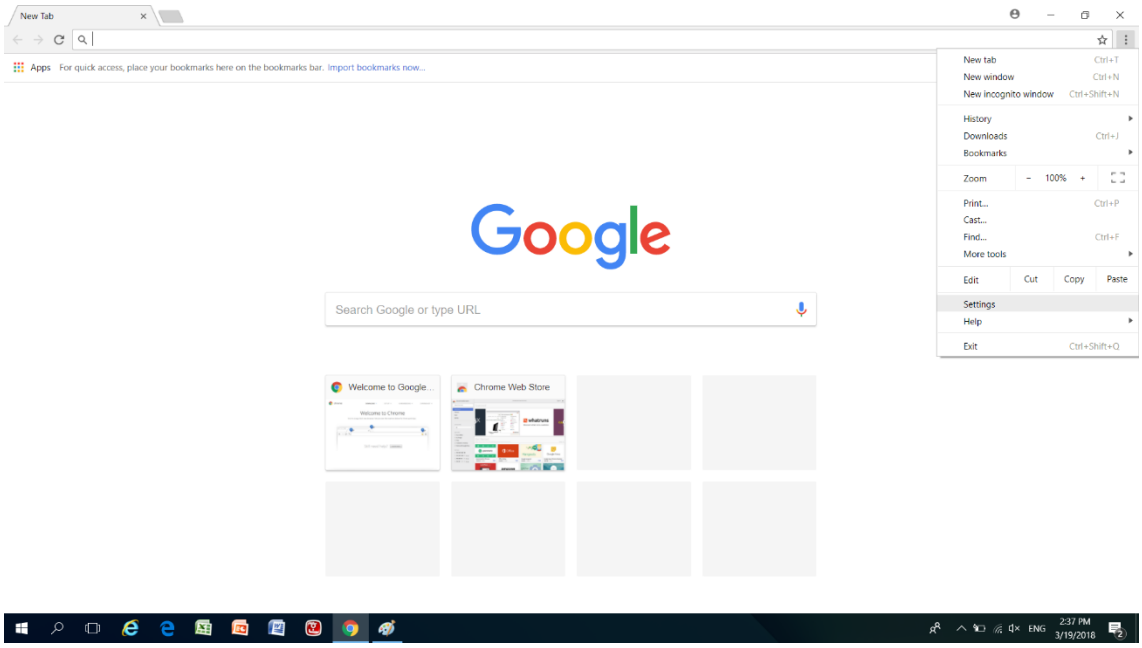
2.4 While 40
2.4.1 While Chip 40
2.4.2 Break Chip 42
2.4.3 Loop Chip 43
2.5 If Else 44
2.5.1 If Else Chip 44
2.5.2 IR Remote Control 5 Chip 46
2.5.3 IR Remote Control 8 Chip 48
2.5.4 Bluetooth R/C 12 Chip 50
2.5.5 Bluetooth R/C 10 Chip 52
2.5.6 Rand Chip 54
2.6 Sensors 56
2.6.1 IR Sensor Chip 57
2.6.2 Magnetic Chip 57
2.6.3 PIR Sensor Chip 59
2.6.4 Tilt Sensor Chip 60
2.6.5 Color Sensor Chip 62
2.6.6 Color Sensor(New) Chip 63
2.6.7 Contact Switch Chip 65

1. Rogic Program Instruction

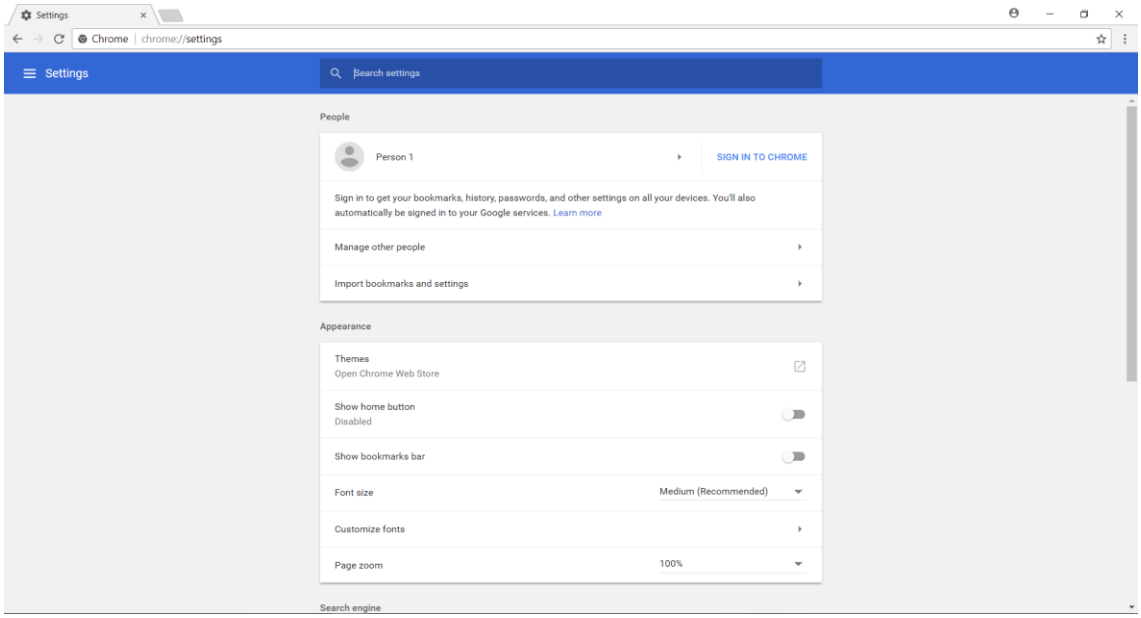
1.1 Rogic Program Installation

① Installation for Windows & Mac

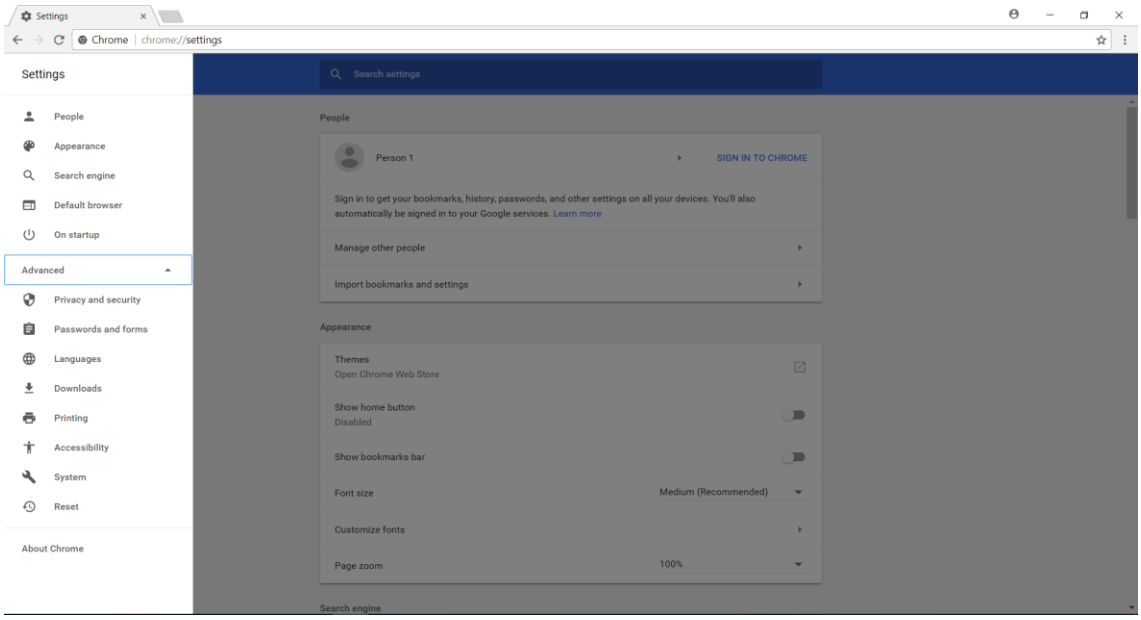
The Rogic program required a Chrome Brower. Launch the Chrome browser and click ‘Settings’ as shown below to go to Setting screen.



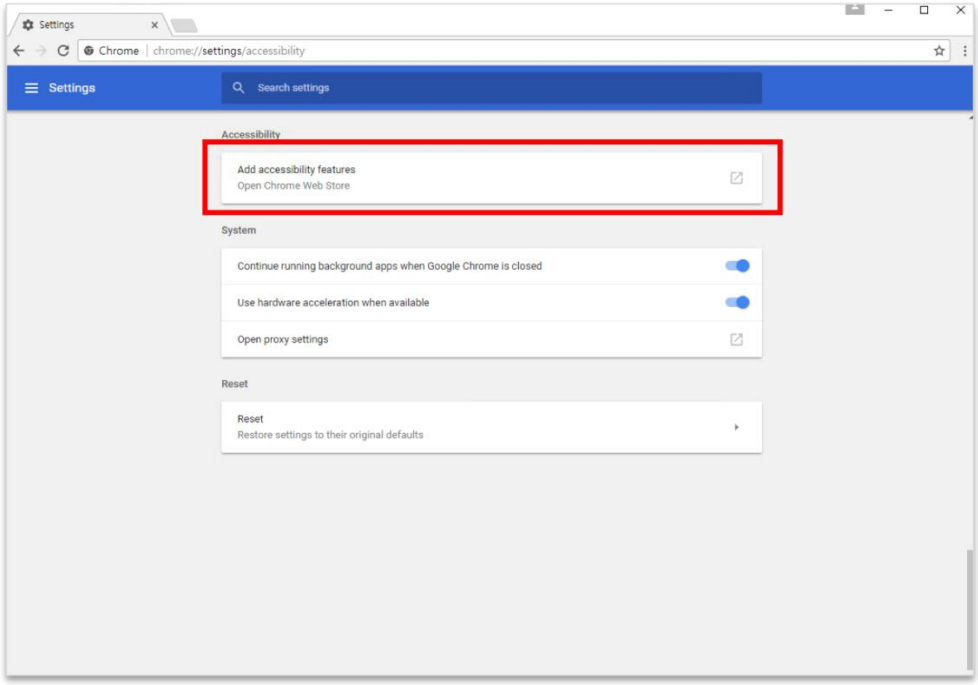
Click the button on the top left conner of the Settings screen as shown below.



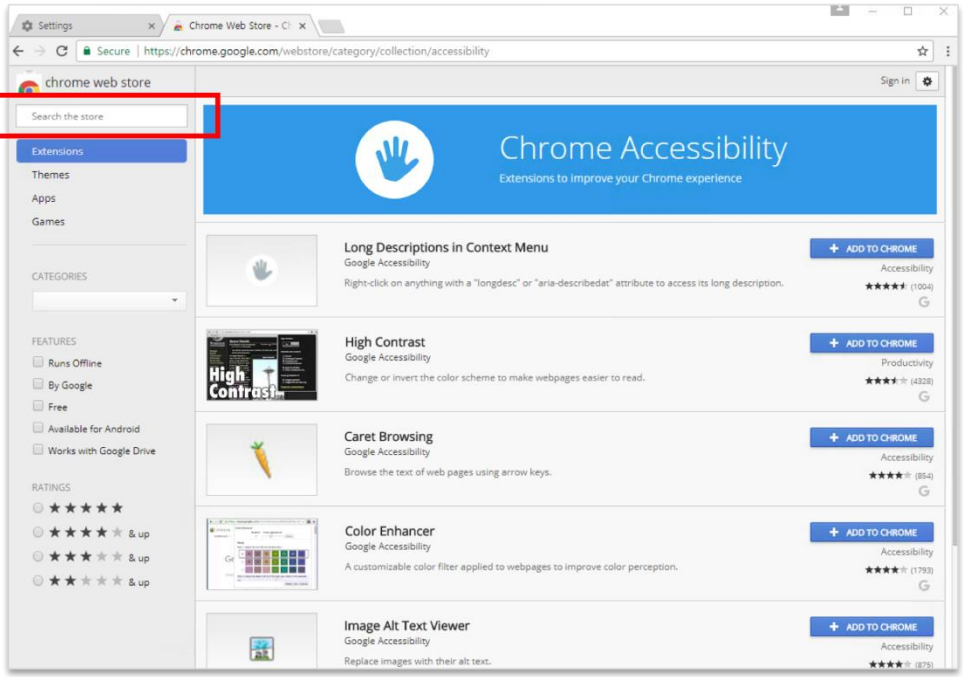
Click the ‘Accessibility’ button in the Settings menu as shown below



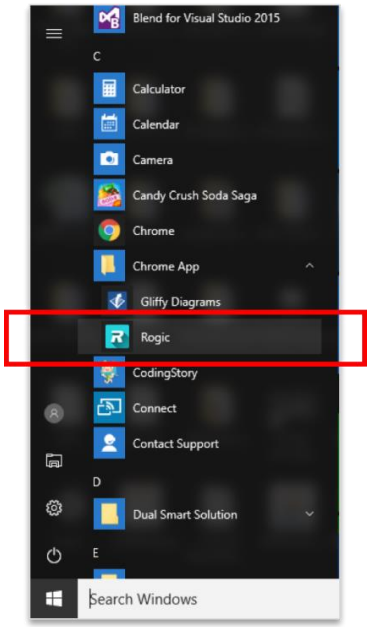
Click the ‘Open Chrome Web Store’ button as shown below to go to the chrome web store screen.



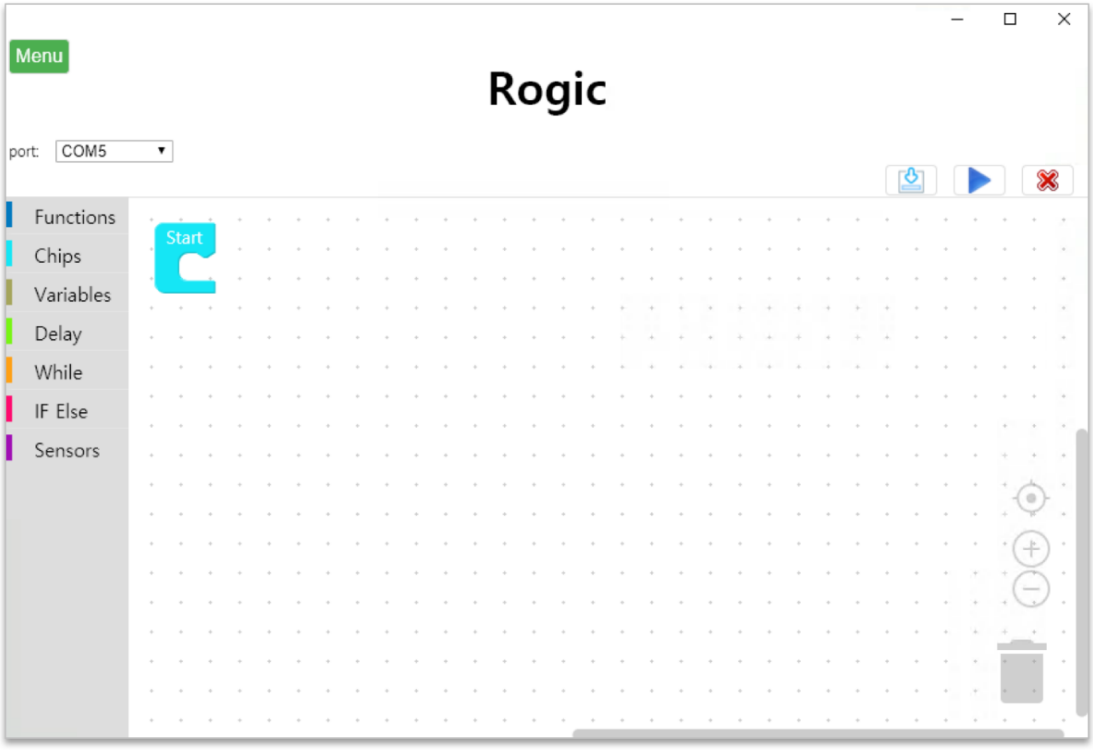
In the Chrome web store screen, search for ‘Rogic’ and click ‘ADD TO CHORME’ button to install Rogic



Click ‘Rogic’ icon to run the Rogic program.



