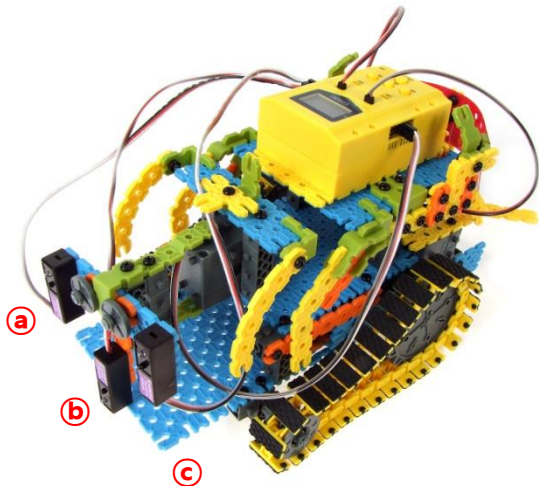


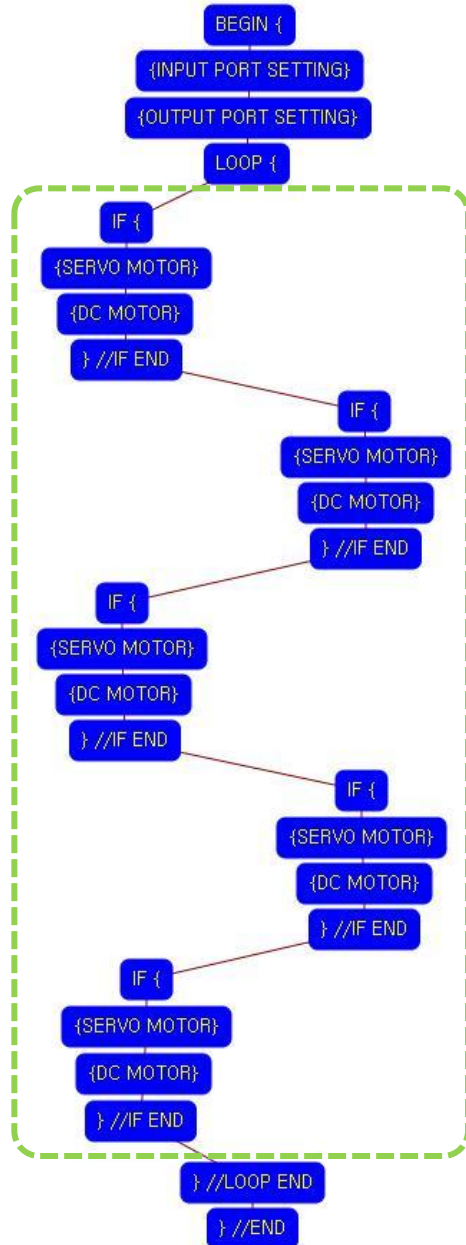
EQ-ROBO Programming : Chaser Robot



This Chaser robot will follow the white object in front of the robot using 3 IR sensors.

To chase the white object, the servo motor is used the IR sensors parts.

Program name : eq2-3-p38_Chaser.ufc



Program begin

Input port setting

Output port setting

LOOP starting point (Repeat the command)

Condition 1

Left ⊙ IR sensor : Detect no object
 Center ⊙ IR sensor : Detect no object
 Right ⊙ IR sensor : Detect no object
 Set the servo motor to the 90 degree
 Robot goes forward slowly.

Condition 2

Left ⊙ IR sensor : Detect no object
 Center ⊙ IR sensor : Detect no object
 Right ⊙ IR sensor : Detect object
 Set the servo motor to the 60 degree
 Robot turns right.

Condition 3

Left ⊙ IR sensor : Detect no object
 Center ⊙ IR sensor : Detect object
 Right ⊙ IR sensor : Detect no object
 Set the servo motor to the 90 degree
 Robot goes forward fast.

Condition 4

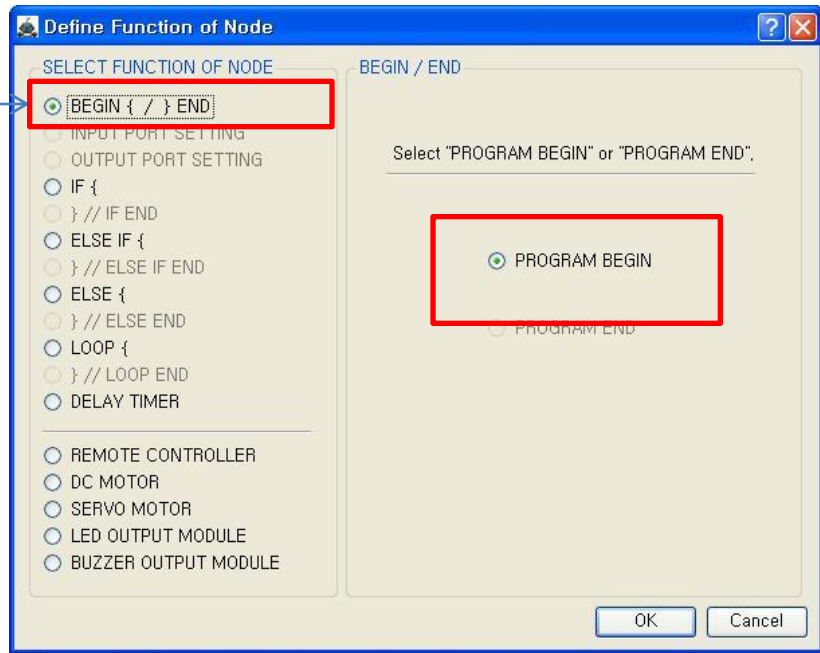
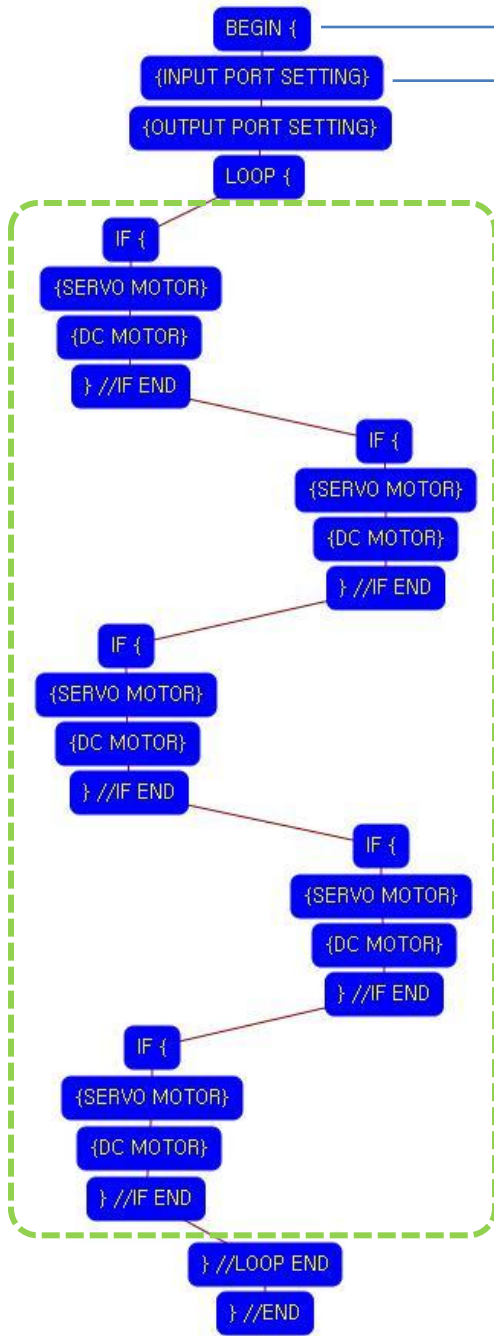
Left ⊙ IR sensor : Detect object
 Center ⊙ IR sensor : Detect no object
 Right ⊙ IR sensor : Detect no object
 Set the servo motor to the 120 degree
 Robot turns left