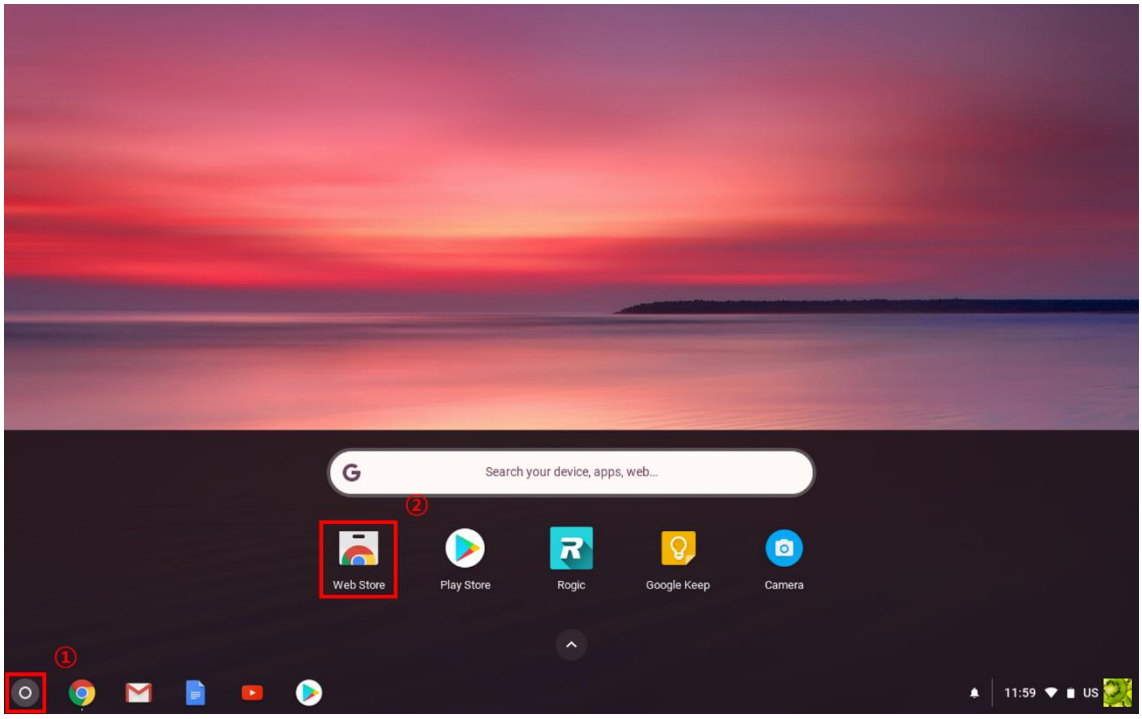
This is the Chrome Rogic program.



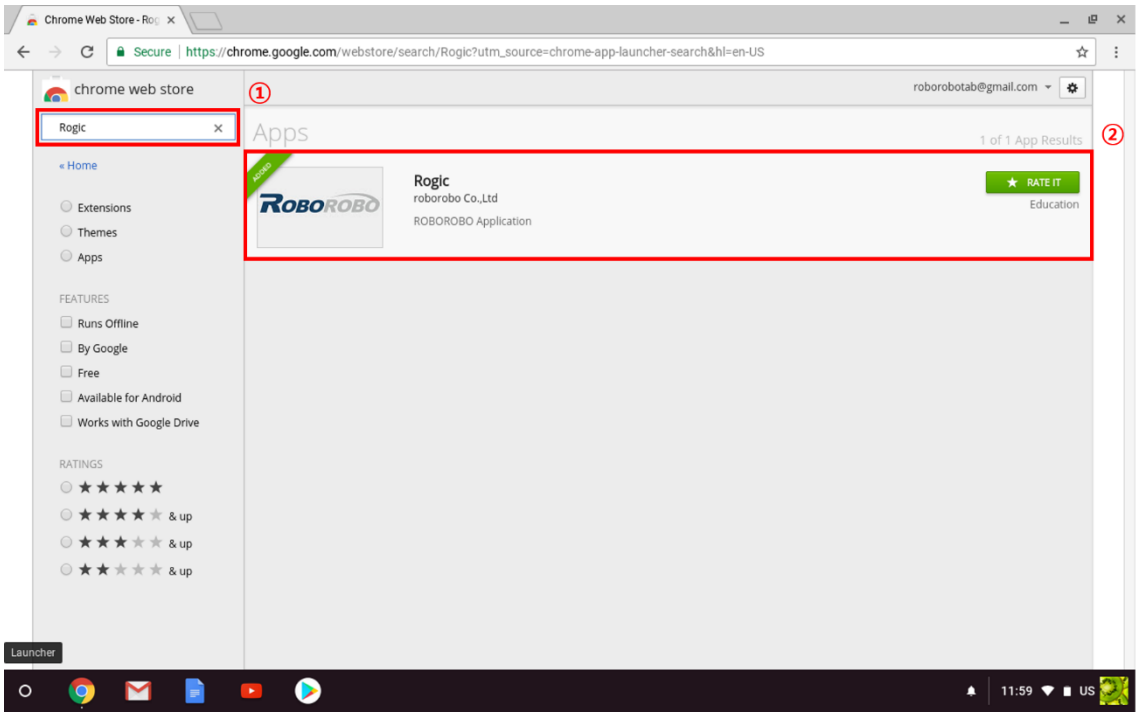
② Installation for Chrome book

In the Chrome web store screen, search for ‘Rogic’ and install the Rogic.

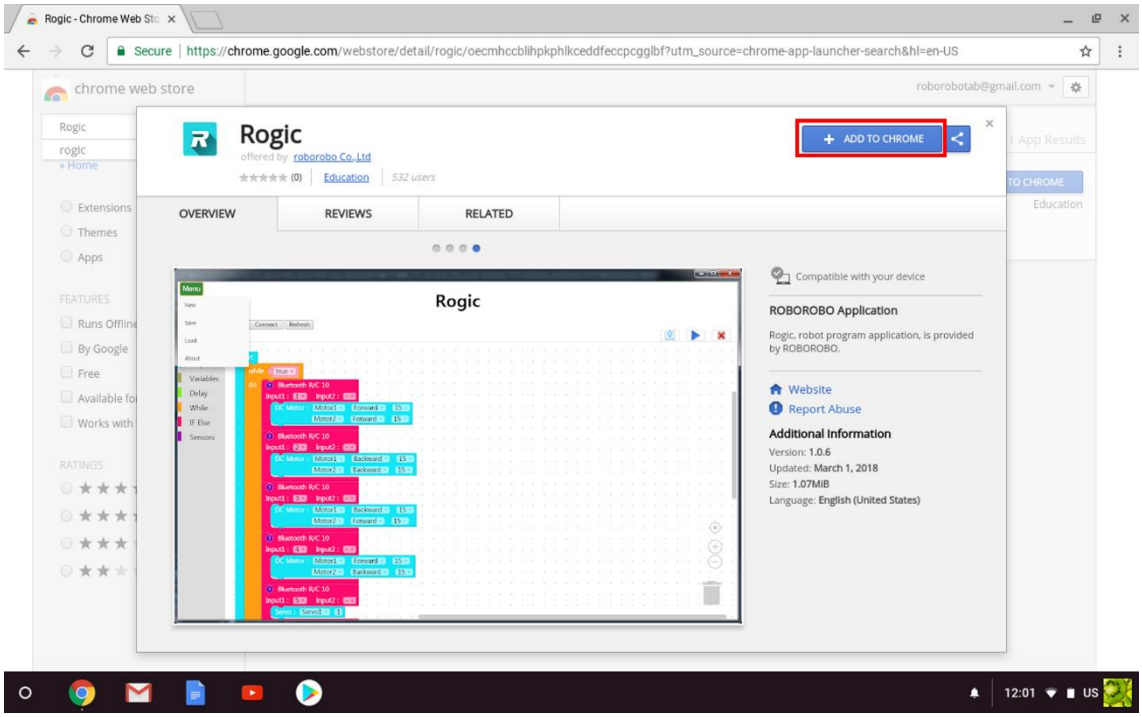
[1. Run Chrome web store]



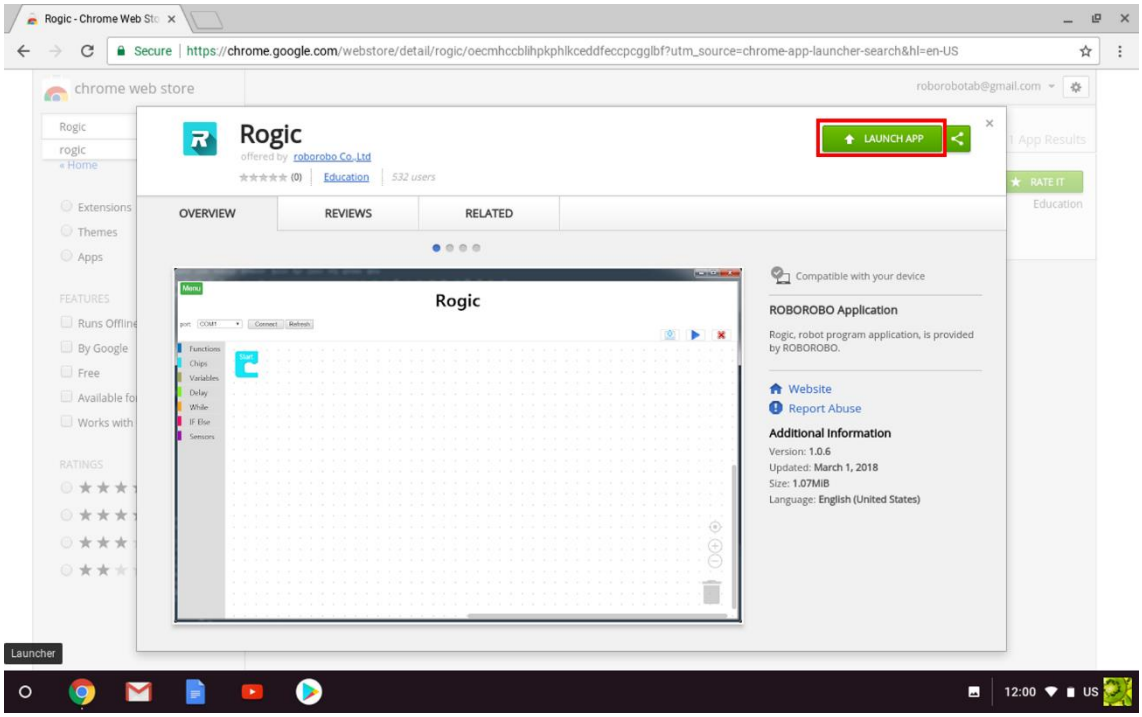
[2. Search Rogic on the store]



[3. ADD TO CHROME]

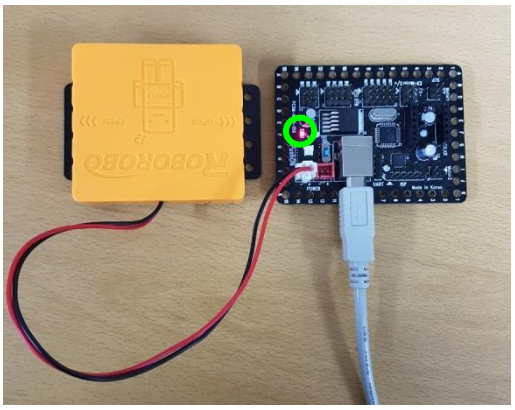


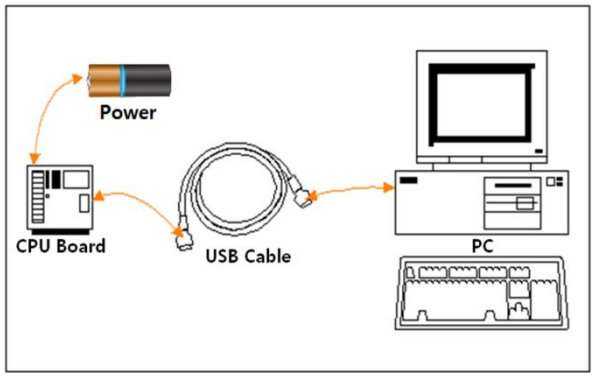
[4. LAUNCH APP]



1.2 Cable and Power connection

Connect the USB cable to the PC as shown below

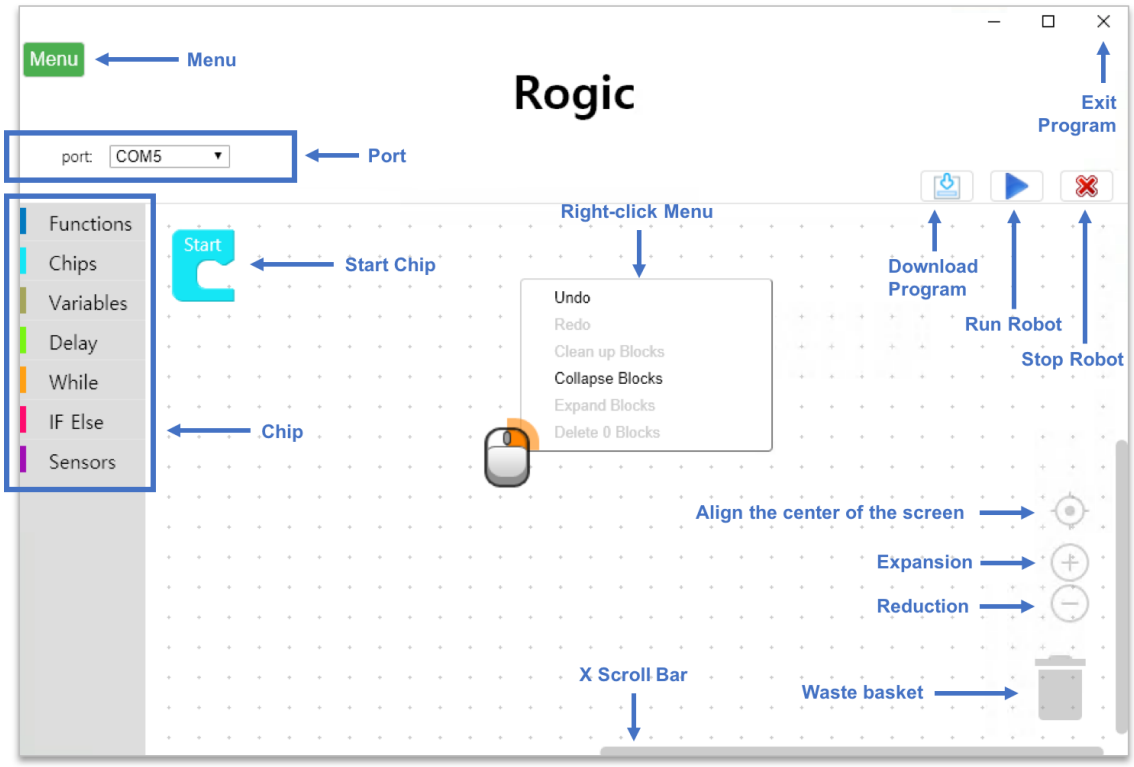




Connect the USB cable to the CPU and trun on the power. Confirm that the green circle is lit as above. The basic preparation for programming the robot is now complete.

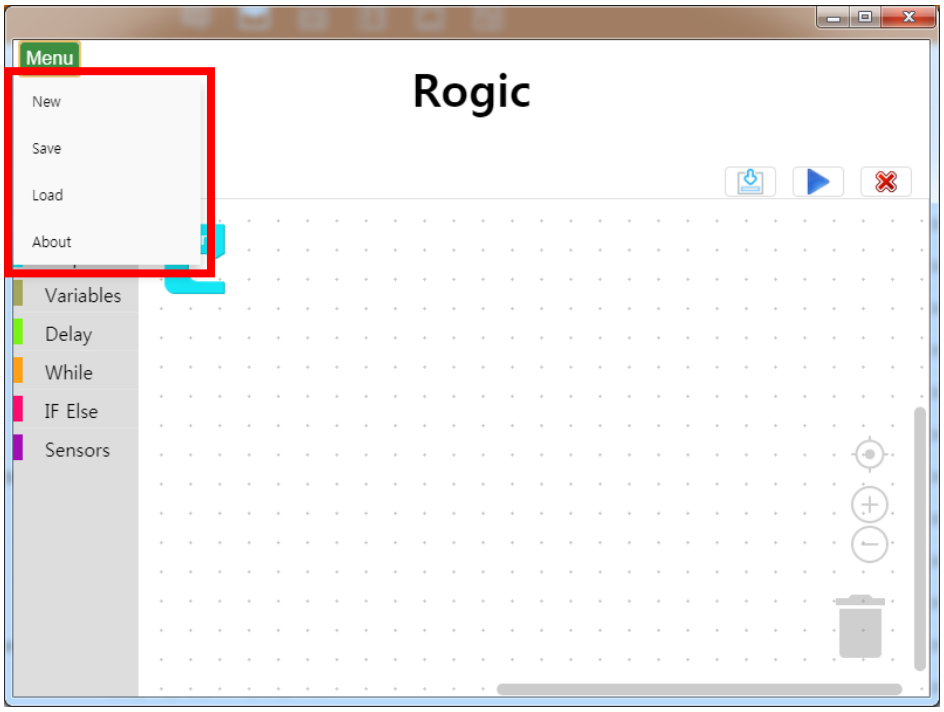
1.3 Initial Screen

- **Menu** : Menu of Rogic program. You can save and recall the chip program and set the options for the Rogic program.
- **Chip** : It is the place to get the chip used to operate the robot. Click on the desired chip and place it under the Start Chip.
- **Recycle Bin** : Used to discard chips that are not needed. Click on the chip that you want to discard and place it on the garbage can.
- **Download button** : It is the button to download the created chip program to the robot. The robot is automatically connected and created program is downloaded to the robot when button is pressed.
- **Run button** : Used to operate the robot while the robot is connected to PC with the cable.
- **Stop button** : Used to stop the robot that was operating while the robot is connected to PC with the cable.
- **Exit button** : Used to finish the Rogic program
- **Right-click Menu** : It is an additional function menu that appears when right-click the screen. You can copy, paste and delete the chip programs and add the comments.
- **X Scroll Bar** : Used to move the screen to the X axis
- **Y Scroll Bar** : Used to move the screen to the Y axis



1.4 Menu Function

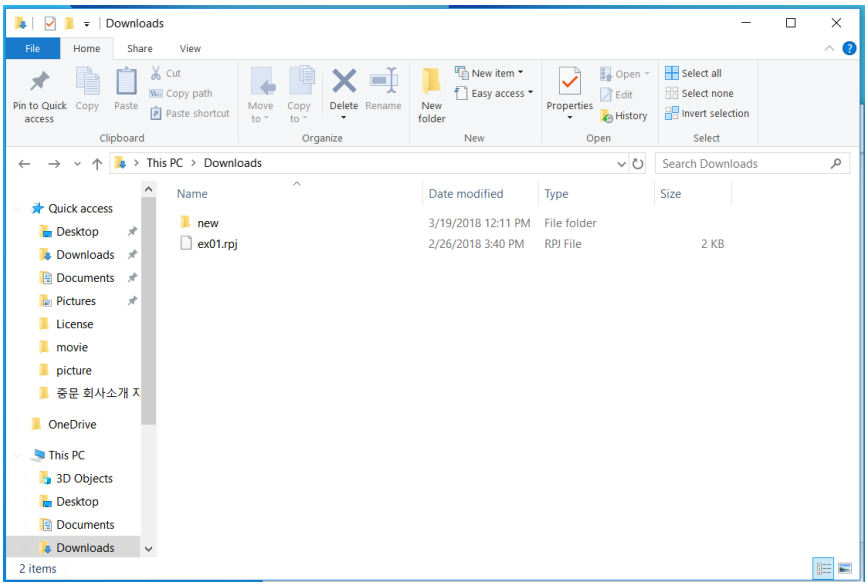
1.4.1 Menu



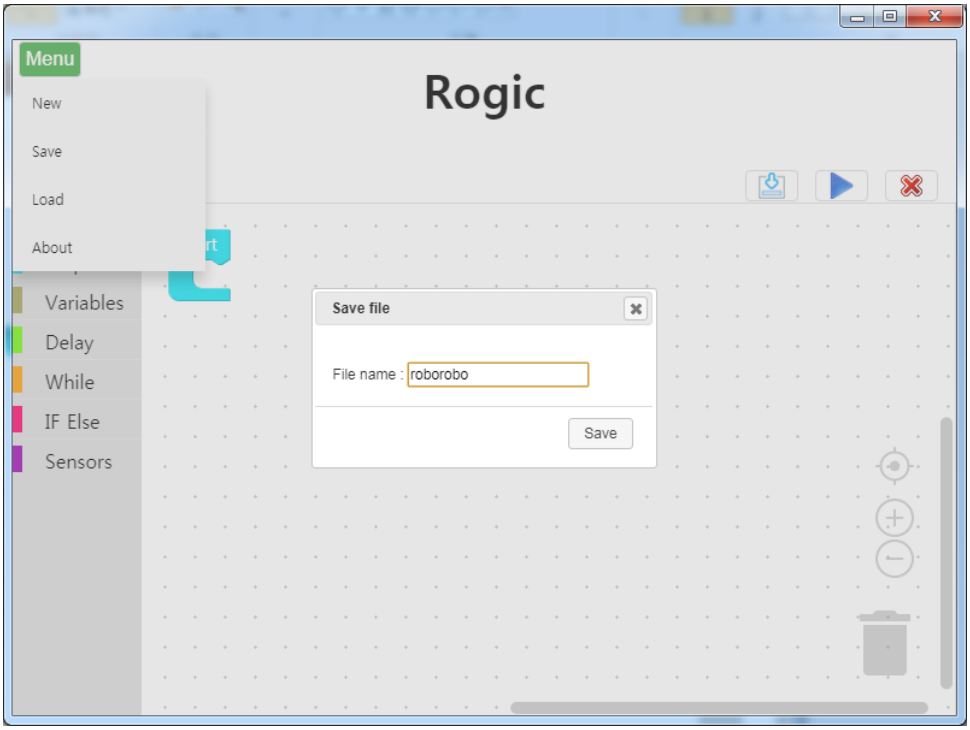
Menu saves the created program or loads the saved program. When you click Menu, the items shown above are displayed.

▪ **New** : Used to start new project.

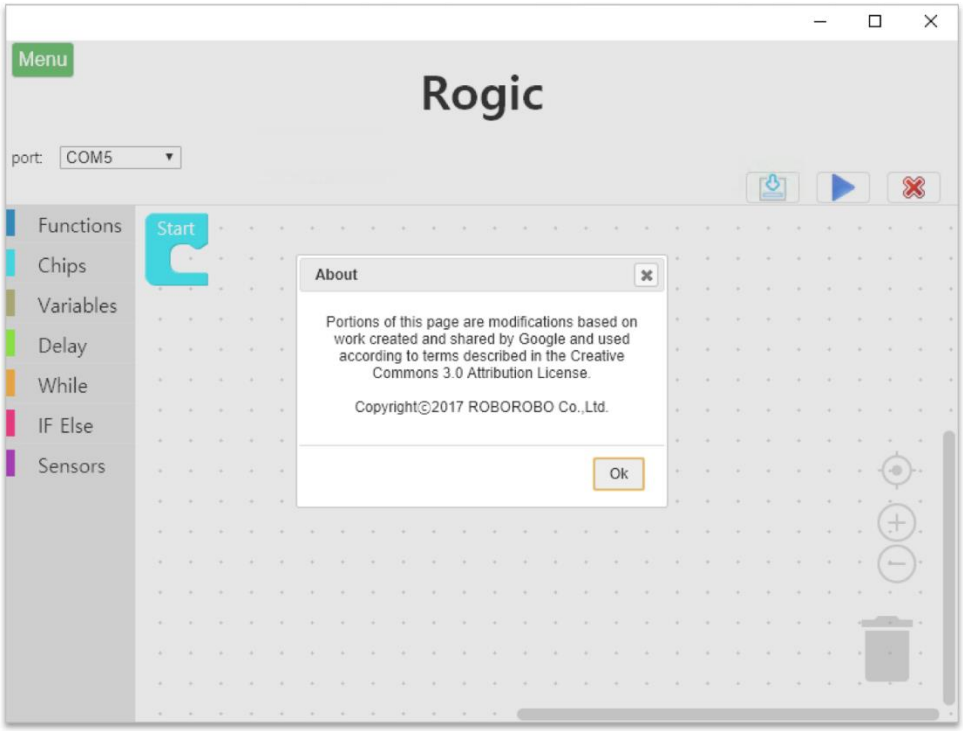
▪ **Load** : Used to load the saved chip program file(.rpj) into the Rogic program



▪ **Save** : Used to save the created chip program.

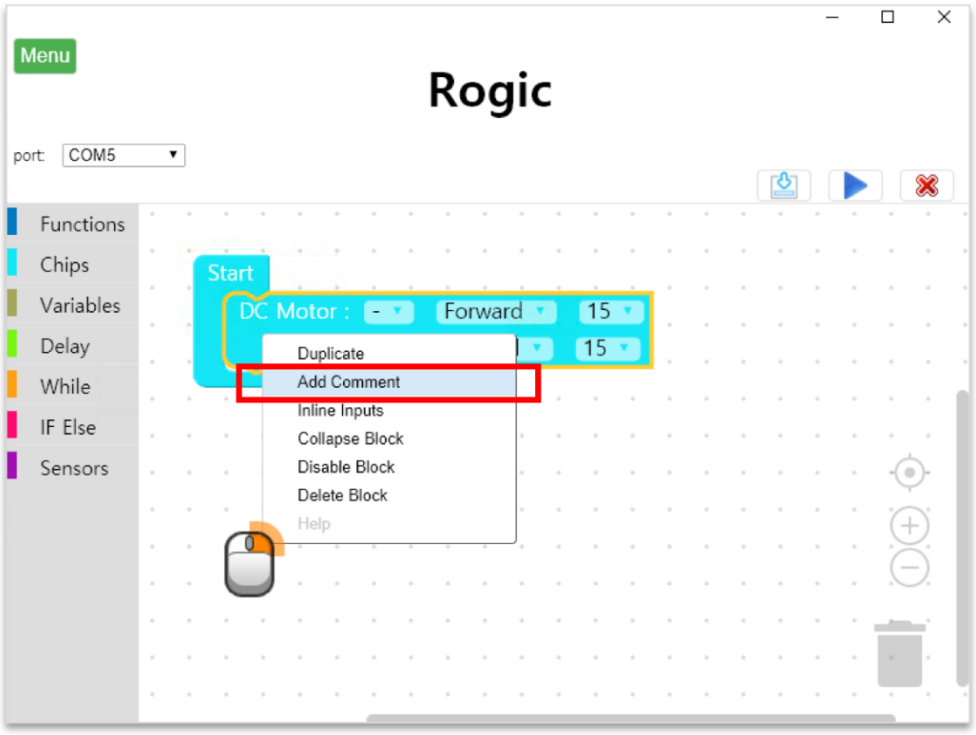


▪ **About** : Used to inform the Rogic program version information.

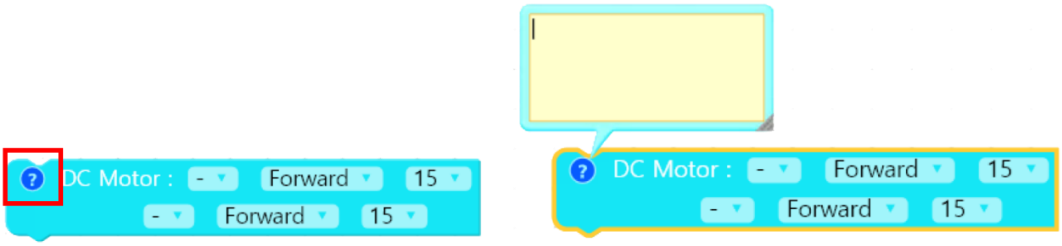


1.5 Additional Function

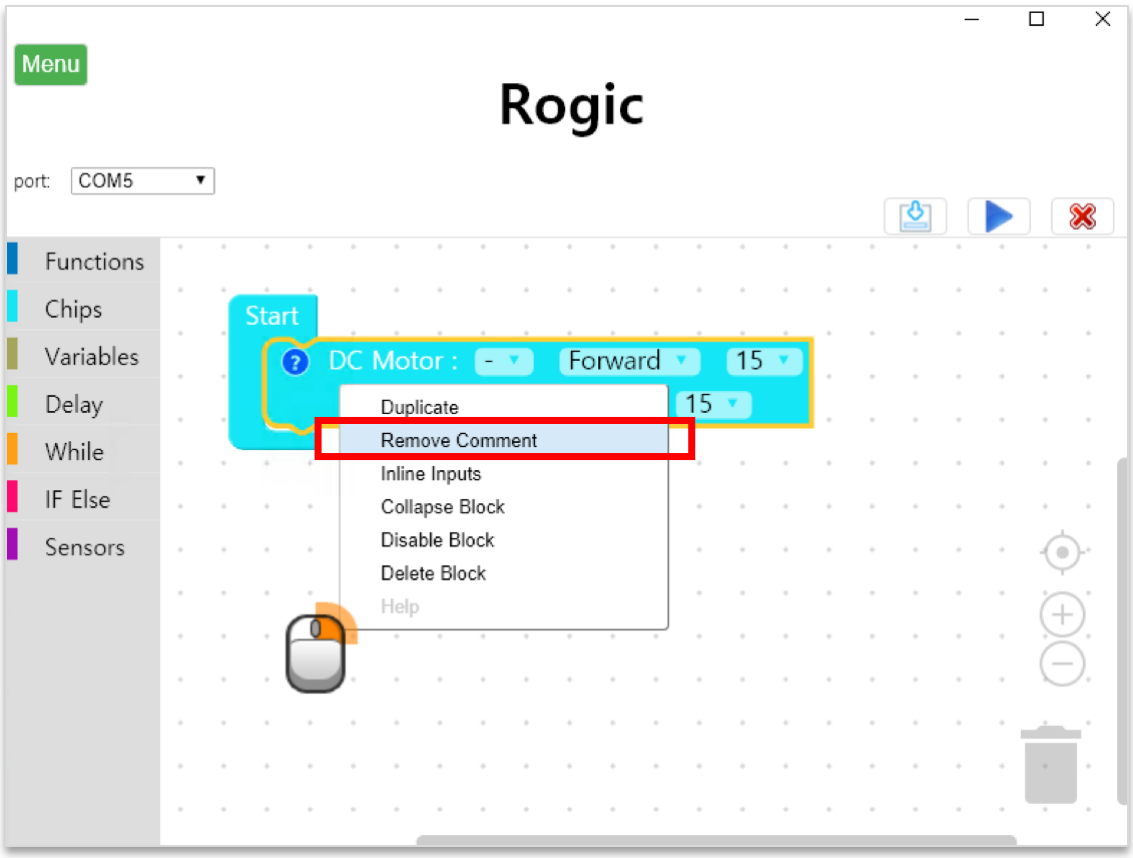
1.5.1 Comment



It is the function that enters and adds the comment. Select the chip to input comment and click 'Add Comment' to create a comment.

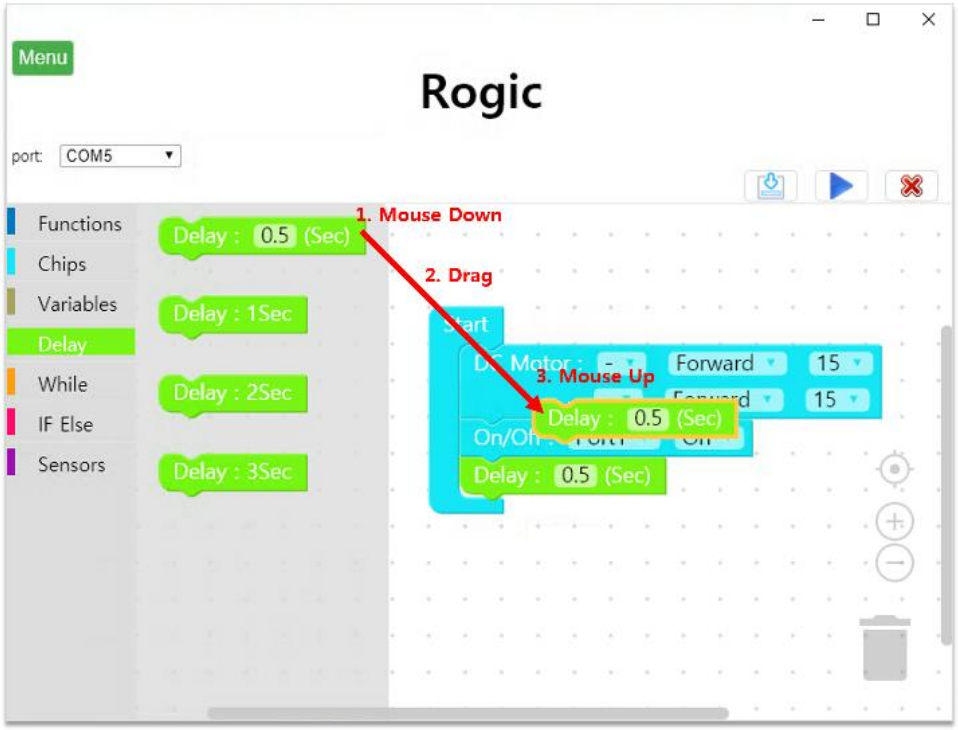


When you click '?' button as shown above, a window where you can input comment is displayed.



If you delete the comment that you entered, select the chip as shown above, right-click and click 'Remove Comment' to delete the comment.