Condition 5

Left ⊙ IR sensor : Detect object
 Center ⊙ IR sensor : Detect no object
 Right ⊙ IR sensor : Detect object
 Set the servo motor to the 90 degree
 Robot goes backward fast.

LOOP ending point

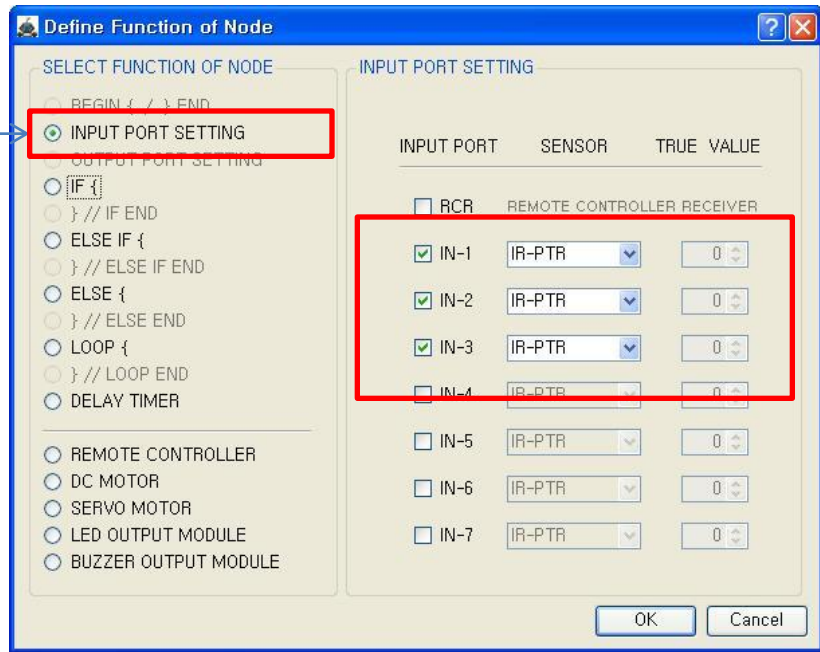
Program end



This means that program begins from here.

You have to place this node at the first of program.

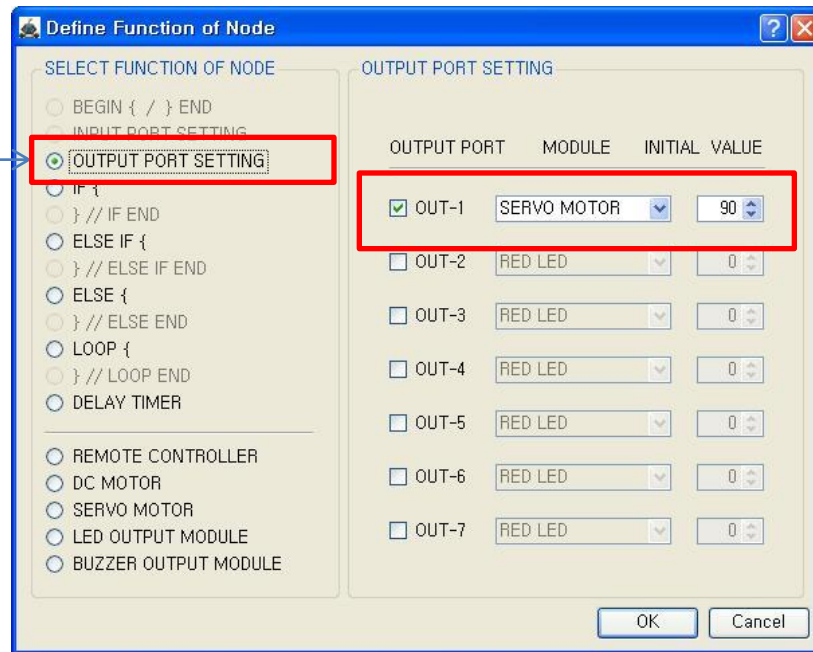
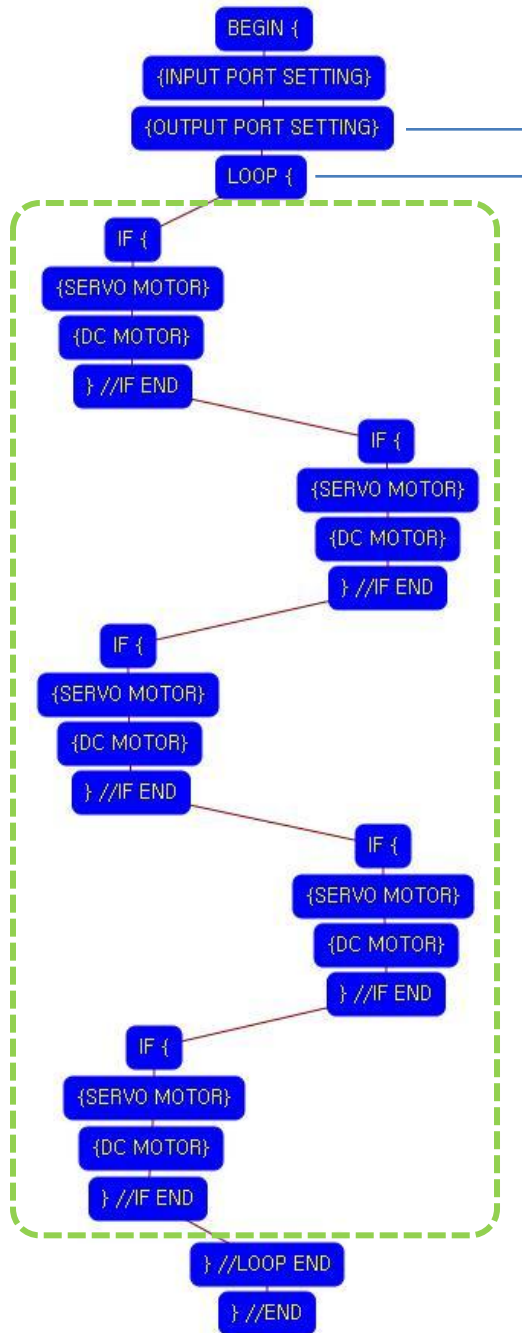
“PROGRAM END” is not active because you did not define “PROGRAM BEGIN” yet.