1.6 Moving Chip

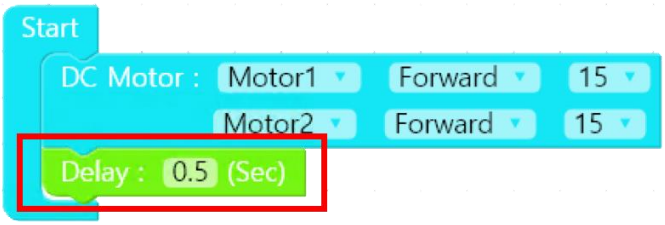


Every chip can be moved in the order of 'Click -> Drag -> Click. Select the chip that you want to program by clicking on the left menu and drag and click again on the destination.

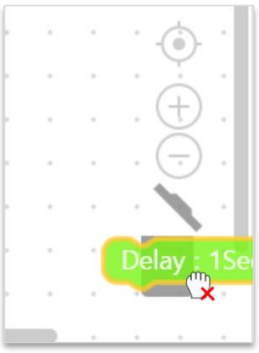
1.7 Connecting Chip

The user places the chips one by one and programs them in the order in which the robot will operate. At this time, each chip must be connected to each other. The program can not be downloaded to unconnected chip. If the chips are properly connected, there is no space between the chips.

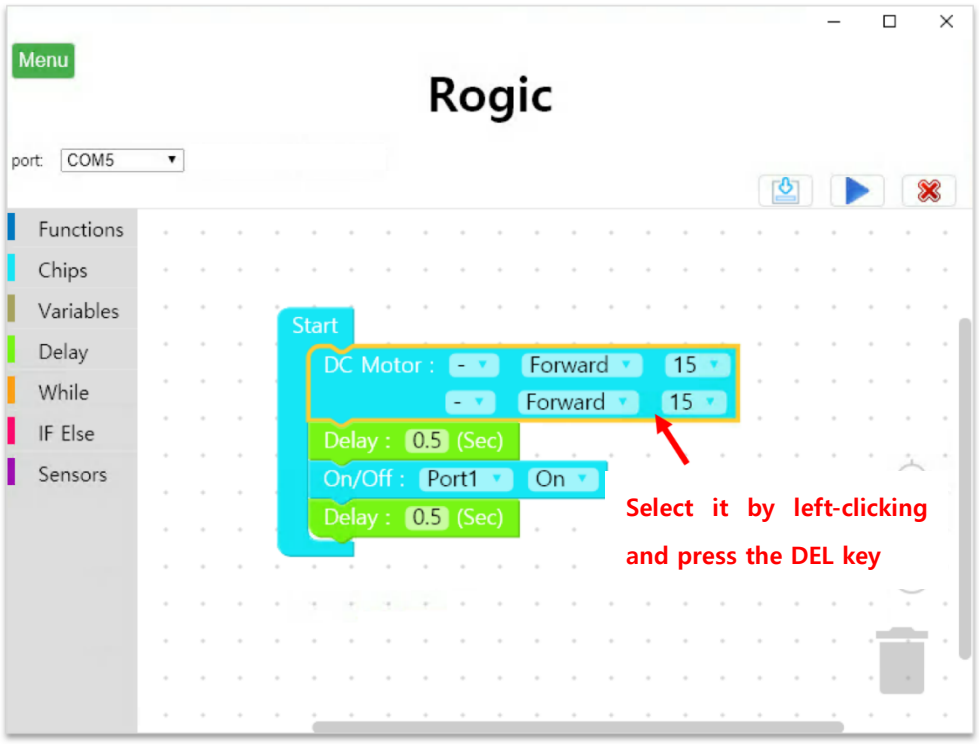
To connect the Delay chip and DC motor chip as shown below, move the Delay Chip over the DC motor chip and click it.



1.8 Deleting Chip

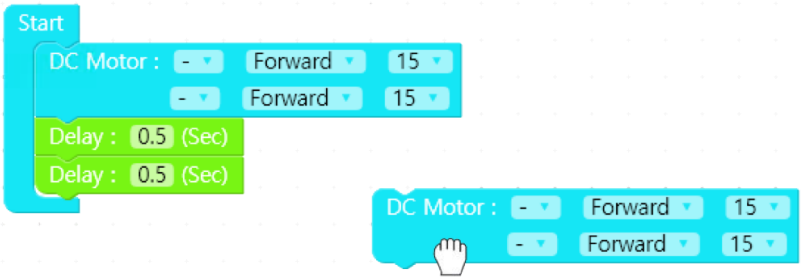


The chip you want to delete can be placed in the Recycle Bin in the bottom right conner as shown above. **Selecting the chip that you want to delete by left-click and pressing the Del key is another way to delete.**

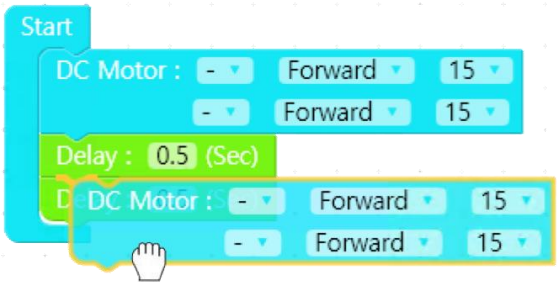


1.9 Inserting the chip between the chips

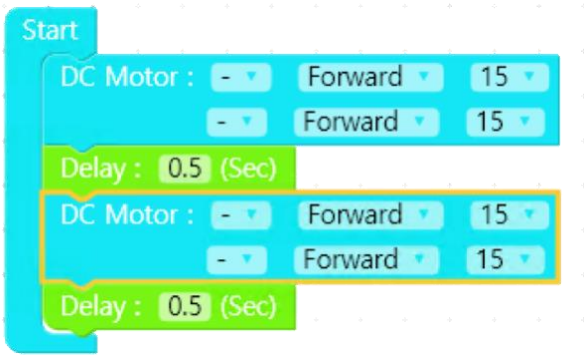
It is easy to insert another chip between chips. If you click on the position where you want to insert the new chip, it will be automatically inserted between chips. The following is an example of inserting DC motor chip between Delay chips



First, take the chip (DC motor chip) to the position to insert as shown below.

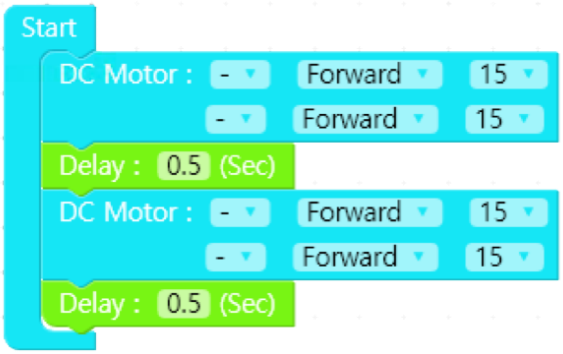


If you have taken it to the location you want to insert, click it from there. Then a new chip is inserted between the chips as shown below.



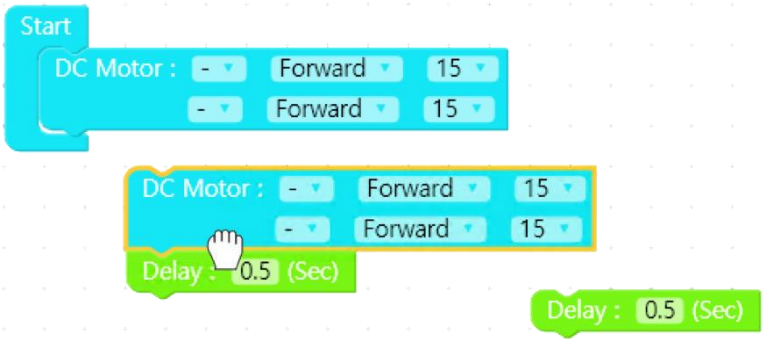
1.10 Deleting the chip between the chips

Deleting the chip placed between the chips is a little more complicated than the process of inserting. When you select the chip, all the chips connected to the lower part of the chip move together, so it takes several steps to remove the middle chip. To delete the chip located in the middle, first select the chip you want to delete and place it anywhere in empty space. Then you can add the chips in the bottom of the chip you want to drop back to the existing program. The following is an example of deleting a delay chip placed in the middle of the program.



Let's delete the first delay chip from the program shown above.

Click on the chip you want to delete first. Then the chips connected to the bottom will move together as shown above. Then click on the appropriate location to move the chip.



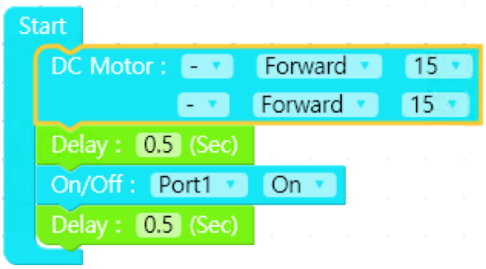
Then click on the chip that will be deleted again as shown above, bring it to the place where it was originally, and click again to connect.

The last remaining Delay chip can be deleted in Recycle Bin

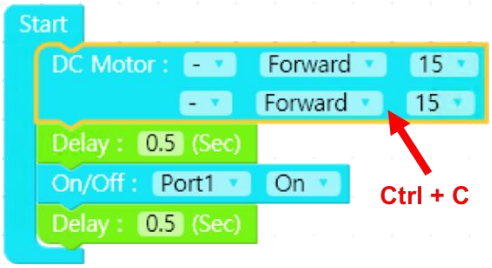
1.11 Copy and paste chips

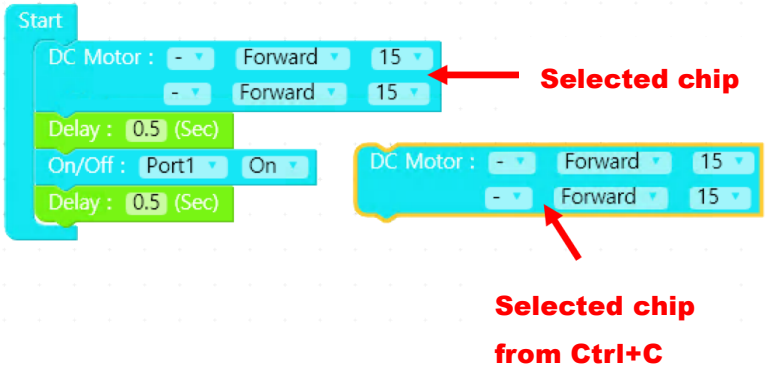
You can copy the chip you set up. The following is an example of copying DC motor chip.

Press the left mouse button and select DC motor chip. When the chip is selected, the outline color of the chip looks yellow as shown below

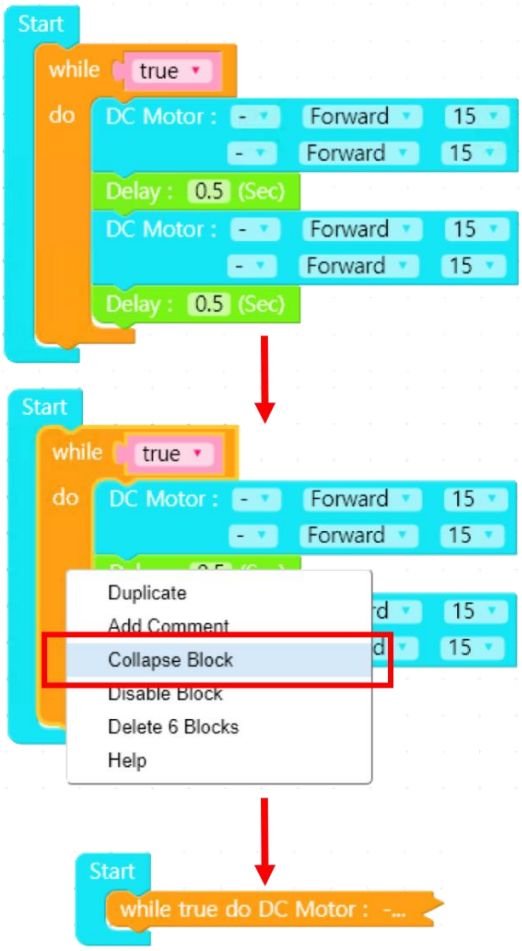


After confirming that DC Motor Chip is selected, press 'Ctrl+C' and press 'Ctrl+V' to copy the selected chip.





1.12 Hiding Chip



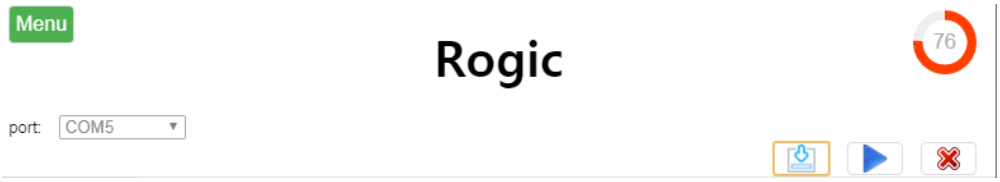
Select the While, If Else, and Function chips as shown above and then click ‘Collapse Block’ by right-clicking to hide all the lower chips that the chips contain. You can check the original chip by right-clicking again and clicking ‘Expand Block’.

1.13 Download and Run the robot

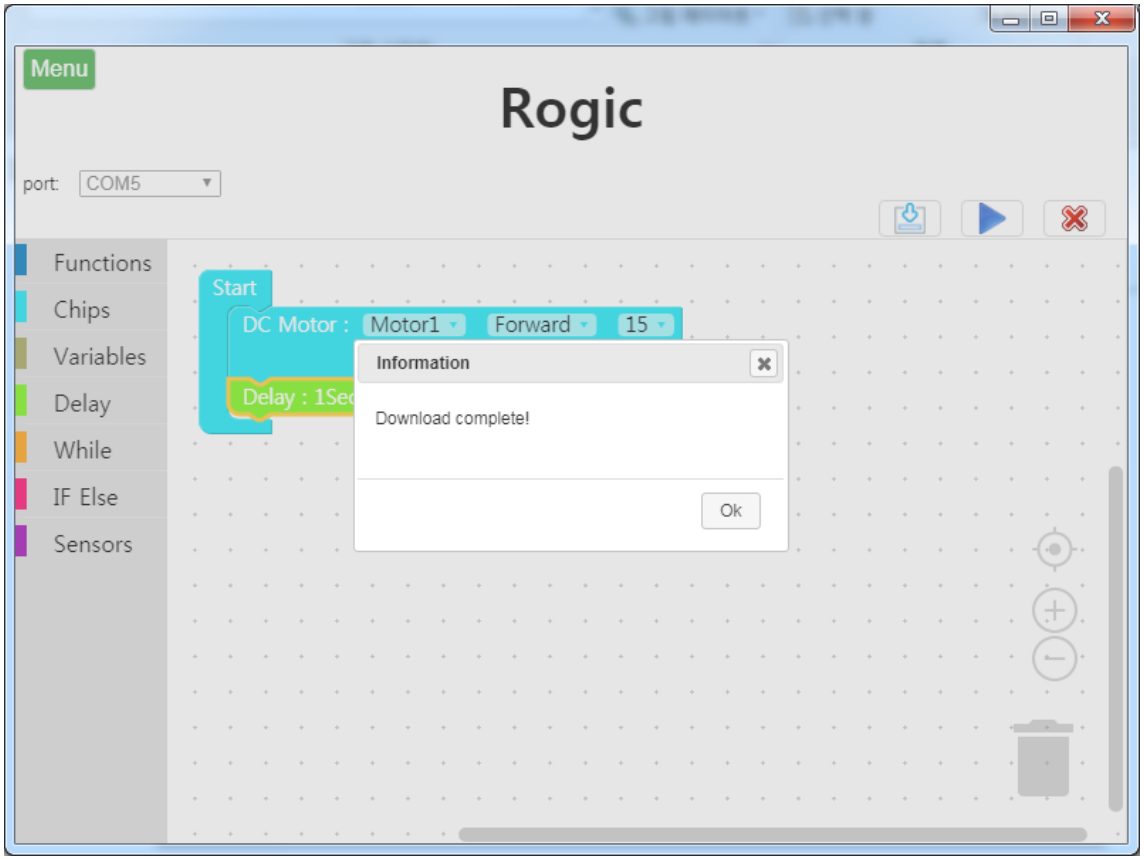
To download the created chip program to the robot, first connect the cable to the robot and turn on the robot.

Click the combo box on the upper left corner to search for the COM port that is currentlyconnected to the robot. Slect the Com port from the searched ports.

Once clicking the Download button, it starts downloading after automatically connecting to the COM port selected in the combo box.



The Transmission Status progress bar appears in the upper right corner of the screen.



When all data has been transferred, a message box with "Download complete!" will appear. (When the downloading is completed, the connection to the COM port is automatically disconnected.)

1.14 Exit

If you want to finish the Rogic program, click the 'Exit' button in the upper right corner.

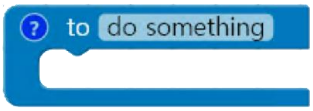
2. Chip Explanation

A chip is a block of semantic units necessary to operate the robot. It has a special meaning for each chip, and is programmed by connting chips in sequence.

2.1 Functions

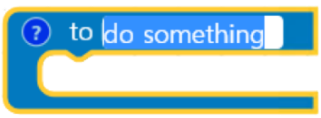
▪ Function : It is a bundle of chips that is a combination of meaningful chips. If you use frequently used operations as a function chip, you can program easily by adding only the function chip without configuring the chip every time you need to work.

2.1.1 New Function Chip



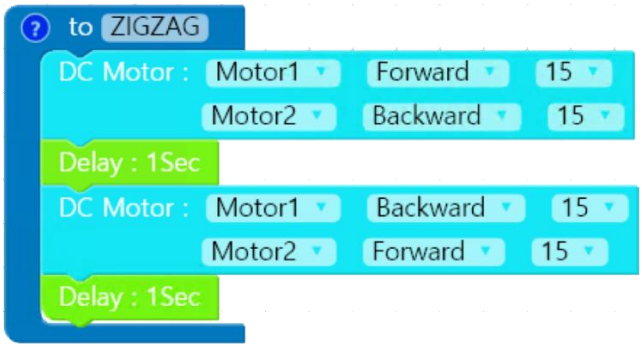
▪ **Main Function** : A chip that creates a new function.

▪ **Option Explanation** : After creating Funciton Chip, enter the name of the new function it the input window.



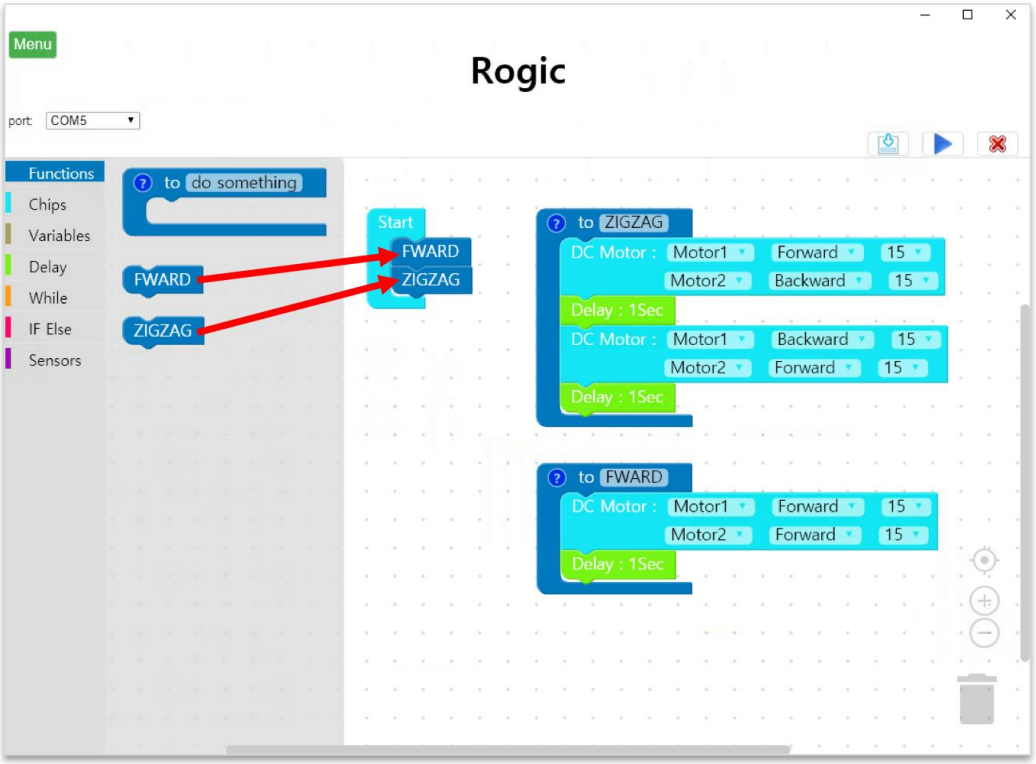
Enter the function name as shown above and press the Enter Key

If the function name is entered correctly, an empty function is created as shown above



The DC motor chip and the Delay chip are properly inserted so that the robot moves in a zigzag manner. This completes the ZIGZAG function.

2.1.2 Using generated functions



The created function is added to the Function chip. To use this function, click the function to be used in the Function Chip on the left and move it.

2.2 Chips

2.2.1 Start Chip

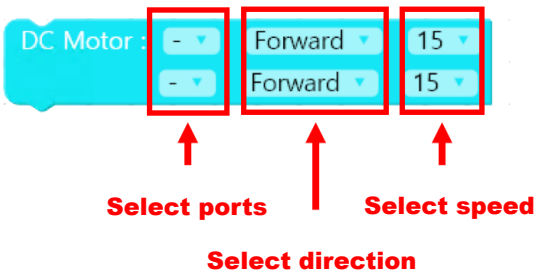
▪ **Main function** : The Chip indicating the start of the program

▪ **Option Explanation** : There is no option. It is displayed on the the program screen by default. The user starts chip programming by placing other chips under the Start Chip.

2.2.2 DC Motor Chip

▪ **Main Function** : It is a chip that determines the speed and direction of a DC motor.

▪ **Option Explanation** :

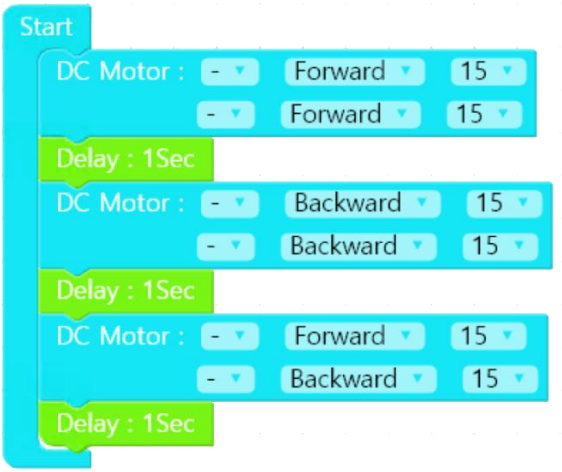


You can set the port to which the motor is conneted in the port selection area, set

the direction of rotation in the selection area, and set the speed at whitch the DC motor will operate in the speen selection area. The speed has a value from 0 to 15, starting with 0 indicating stop and having the maximum speed at 15.

Using the DC motor chip, the DC motor moves as set up until meet the next DC motor chip. To specify how long the set DC motor will run, place a delay chip next to the DC Motor Chip

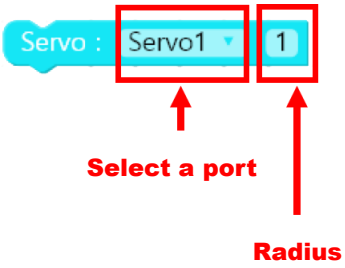
▪ Example : To operate the DC motor, set the direction and speed and Delay chip with time has to be located under the DC Motor Chip. After the delay time elapsed, the motor does not automatically stop. In order to stop the motor, you should insert the DC motor chip with zero speed. The following example moves back and forth for 1 second, and if it rotates for 1 second, the entire chip is terminated and the operation is stopped.



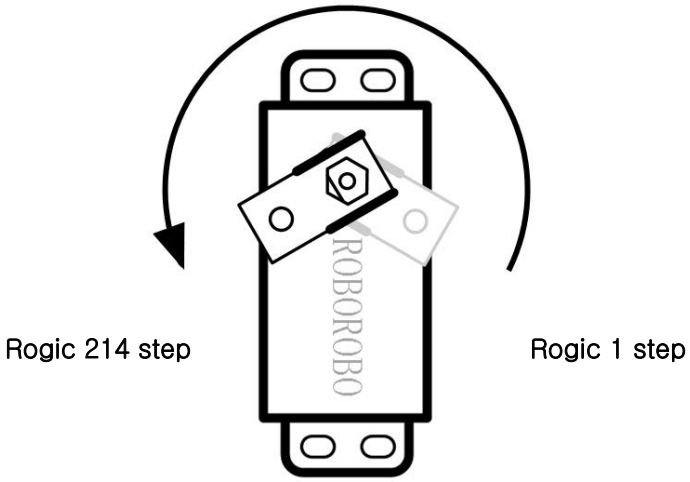
2.2.3 Servo Chip

▪ Main Function : It is a chip that moves servo motor. The servo motor can be moved by a given angle, so you can divide the movement of 220° from a minimum of 1 to a maxiam of 214, which allows detailed configuration.

▪ Option Explanation : You can set the port to which the motor is connected in the port selection area and can set it by directly entering the value in the travel radius input area.



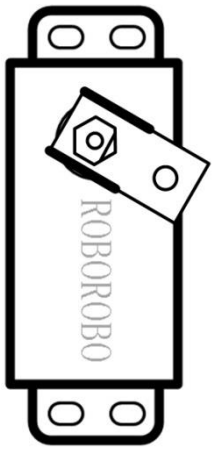
▪ Moving radius of servo motor



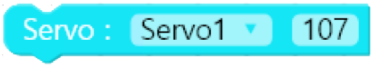
▪ Setting the starting point of the servo motor

Method 1) Insert the connecting part into the shaft of the servo motor and turn it to the right until it stops. Pull connected parts to set the starting point (1 step) to be the motion reference

Method 2) In the logic program, set Servo Chip to 1 step and download. Then you can confirm that the servo motor shaft moves to the starting point by operating the robot.



▪ Caution : The triangular groove of the servo motor shaft (the recess of the white motor shaft) indicates the reference point (zero point) if the servo motor. Since the moving radius of the servo motor is 220°, the 107 step of the servo chip will be 90° as shown below

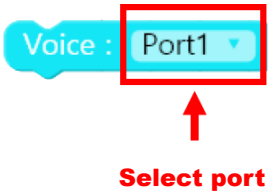


After setting the desired angle in the Servo Chip, the sufficient time (about 1 second) is required to reach to the target angle.

2.2.4 Voice Chip

▪ Main Function : It is the chip that operates the voice board

▪ Option Explanation : Voice Chip emits an output signal that activates the voice board connected to output port.

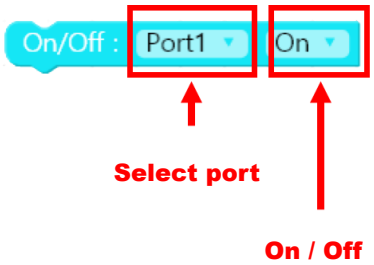


The voice board has to be connected to one of the robot's output ports (PORT1 ~ PORT5), and you can set the output port to be connected in the port selection area. Voice Chip sends out the signal to the voice board to output the voice through the output port.

2.2.5 On Chip

▪ Main Function : It is the chip that turns on the LED or buzzer.

▪ Option Explanation : It is used to turn on the LED or buzzer connected to the CPU.

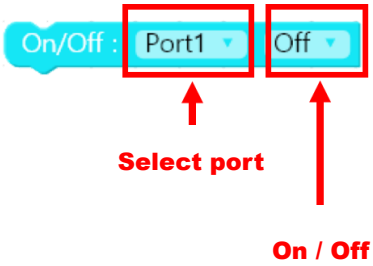


▪ Caution : On Chip is always used with Off Chip.

2.2.6 Off Chip

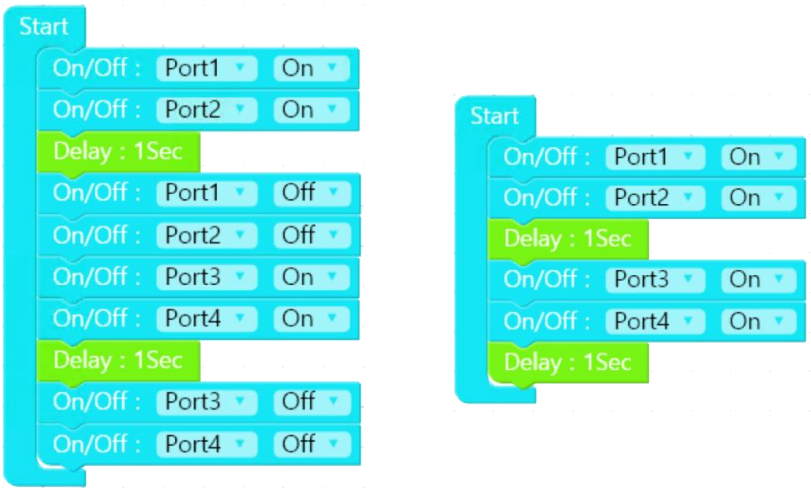
▪ Main Function : It is the chip that turns off the LED or buzzer.

▪ Detailed Option : It is used to turn off the LED or buzzer connected to the CPU



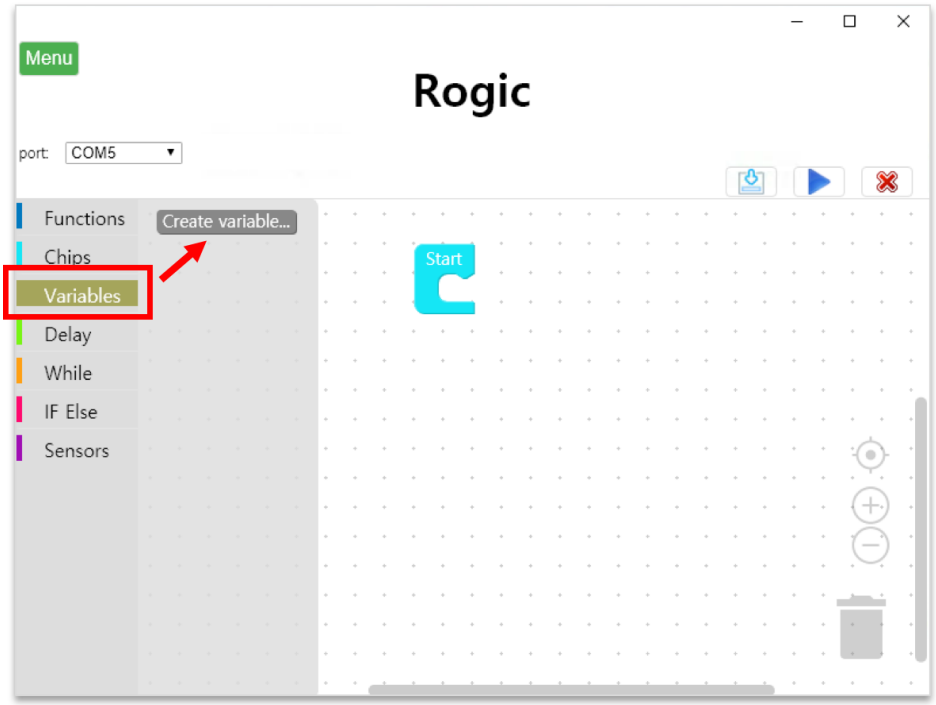
▪ Cautions : It is always used with On chip.

▪ Example : The following is the example using On Chip and Off Chip



The LED will remain on until it is turned off. Therefore, in the case shown on the left, LEDs of port3 and port4 are turned on and off after LEDs of port1 and port2 are turned on and off. However, in the case shown on the left, LEDs of port1 and port2 remains on even after LEDs of port3 and port4 turn on.

2.2.7 Variable Chip



▪ **Main Function** : It is the chip that creates a new variable, sets an initial value, or sets a

new value to an existing variable.

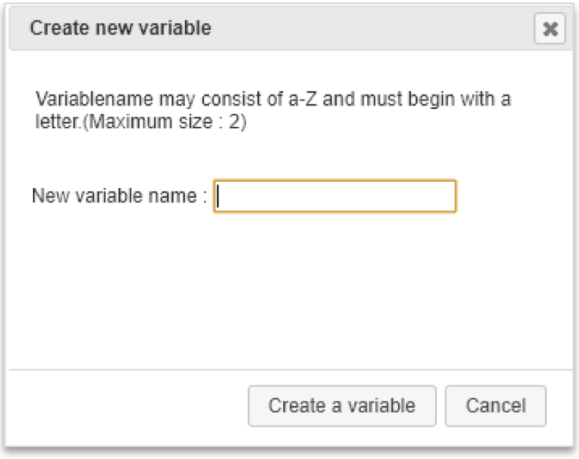
▪ Option Explanation : A variable is the number whose value can be changed by the program. You can use variables to store data received from the sensor. Allowing you to create more programs.

Variables can be created, initialized and changed by Variable Chip and Calculation Chip and compared by If Else Chip (Condition Chip) and While Chip (Repeat Chip). Therefore you need to freely paly with Variable Chip, Caluculate Chip, Condition Chip and Repeat Chip to use the variables.