This model use 3 IR sensors as input device.

You have to connect the right @ IR sensor to the IN-1 input port, the center @ IR sensor to the IN-2 input port and the left @ IR sensor to the IN-3 input port of main board. And check the IN-1, IN-2, IN-3 with “IR-PTR” in software.

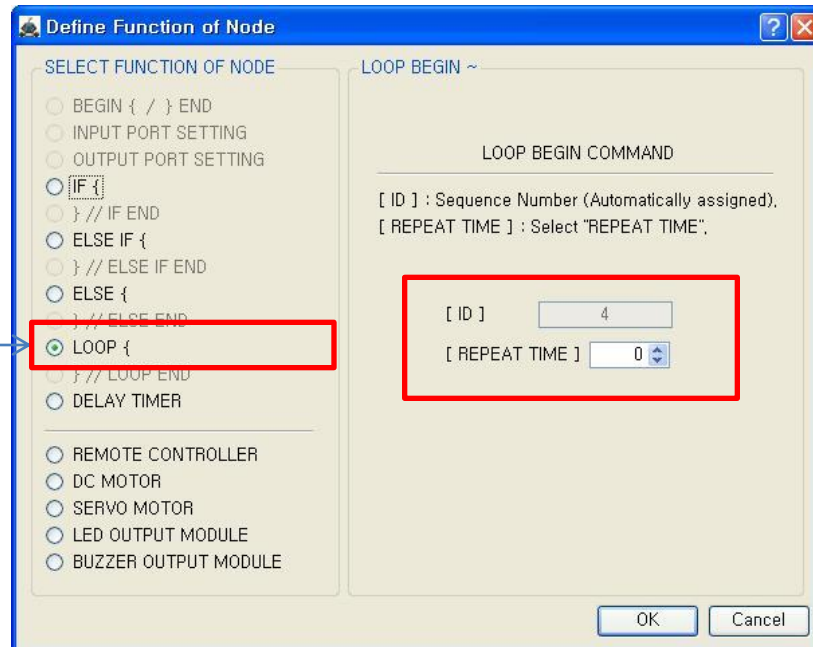
If the real connection of sensors are different to the setting on software, it will make robot to wrong operation.



This model use 1 Servo Motor as output device.

You have to connect the Servo motor to the OUT-1 output port of main board. The initial value of Servo motor is to be 90.

If the real connection of output modules are different to the setting on software, it will make robot to wrong operation.



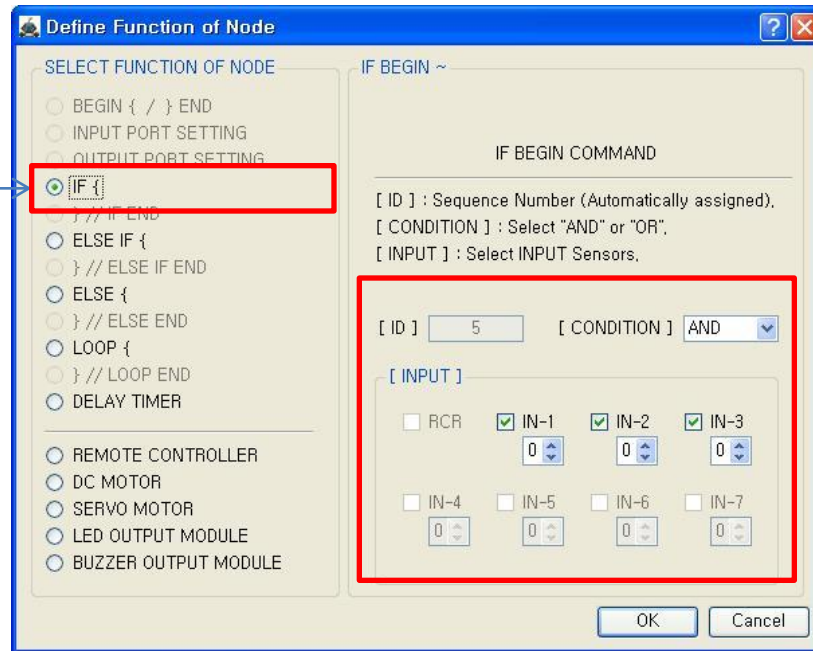
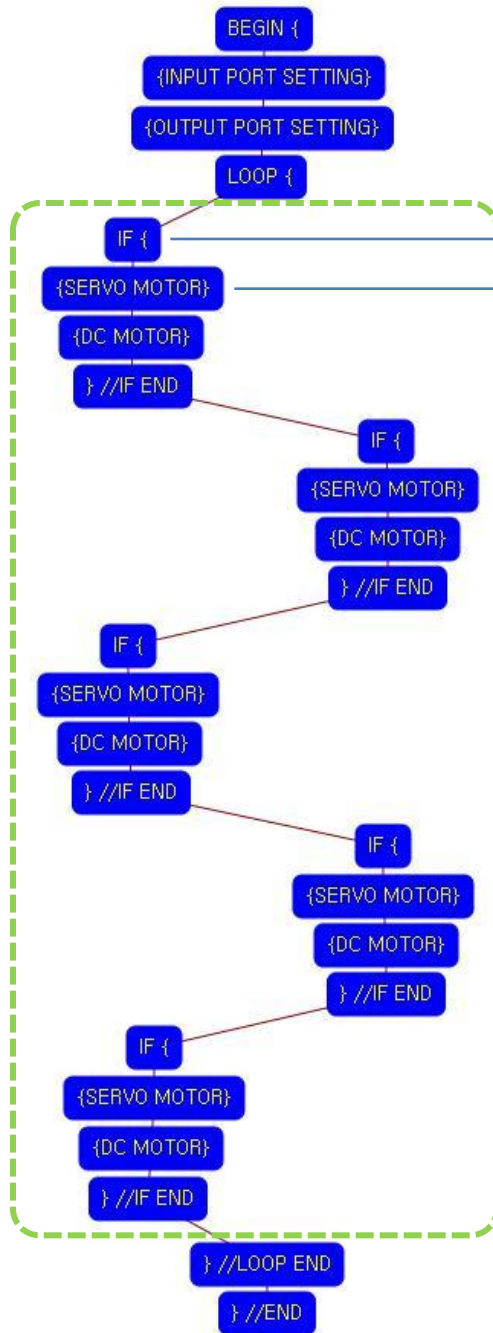
LOOP command is used to repeat the commands.