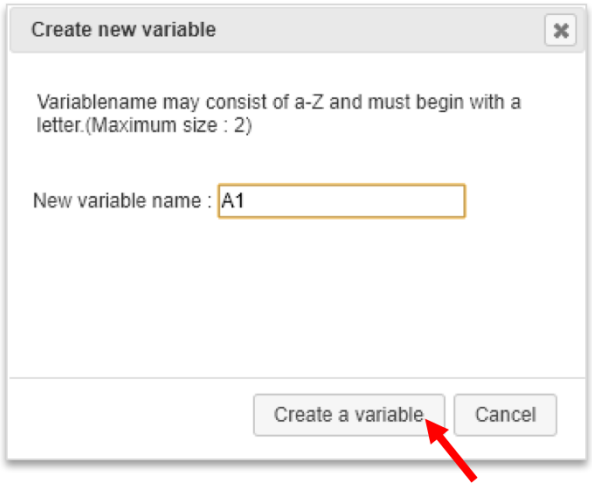
Let's create the variables and set the initial value using Variable Chip.

First, Select the 'Create variable…'.

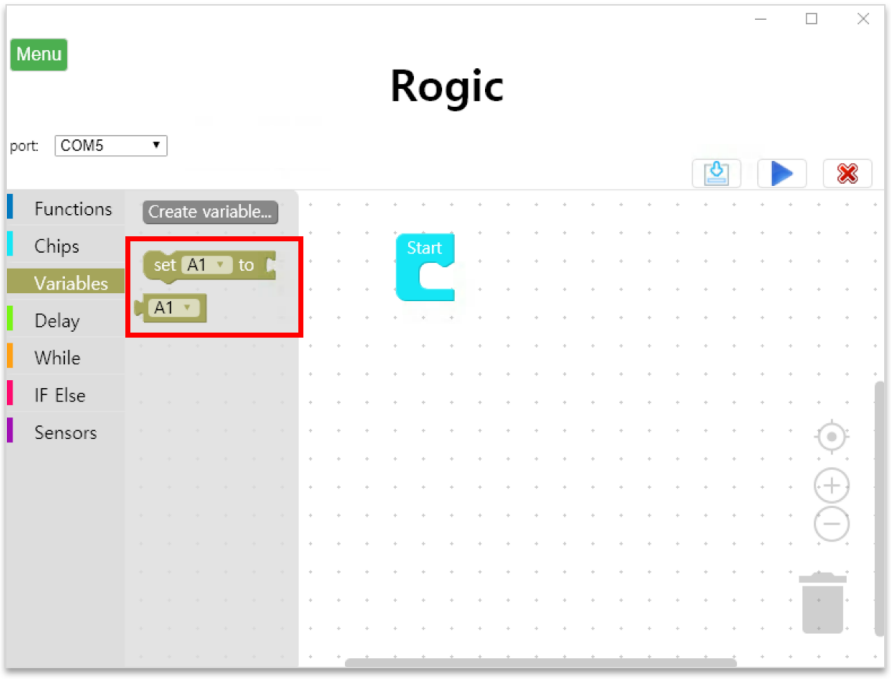
The Create new variable box will appear asking if you want to create a new variable.



Input 'A1' as variable name in 'New variable name box'. The variable name can be up to 2 alphanumeric characters. Enter the variable name and press the 'Create a variable' button.



Variable Chip has been created as shown below.



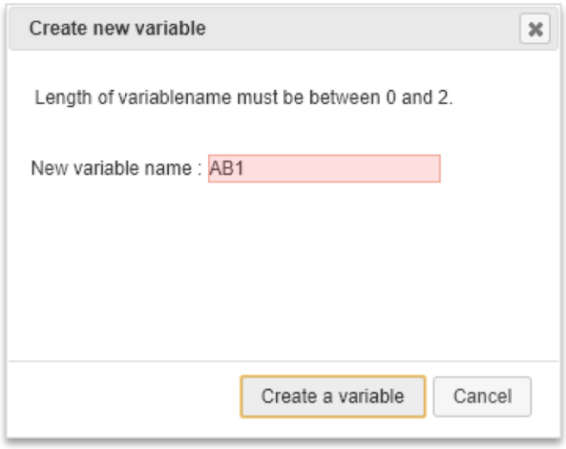
Selecte Variable Chip and type '10' to set the initial value of the variable.

(Notice) Only input block and variable block can be linked in Chips category.

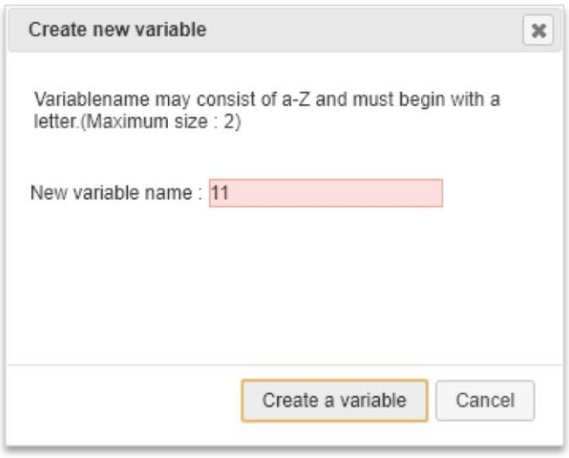
<input block and variable block>

The A1 variable with an initial value of 10 has been created. The If Else Chip or While Chip attached under the Variable Chip can be compared/judged and repeated

▪ Caution :



Variable names can be up to 2 alphanumeric characters. If you enter a variable name of 3 or more characters, the warning message as shown above appears

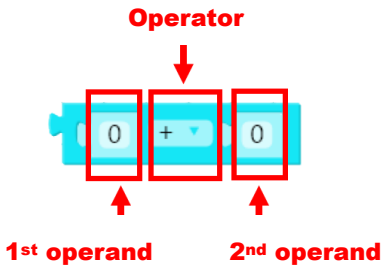


You must also include an alphabetic character in the variable name. If there are no alphabetic characters, the warning message as shown above appears

2.2.8 Calculate Chip

▪ Main Function : It is the chip that calculates with variables and constants.

▪ Option Explanation : The Calculate Chip is the chip that add, subtract, multiply and divide with variable and constant created bv Variable Chip.



(Notice) Only input block and variable block can be linked.

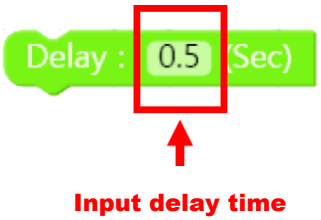
You can specify two operands and an operator. The operands can be constant (ordinary numbers)

2.3 Delay

2.3.1 Delay Chip

▪ **Main Function** : The chip that delays the state for a specified amount of time.

▪ **Option Explanation** : An appropriate delay is required to operate the robot. Delay Chip is the chip used to delay the state of the robot for a certain period time.

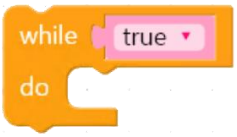


Delay time unit is 0.1 second and the range of the time is from 0.1 to 25 seconds.

2.4 While

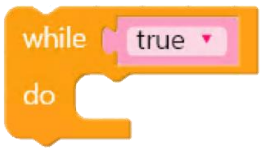
If you perform the same operation repeatedly, you can simply implement it by using the chip that preforms repetitive operations rather than repeating the same chip.

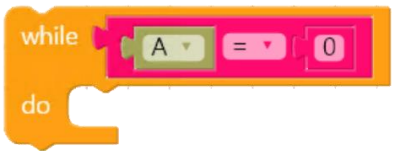
2.4.1 While Chip



▪ Main Funciton : it is the chip that repeats a specific chip.

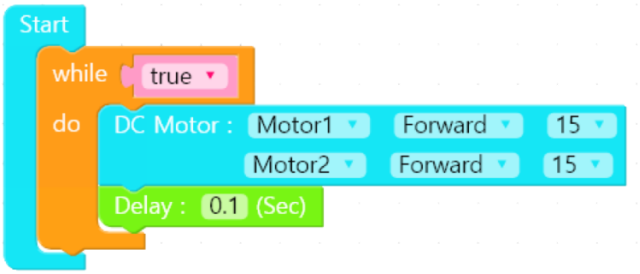
▪ Option Explanation : The robot preforms many simple repetitive tasks. While Chip repeats normal chips placed in the chip. The While Chip has infinite repetition and condition repetition. If 'true' is set as shown on the left below, the repeating chip is set to infinite repeating, and the specific chip placed between the repeating chips is repeated infinitely. It can also be used as a condition repeat that repeats a specific chip placed between While Chip only when the condition is set and condition is true. (conditions can be set by variables and numbers, or variables and variables)



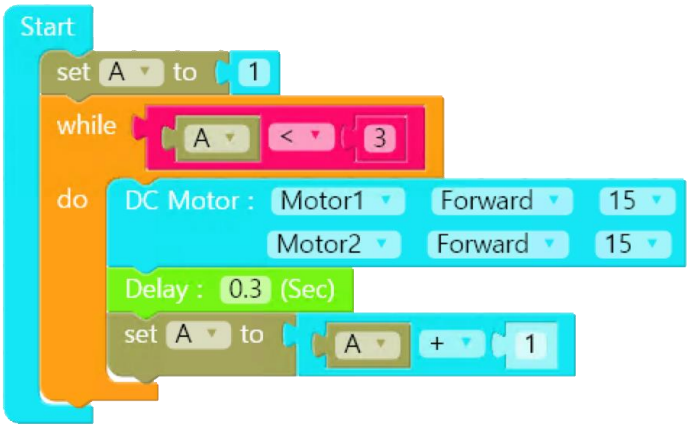


▪ Caution : if you use While Chip with infinite repetition, it will repeat infinitely unless you exit using Break Chip.

▪ **Example 1** : As following program, the robot advances infinitely by repeating commands advancing for 0.1 second



▪ **Example 2** : The following program is an example of Repeating Condition using While Chip with Variable Chip.



With above program, Value of A is incremented by 1 through Calculate Chip until the condition is false (at this time the condition is A < 3) At the first and second run, the DC motor operates because A gets value 1 and 2. However, in the third case, A becomes 3 and it does not satisfy the condition of 'A < 3' so program is terminated without operating DC motor.

(Notice) Comparison block in IF Else category

<Example of Comparing Block>

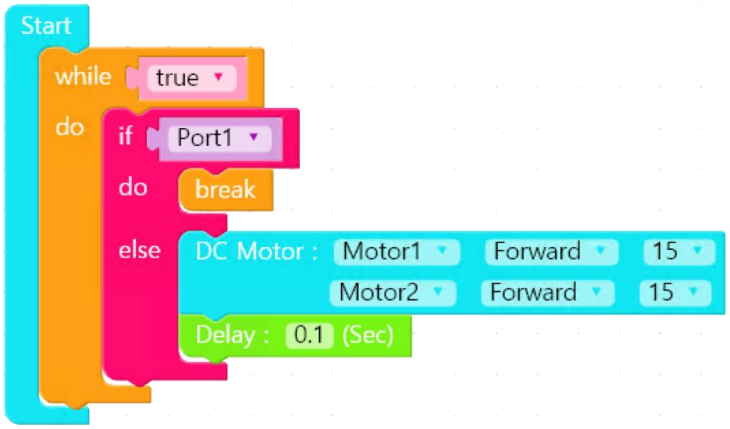
2.4.2 Break Chip

▪ **Main Function** : It is the chip that stops repeating.

▪ **Option Explanation** : When a Break Chip is encountered inside the While Chip, it stops repeating and exits the While Chip.

▪ **Caution** : Break Chip should be used inside While Chip.

▪ **Example** : The following is an example using Break Chip

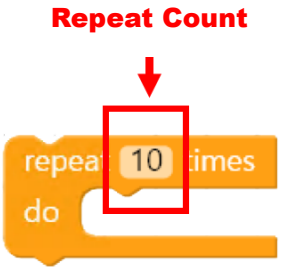


The above program checks the condition and exits While chip if the result is true.

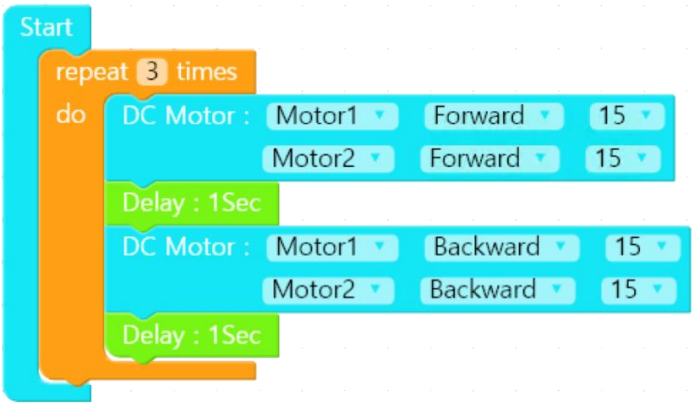
2.4.3 Loop Chip

▪ **Main Function** : The chip that cycles a specified number of times

▪ **Option Explanation** : While Chip is used for infinite repetition or conditional repetition using variables. However, in the While Chip, it is necessary to go through a complicated process such as definition of variables, initialization, calculation, and condition comparison in order to repeat a predetermined number of times through conditional repetition. The number of repetitions of the Loop Chip can be set in the Repeat Count input area.



▪ **Example** : The following shows an example of configuring the forward one second and backward one second three times



2.5 If Else :

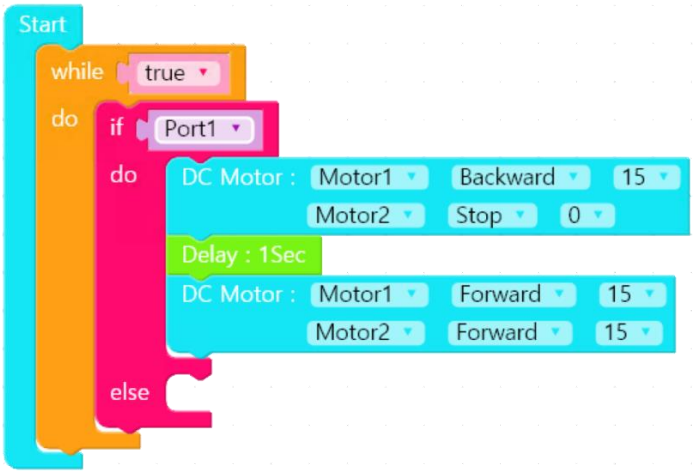
2.5.1 If Else Chip

▪ **Main Function** : Comparing the input port value or condition and executes the programmed chip according to the result.

▪ **Option Explanation** : The robot needs a sensor to respond to the external environment. In order words, if you want the robot to perform different actions according to sensor value, you can use If Else Chip.

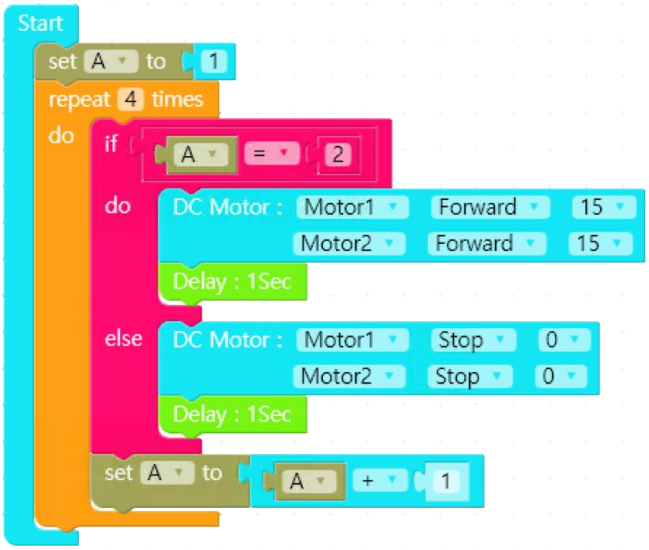
The default is to run the chips placed on each do, else according to the input port value of the Sendor port. Alternatively, if a condition is entered, the chip placed in each do or else is executed according to the input value.

▪ Example 1



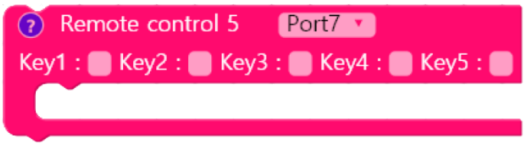
If the value of the sensor connected to input port1 is true, the left wheel will move backwards for 1 second, and if the sensor value is false, both wheels will move forward.

▪ Example 2 : The following is an example using If Else Chip and Variable Chip.



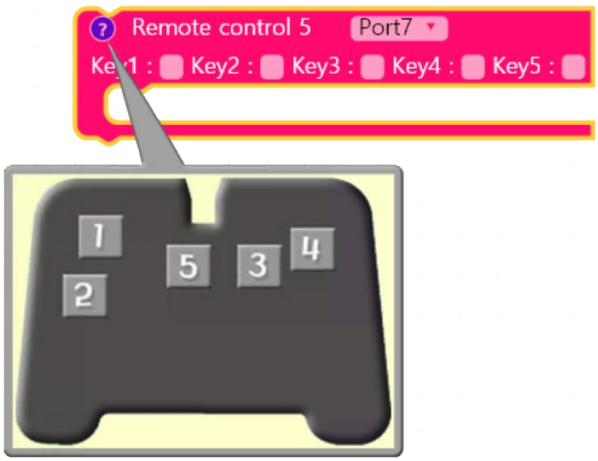
The program will be repeated 4 times and the value of A will be incremented by 1 through Calculate Chip. When the condition (A==2) in the If Else Chip is true, it goes to ‘do’ and operate DC motor. Otherwise, it goes to ‘else’ and the DC motor will stop.

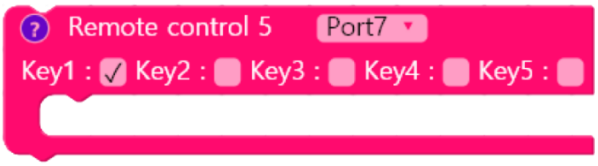
2.5.2 IR Remote Control 5 Chip



▪ **Main Function** : It is a chip for the 5 key remote control.

▪ **Option Explanation** : Remote Control 5 Chip is a chip that allows you to specify the action to be performed when the switch of the remote control is pressed. The remote control transmitter picture as shown below appears when the '?' button is pressed.

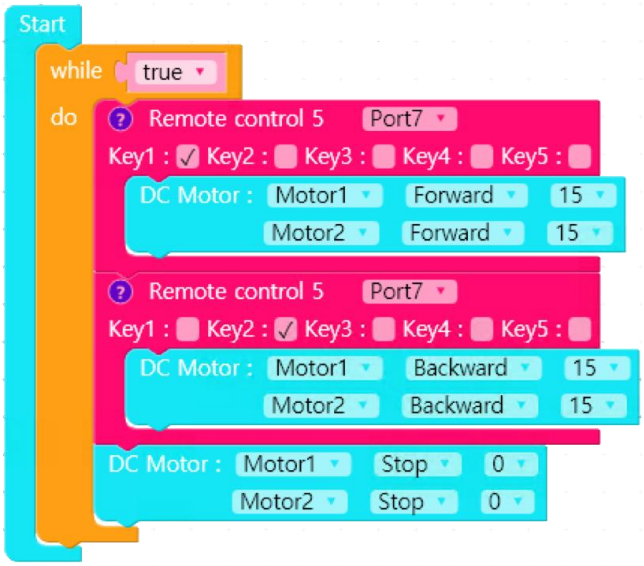




The user can set the button to be processed by the remote control transmitter and specify the input port (IN) to which the remote control receiver is connected. For example, in order to set the operation for the button 1 and the remote control receicer is connected to the port 7 of the CPU, set Remote control 5 Chip with Port 7 and Key 1. When the button 1 is pressed, the operation is performed by placing the chip in Remote control 5 Chip to be executed.

▪ **Caution** : The Remote control 5 Chip should be used with While Chip as it will need to continuously check the commands the user sends

▪ **Example** : The following is an example of the Remote control 5 Chip

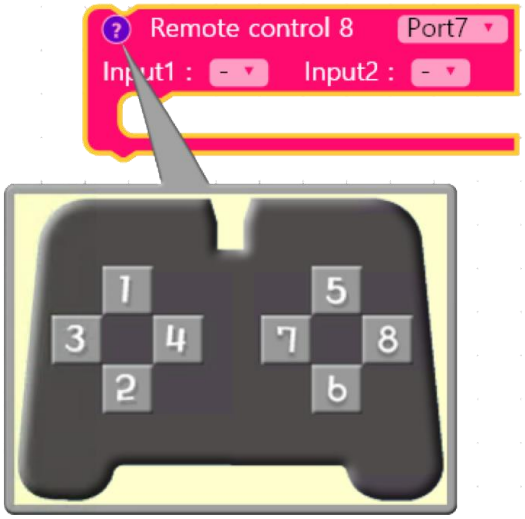


When the button 1 is pressed, the robot moves forward and with button 2 it moves backward. The stop command between the Remote control 5 Chip and While Chip is to stop when the signal of the remote control does not come in.

2.5.3 IR Remote Control 8 Chip

▪ **Main Function** : It is chip for the 8 key remote control.

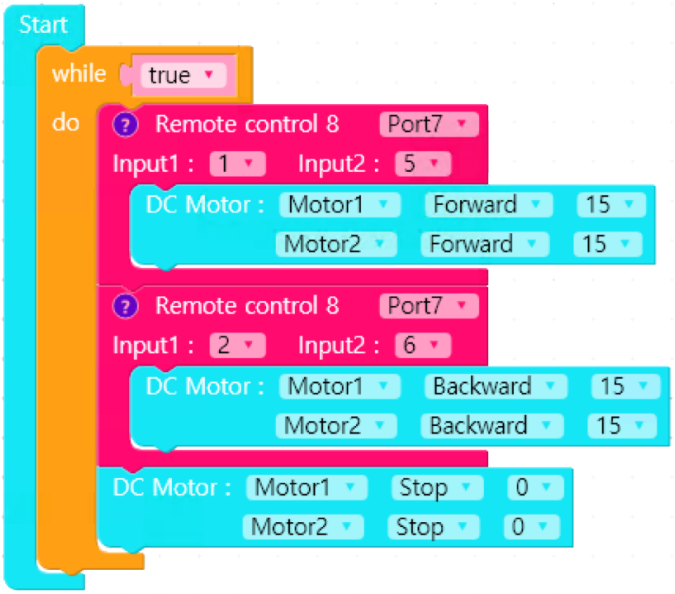
▪ **Option Explanation** : Remote Control 8 Chip is a chip that allows you to specify the action to be performed when the switch of the remote control is pressed. The remote control transmitter picture as shown below appears when the '?' button is pressed.



The user can set the button to be processed by the remote control transmitter and specify the input port (IN) to which the remote control receiver is connected. For example, in order to set the operation for the button 1 and the remote control receiver is connected to the port 7 of the CPU, set Remote control 8 Chip with Port 7 and Key 1. When the button 1 is pressed, the operation is performed by placing the chip in Remote control 8 Chip to be executed.

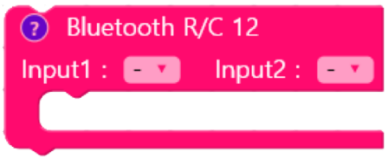
▪ **Caution** : The Remote control 8 Chip should be used with While Chip as it will need to continuously check the commands the user sends

▪ **Example** : The following is an example of the Remote control 8 Chip



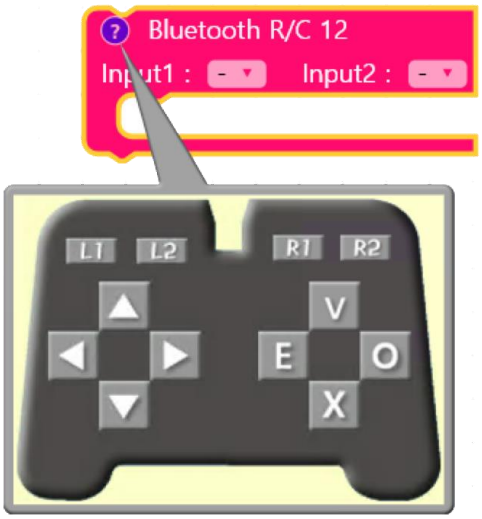
When both buttons 1 and 5 are pressed, the robot moves forward, and when button 1 and 6 are both pressed, the robot moves backward. The stop command between the Remote control 8 Chip and While Chip is to stop when the signal of the remote control does not come in.

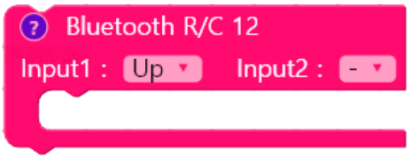
2.5.4 Bluetooth R/C 12 Chip



▪ **Main Function** : It is the chip that controls the Bluetooth remote control.

▪ **Option Explanation** : The Bluetooth R/C 12 Chip is a chip that allows you to specify the action to be taken when the switch of the remote control transmitter is pressed. If you press the '?' button, the picture as shown below will appear.



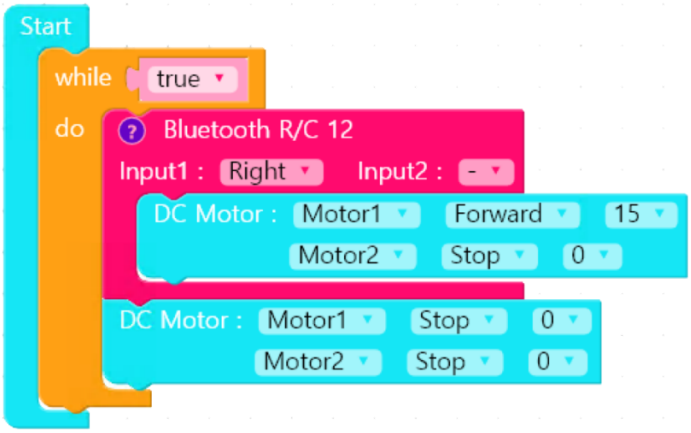


The Bluetooth R/C Chip has 12 buttons in total. You can specify the button to process. For example, if the Up button will be processed, simply select the Up button. The chip that is executed when the Up button is pressed can be placed in the Bluetooth R/C 12 Chip.

.

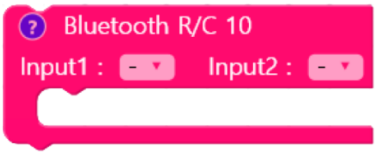
▪ **Caution** : The Bluetooth R/C 12 Chip should be used with the While chip, as it must continually inspect the commands you send.

▪ **Example** : The following is an example of a Bluetooth R/C 12 Chip.



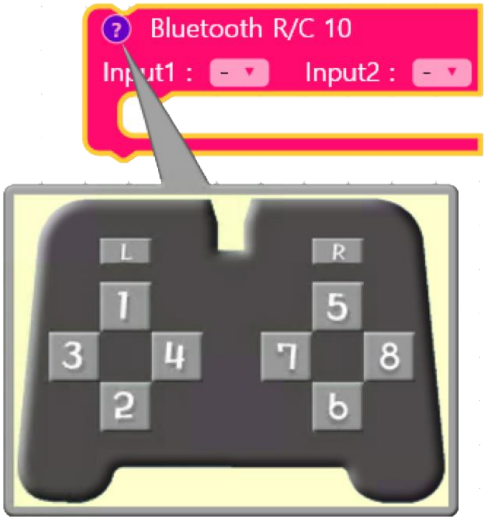
When the Right button is pressed, the robot turns to right. When there is no signal from the remote control, the robot stops because of the stop command between the Bluetooth R/C 12 Chip and the While Chip.

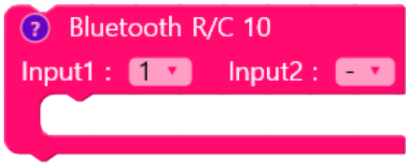
2.5.5 Bluetooth R/C 10 Chip



▪ **Main Function** : It is the chip that controls the Bluetooth remote control.

▪ **Option Explanation** : The Bluetooth R/C 10 Chip is a chip that allows you to specify the action to be taken when the switch of the remote control transmitter is pressed. If you press the '?' button, the picture as shown below will appear.

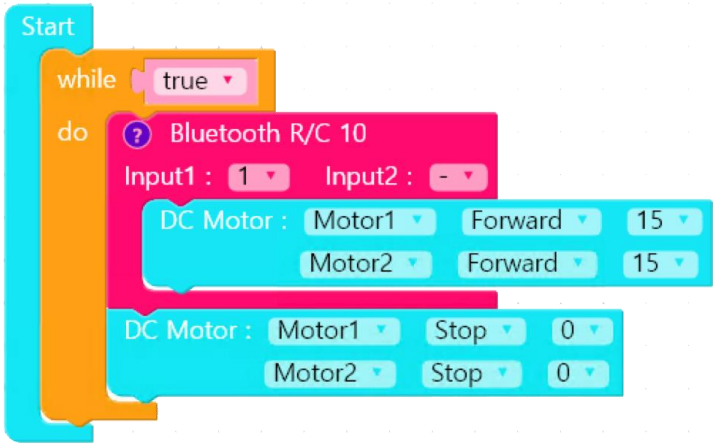




The Bluetooth R/C Chip has 10 buttons in total. You can specify the button to process. For example, if the Up button is processed, simply select the Up button. The chip that is executed when the Up button is pressed can be placed in the Bluetooth R/C 10 Chip.

▪ **Caution** : The Bluetooth R/C 10 Chip should be used with the While chip, as it must continually inspect the commands you send..

▪ **Example** : The following is an example of a Bluetooth R/C 10 Chip.

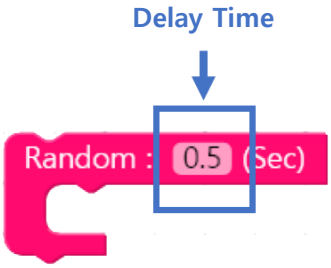


If you press button 1, both motors will move forward. . When there is no signal from the remote control, the robot stops because of the stop command between the Bluetooth R/C 10 Chip and the While Chip.

2.5.6 Rand Chip

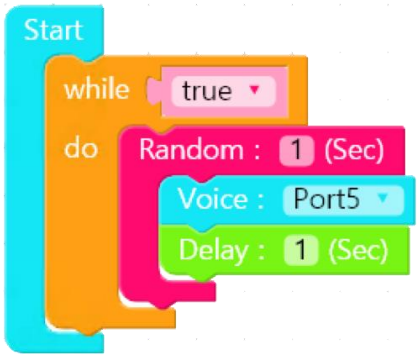
▪ **Main Function** : Signal is output to the output port 1~4 at random and the programmed chip is executed when the signal is input to the input port of the same number as the output port.

▪ **Detailed Option** : If you enter Delay in the option setting of Rand Chip, the signal will be sent out at one of the output ports 1 to 4 at the period do delay. If Delay is set to 1 second and LEDs are connected to the output ports 1 to 4, one of four LEDs will be turned on randomly every second. When a signal comes in from the input port of the same number as the output port on which the LED is lit, it will execute the chip program in the Rand Chip.



▪ **Caution** : In order to execute the chip program in the Rand Chip, it is necessary to connect the input sensor to the input port 1~4 by connecting the contact sensor or the infrared sensor. Since the Rand Chip is executed when receiving external input, you should use the While Chip to continuously check the input port.

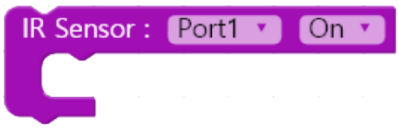
▪ **Example** : Following is an example of the Rand Chip.



If LEDs are connected to output ports 1~4, and contact sensors are connected to input ports 1~4, the LED will be lit randomly every second. When output port 2 LED is on, press the contact sensor of input 2 and it will be output to the voice board.

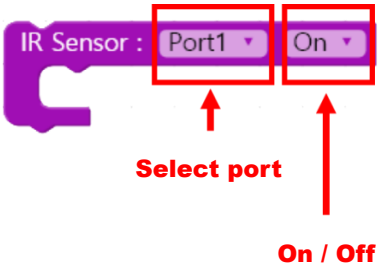
2.6 Sensors

2.6.1 IR Sensor Chip



▪ **Main Function** : Run the chip according to the status of the IR sensor connected to the input port.

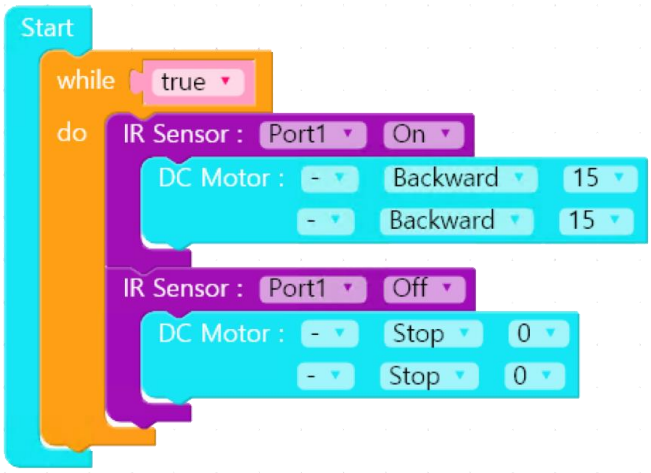
▪ **Option Explanation** : The IR Sensor Chip is a chip that allows you to specify specific actions according to the detected state of the IR sensor board. The option of IR Sensor Chip can specify the input port to which the IR sensor board is connected and the status of the sensor to be processed as shown below.