"REPEAT TIME" is the repeat number you want.

If you want permanent repetition, you have to set "0".

ID is automatically assigned. You have to set the same ID at "LOOP END".

Automatically assigned ID is different according to the sequence of making nodes.

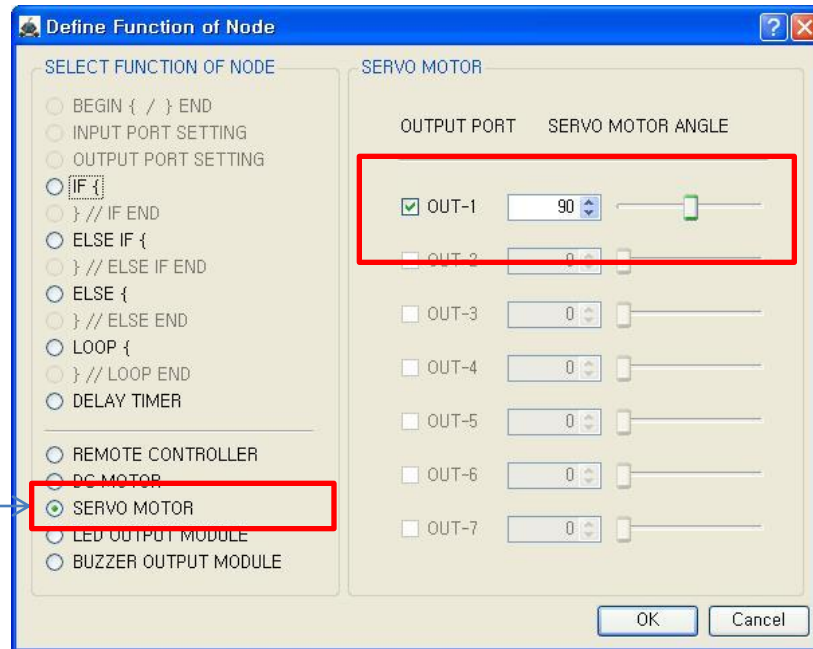


1st condition

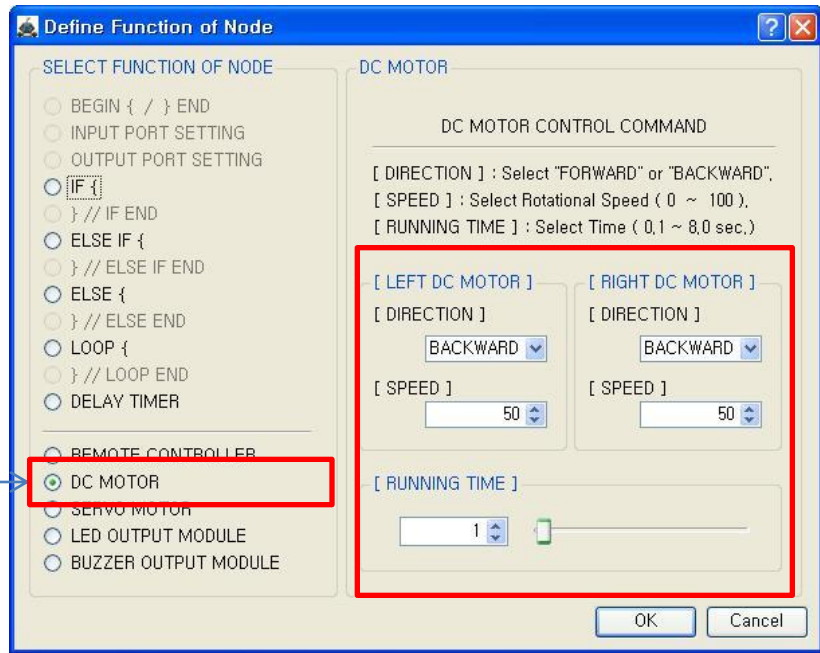
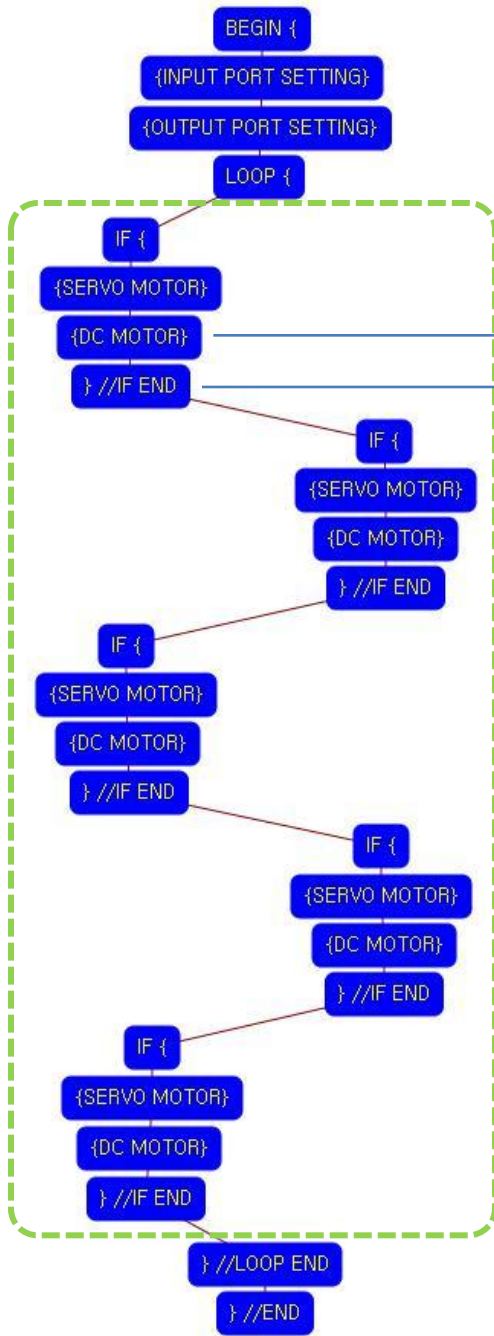
True condition is

- Ⓐ IR sensor of IN-1 : detects no object
- AND
- Ⓑ IR sensor of IN-2 : detects no object
- AND
- Ⓒ IR sensor of IN-3 : detects no object

If the condition is true, the next "{SERVO MOTOR}" command is executed, else the next "IF {" command is executed.

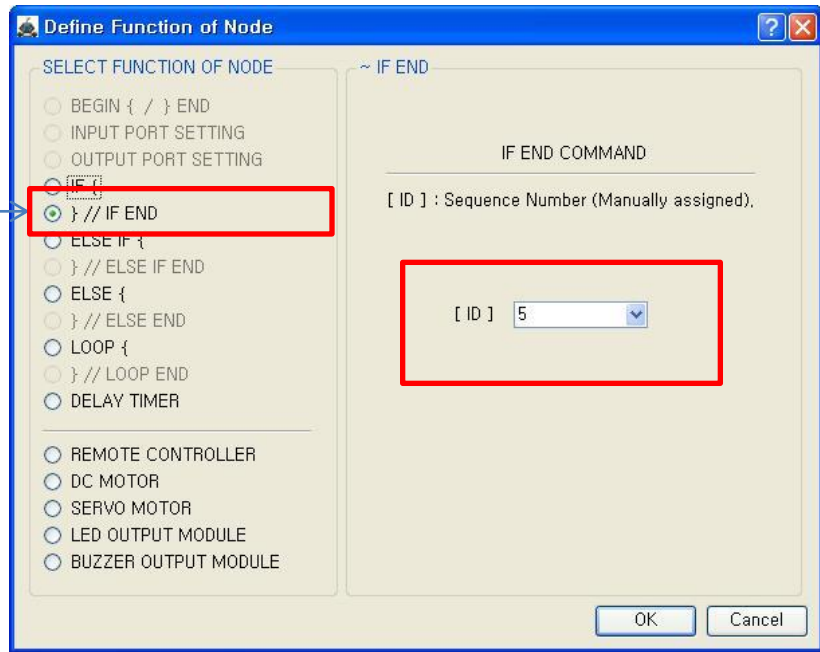


If the 1st "IF {" condition is true, the servo motor of OUT-1 is set the 90 degree.



Both DC Motor
- Direction : Backward
- Speed : 50
- Running Time : 1
→ Robot goes forward during 0.1 second

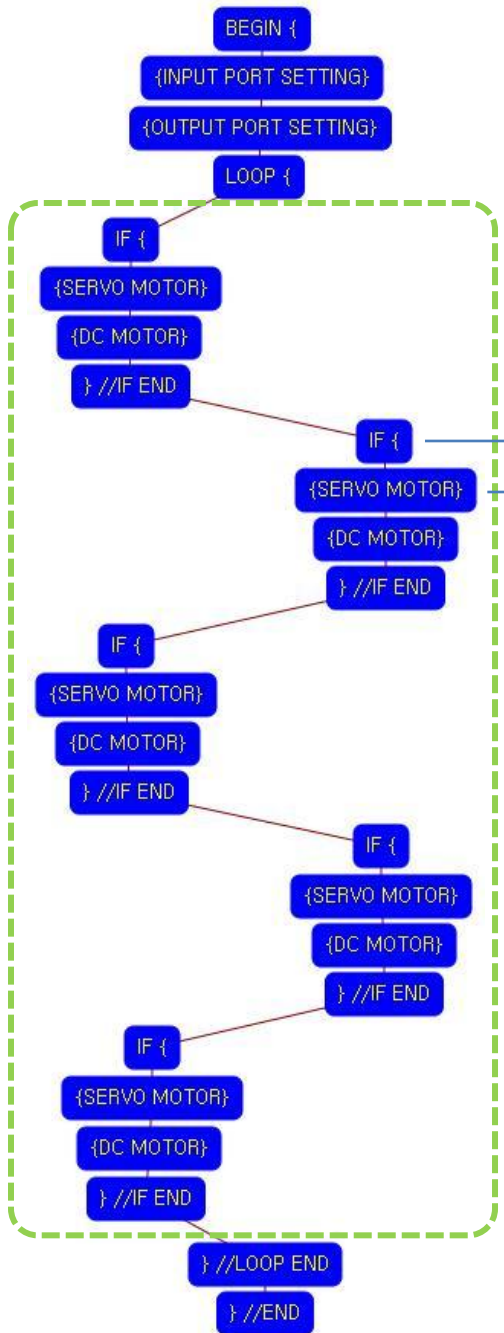
The DC Motor and Robot runs opposite direction because of the reduction gear transfer .



The end point of 1st "IF {" condition.

You have to assigned the ID of paired "IF {" condition.

(It is necessary to know that which "IF {" among the many "IF {" conditions in program.



Define Function of Node

SELECT FUNCTION OF NODE

- IF {
- ELSE IF {
- LOOP {
- DELAY TIMER

IF BEGIN ~

IF BEGIN COMMAND

[ID] : Sequence Number (Automatically assigned),
 [CONDITION] : Select "AND" or "OR",
 [INPUT] : Select INPUT Sensors.

[ID] 9 [CONDITION] AND

[INPUT]

<input type="checkbox"/> RCR	<input checked="" type="checkbox"/> IN-1	<input checked="" type="checkbox"/> IN-2	<input checked="" type="checkbox"/> IN-3
	1	0	0
<input type="checkbox"/> IN-4	<input type="checkbox"/> IN-5	<input type="checkbox"/> IN-6	<input type="checkbox"/> IN-7
0	0	0	0

OK Cancel

2nd condition

True condition is

- Ⓐ IR sensor of IN-1 : detects object
- AND
- Ⓑ IR sensor of IN-2 : detects no object
- AND
- Ⓒ IR sensor of IN-3 : detects no object

If the condition is true, the next "{SERVO MOTOR}" command is executed, else the next "IF {" command is executed.