The IR sensor Chip checks whether the status of the input port designated as the Sensor Port is ON or OFF, then executes the chip located inside the IR Sensor Chip only when the condition is true. After all the internal chips are executed, the value of the sensor port is read again to determine whether the condition is true or false. Therefore, as long as the conditions are met, the IR Sensor Chip and its internal chips will continue to run.

▪ **Caution** : The IR Sensor Chip should be located the While Chip to inspect the input port as it must continuously inspect external inputs.

▪ **Example** : The following is a simple example of IR Sensor Chip.

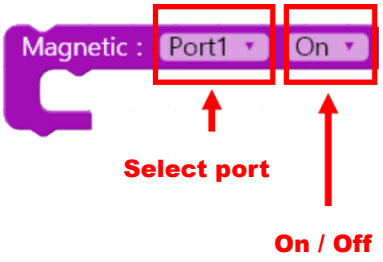


If the stauts of the IR sensor connected to input port 1 is ON, both motors will move backward and the robot will move backward. If the sensor status is OFF, it stops.

2.6.2 Magnetic Chip

▪ **Main Function** : The chip is activated according to the status of the magnetic sensor connected to the input port.

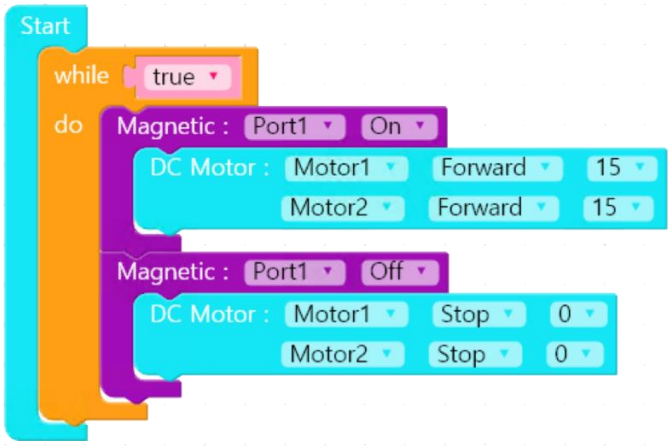
▪ **Option Explanation** : Magnetic Chip is a chip that allows you to specify a specific behavior according to the detected state of the magnetic sensor board. The option of Magnetic Chip can specify the input port to which the magnetic sensor board is connected and the status of the sensor to be processed as shown below.



The Magnetic Chip checks whether the status of the input port designated as the Sensor Port is ON or OFF and then executres the chip located inside the magnetic chip only when the condition is true. After all the internal chips are executed, the value of the sensor port is read again to determine whether the condition is true or false. Therefore, as long as the condition is satisfied, the magnetic chip and its internal chips will continue to be executed.

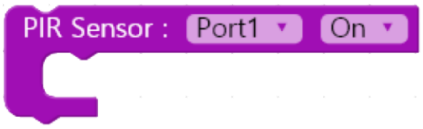
▪ Caution : The Magnetic Chip is located inside the While Chip to inspect the input port as it needs to continuously inspect external inputs.

▪ Example : Following is an example of the Magnetic chip.



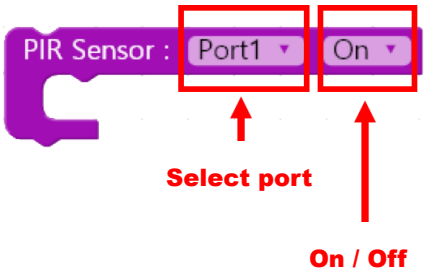
If the status of the magnetic sensor connected to input port 1 is ON, both motor will move forward and the robot will move forward. If the sensor status is OFF, it stops.

2.6.3 PIR Sensor Chip



▪ **Main Function** : Runs the chip according to the status of PIR Sensor connected to the input port.

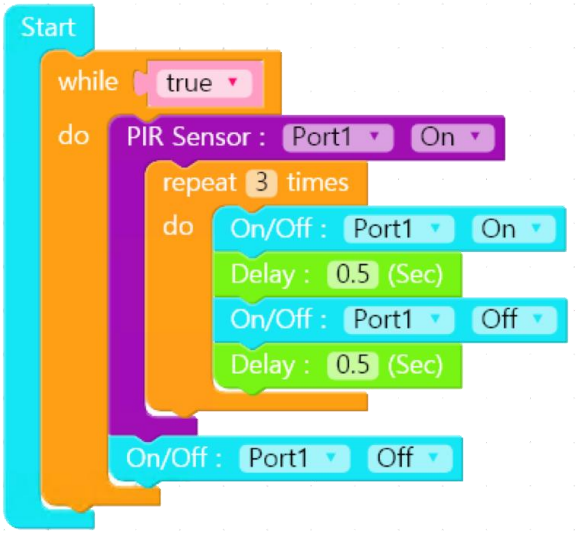
▪ **Option Explanation** : The PIR Sensor Chip is a chip that allows you to specify specific actions according to the sensed state of the sensor board. The option of PIR Sensor Chip can specify the input port to which the PIR sensor board is connected and the status of the sensor to process as shown below.



The PIR Sensor Chip checks whether the status of the input port specified as the Sensor Port is ON or OFF and then the chip placed inside the PIR Sensor Chip only when the condition is true. After all the internal chips are executed, the value of the sensor port is read again to determine whether the condition is true or false. Therefore, as long as the condition is satisfied, the PIR Sensor Chip and the chips inside it will be executed continuously.

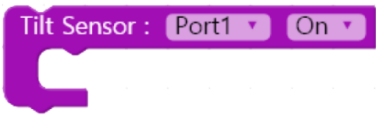
▪ **Caution** : The PIR Sensor Chip is located inside the While Chip to inspect the input port as it needs to continuously inspect external inputs.

▪ **Example** : The following is an example of a PIR Sensor Chip



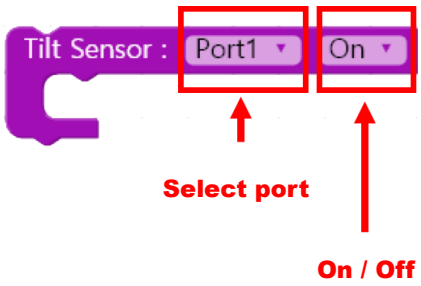
If the status of PIR sensor connected to input port 1 is ON, LED connected to output port 1 will blink three times in 0.5 second cycle. If the sensor is not detected, output port 1 will be OFF and LED will be OFF.

2.6.4 Tilt Sensor Chip



▪ **Main Function** : Runs the chip according to the status of the tilt sensor connected to the input port.

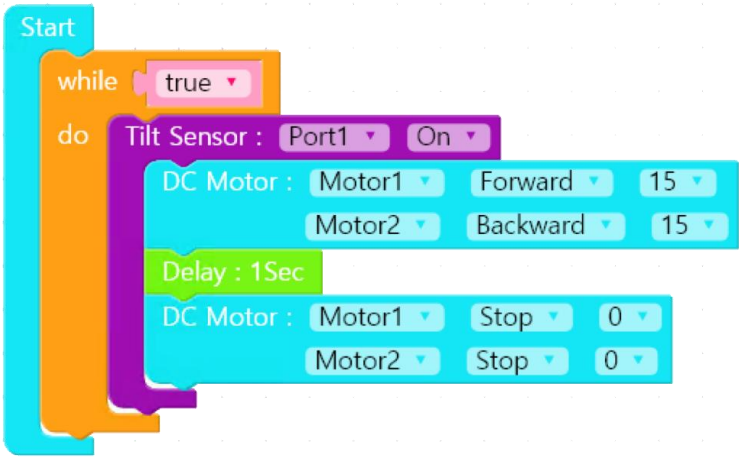
▪ **Option Explanation** : The Tilt Sensor Chip is a chip that allows you to specify specific behavior depending on the sensed state of the tilt sensor board. The Tilt Sensor Chip option allows you to specify the input port to which the tilt sensor board is connected and the status of the sensor to be processed as shown below.



The Tilt Sensor Chip checks whether the status of the input specified as the Sensor Port is ON or OFF and then executes the chip located inside of the Tilt Sensor Chip only when the condition is true. After all the internal chips are executed, the value of the sensor port is read again to determine whether the condition is true or false. Therefore as long as the conditions are met, the Tilt Sensor Chip and the chips inside will continue to run.

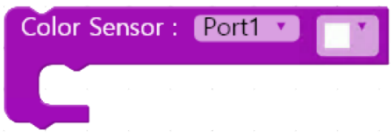
▪ Caution : The Tilt Sensor Chip is located in the While Chip to inspect the input port as it needs to continuously inspect external inputs

▪ Example : The following is an example of the Tilt Sensor Chip.



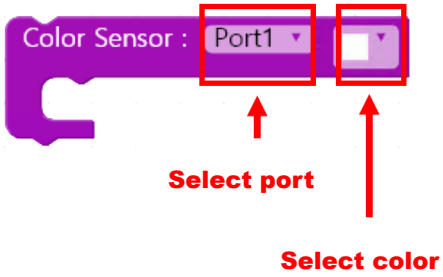
If the tilt sensor connected to input port 1 is ON, the left motor rotates forward and the right motor rotates backward for 1 second. Therefore, the robot turns right in place and stops after 1 second.

2.6.5 Color Sensor Chip



▪ Main Function : It runs the chip according to whether the color sensor connected to the input port detects color

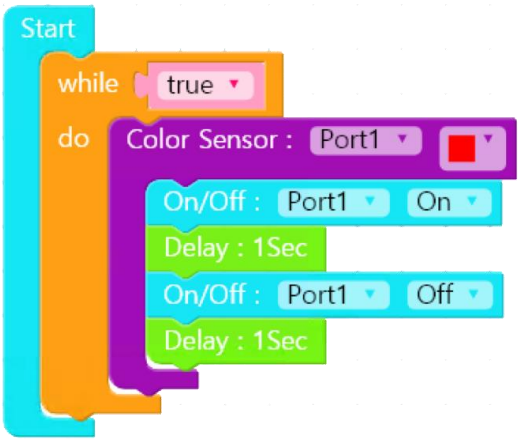
▪ Option Explanation : The Color Sensor Chip is a chip that allows you to specify specific actions depending on whether the color sensor is detecting color. Color Sensor Chip option allows you to specify the color of the input port to which the color sensor board is connected and the sensor to be processed as shown below.



The Color Sensor Chip runs the chip located in the Color Sensor Chip when the detected color of the input port specified by the Sensor Port is the same as the specified color. After executing all of the internal chips, it recognizes the sensing color of the sensor port again and detemines the true/false condition. Therefore, as long as the condition is satisfied, the color sensor chip and its internal chips will continue to be executed.

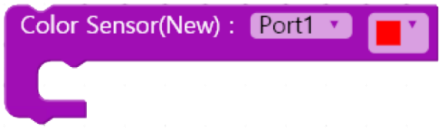
▪ Caution : The Color Sensor Chip is located in the While Chip to inspect the input port as it needs to continuously inspect external inputs.

▪ **Example** : The Following is an example of a Color Sensor Chip.



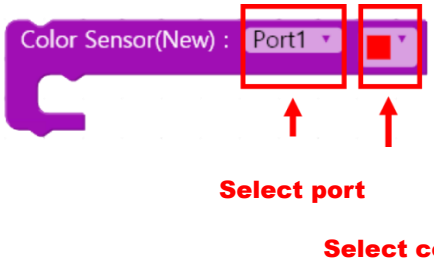
If the color sensor connected to input port 1 continues to detect red, the LED connected to output port 1 will turn on and off at 1 second intervals

2.6.6 Color Sensor(New) Chip :



▪ **Main Function** : It runs the chip according to whether the color sensor connected to the input port detects color

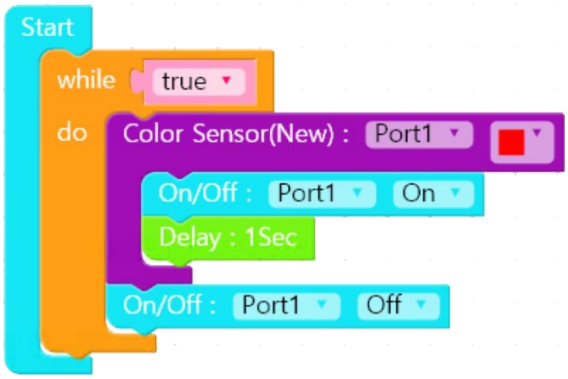
▪ **Option Explanation** : Color Sensor (New) Chip is a chip that allows you to specify a specific behavior depending on whether the color sensor detects color. The Color Sensor Chip (New) Chip option allows you to specify the color of the input port to which the color sensor board is connected and the sensor to be processed as shown below.



The Color Sensor Chip checks the sensing color of the input port specified as the Sensor Port. If the detected color is the same as the specified color, the Color Sensor (New) Chip executes the chip placed inside the chip. After executing all of the internal chips, it recognizes the sensing color of the sensor port again and determines the ture/false condition. Therefore, as long as the conditions are satisfied, the Color Sensor (New) Chip and its internal chips will be executed. Unlike the Color Sensor Chip, white and black are excluded from the list.

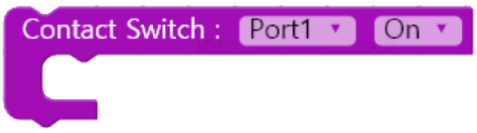
▪ **Caution** : The Color Sensor (New) Chip is located in the while Chip to inspect the input port as it needs to continuously inspect external inputs.

▪ **Example** : The following is an example of a Color Sensor (New) Chip



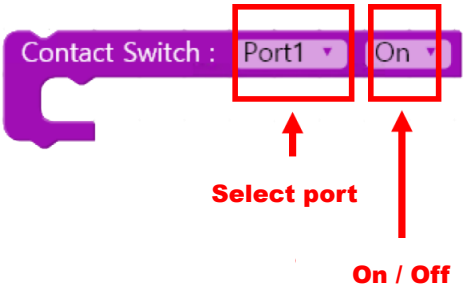
If the color sensor connected to inpout port 1 detects red, the LED connected to output port 1 is lit, and the LED is turned off if no more is detected.

2.6.7 Contact Switch Chip



▪ Main Function : If the state of the contact switch matches the set state, the programmed chip is executed.

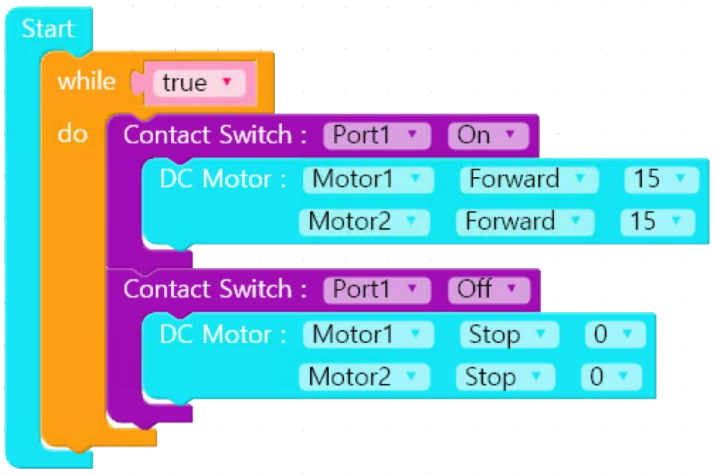
▪ Option Explanation : The Contact Switch Chip is a chip that allows you to specify actions depending on the state of the switch on the contact switch board. The option of Contact Switch Chip can specify the input port to the contact switch board which is connected the status of the switch to be processed as shown below.



The Contact Switch Chip checks whether the state of the input port specified as the Sensor Port is ON (if the switch is pressed) or OFF (if the switch is not pressed), and then executes the chip placed inside the Contact Switch Chip only if the condition is true. After executing all internal chips, read the value of the sensor port again to determine whether the condition is true or false. Therefore, as long as the conditions are satisfied, the Contact Switch Chip and its internal chips will continue to be executed.

▪ Caution : The Contact Switch Chip is mainly executed when receiving external input, so it is located in the While Chip to continuously check the input port.

▪ **Example** : The following is an example of the Contact Switch Chip.



If the status of the contact switch connected to input port 1 is ON, both motors will move forward and the robot will move forward. If the status is OFF, it stops.