Define Function of Node

SELECT FUNCTION OF NODE

- IF {
- SERVO MOTOR

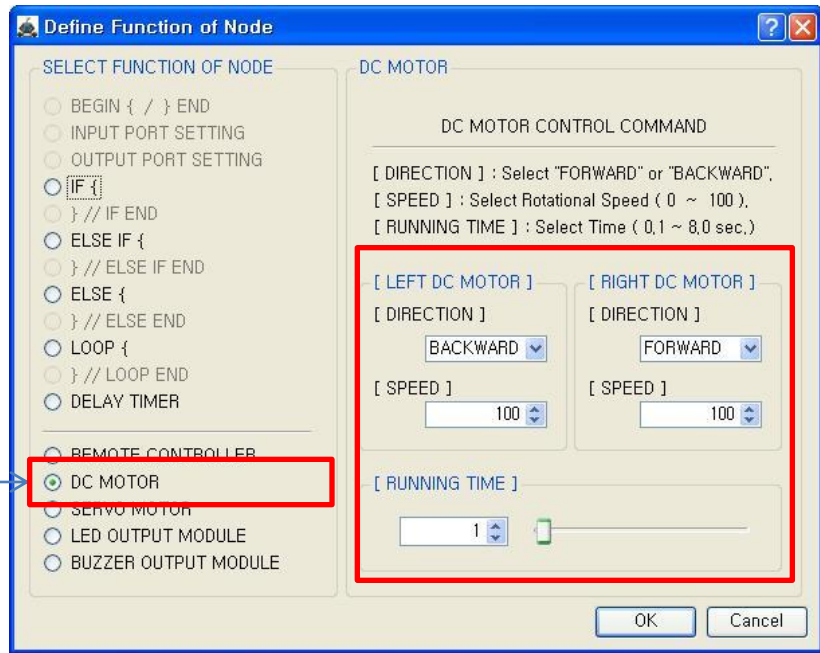
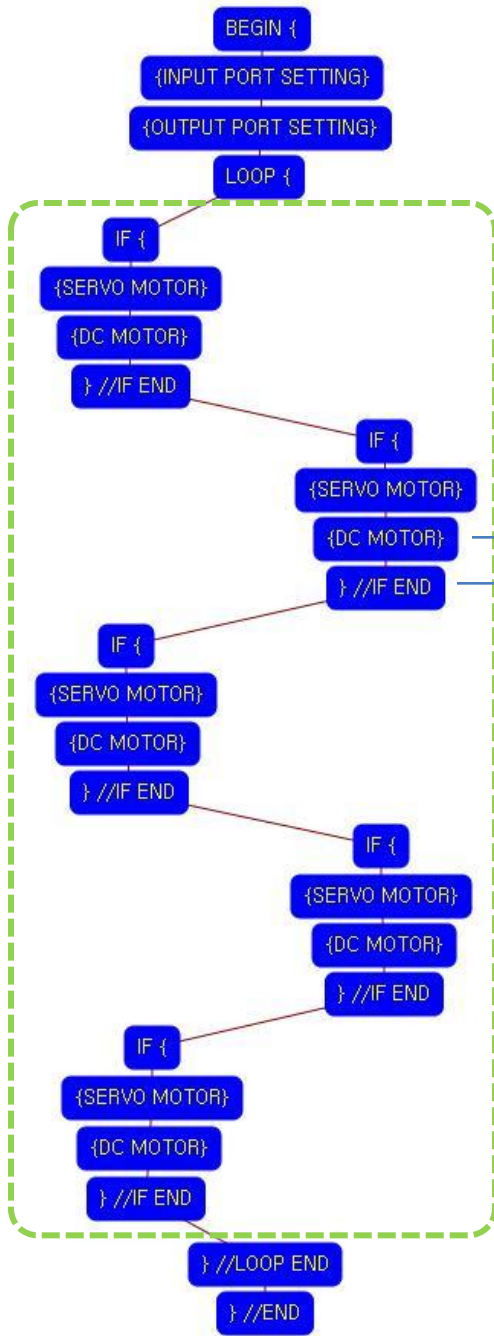
SERVO MOTOR

OUTPUT PORT SERVO MOTOR ANGLE

<input checked="" type="checkbox"/> OUT-1	60	<input type="text"/>
<input type="checkbox"/> OUT-2	0	<input type="text"/>
<input type="checkbox"/> OUT-3	0	<input type="text"/>
<input type="checkbox"/> OUT-4	0	<input type="text"/>
<input type="checkbox"/> OUT-5	0	<input type="text"/>
<input type="checkbox"/> OUT-6	0	<input type="text"/>
<input type="checkbox"/> OUT-7	0	<input type="text"/>

OK Cancel

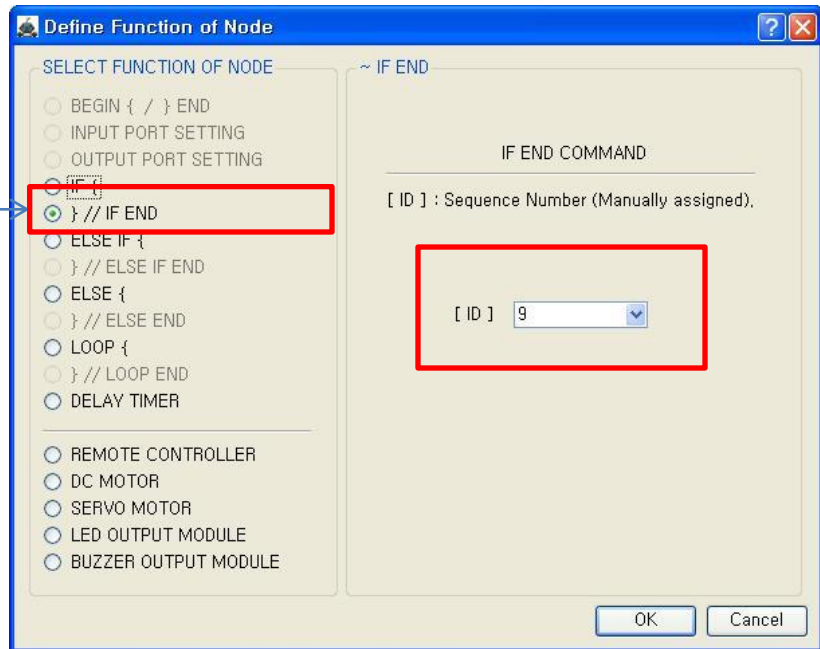
If the 2nd "IF {" condition is true, the servo motor of OUT-1 is set the 60 degree.



- Left DC Motor
- Direction : Backward
 - Speed : 100
 - Running Time : 1
- Right DC Motor
- Direction : Forward
 - Speed : 100
 - Running Time : 1

→ Robot turns right during 0.1 second

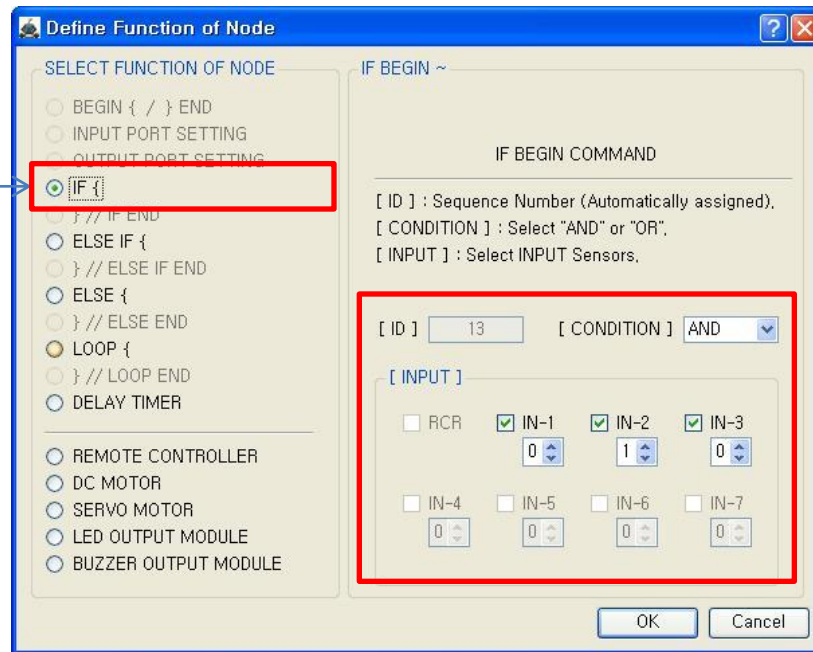
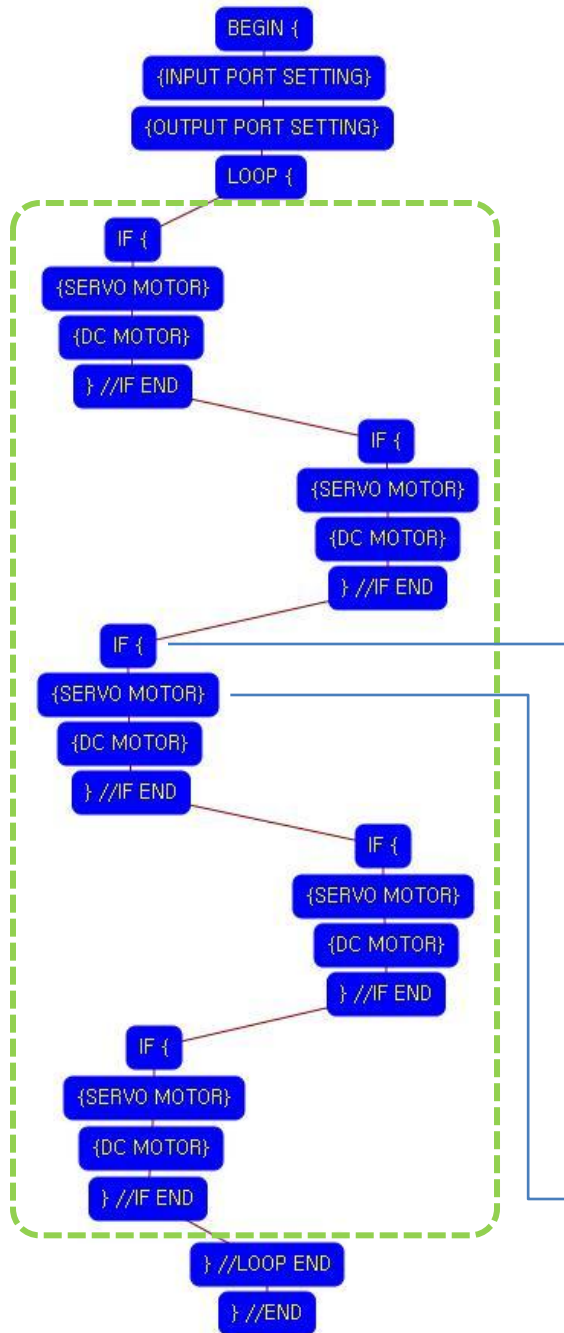
The DC Motor and Robot runs opposite direction because of the reduction gear transfer .



The end point of 2nd "IF {" condition.

You have to assigned the ID of paired "IF {" condition.

(It is necessary to know that which "IF {" among the many "IF {" conditions in program.

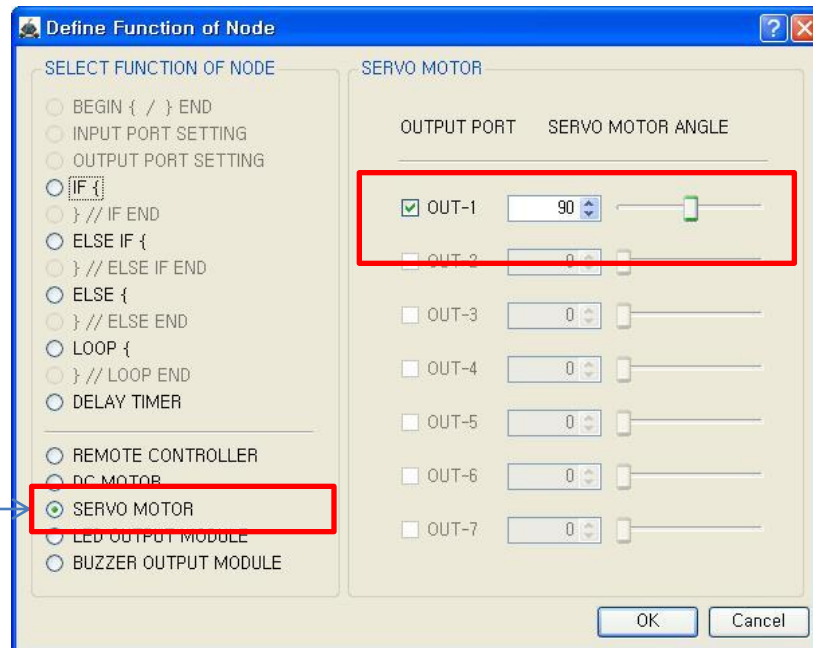


3rd condition

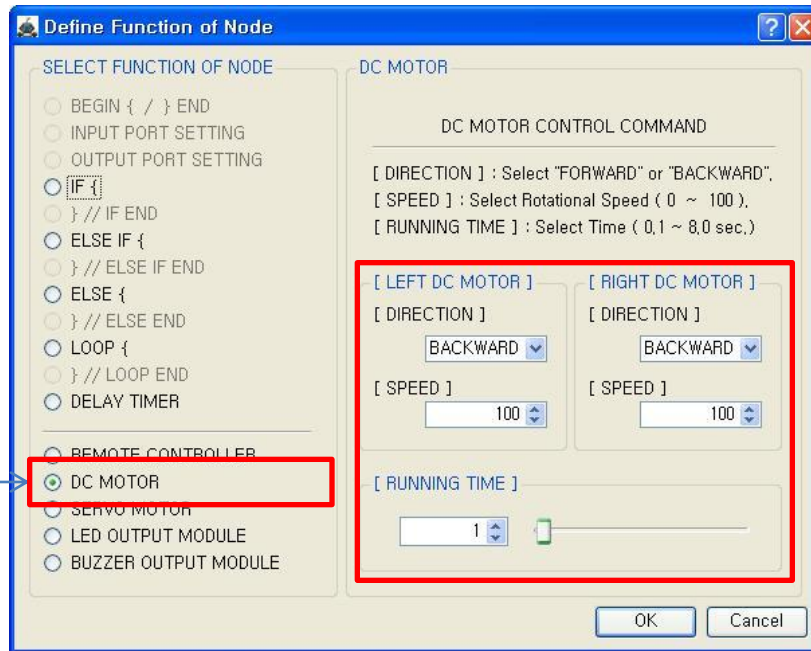
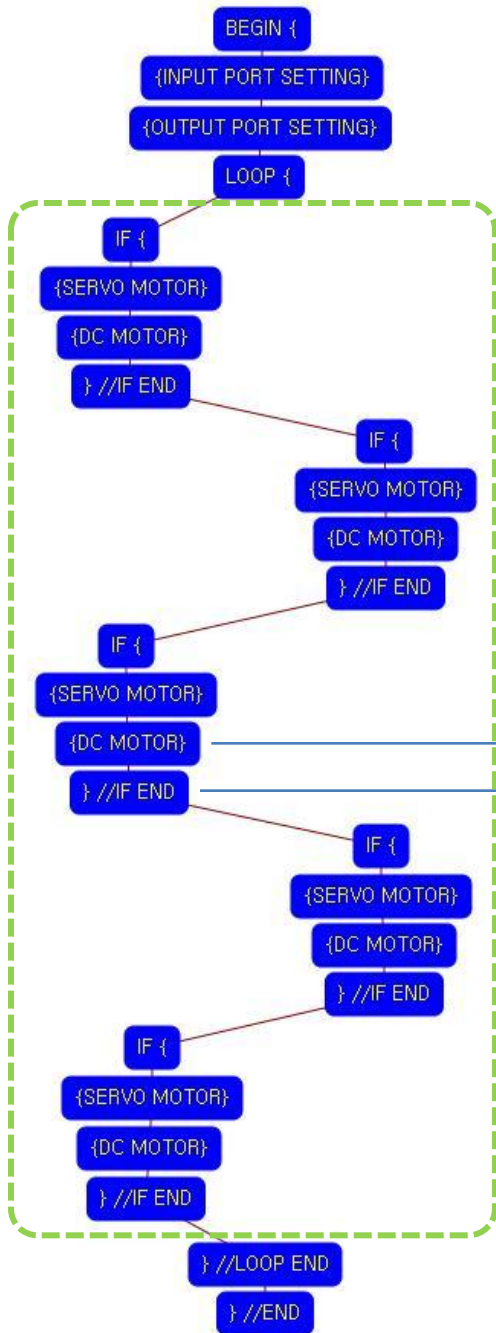
True condition is

- Ⓐ IR sensor of IN-1 : detects no object
- AND
- Ⓑ IR sensor of IN-2 : detects object
- AND
- Ⓒ IR sensor of IN-3 : detects no object

If the condition is true, the next "{SERVO MOTOR}" command is executed, else the next "IF {" command is executed.

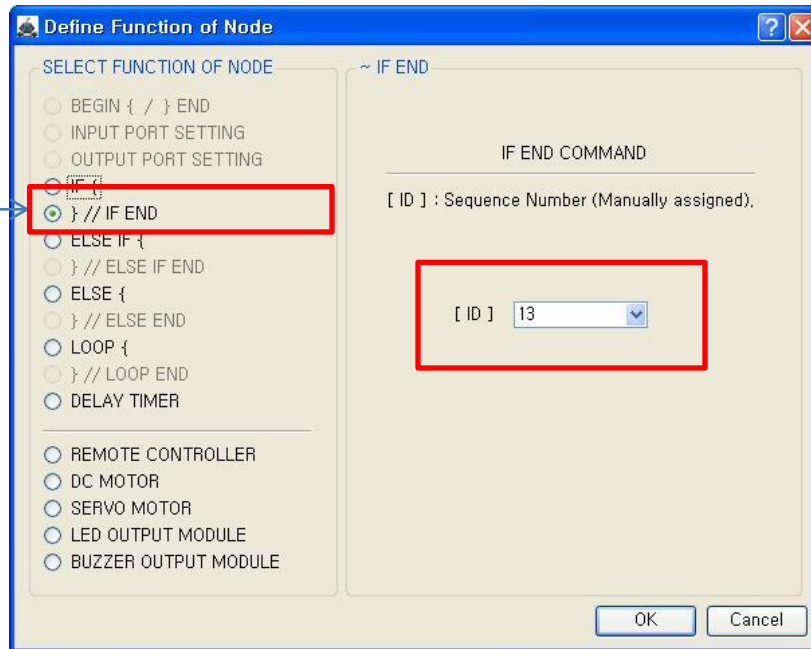


If the 3rd "IF {" condition is true, the servo motor of OUT-1 is set the 90 degree.



Both DC Motor
 - Direction : Backward
 - Speed : 100
 - Running Time : 1
 → Robot goes forward during 0.1 second

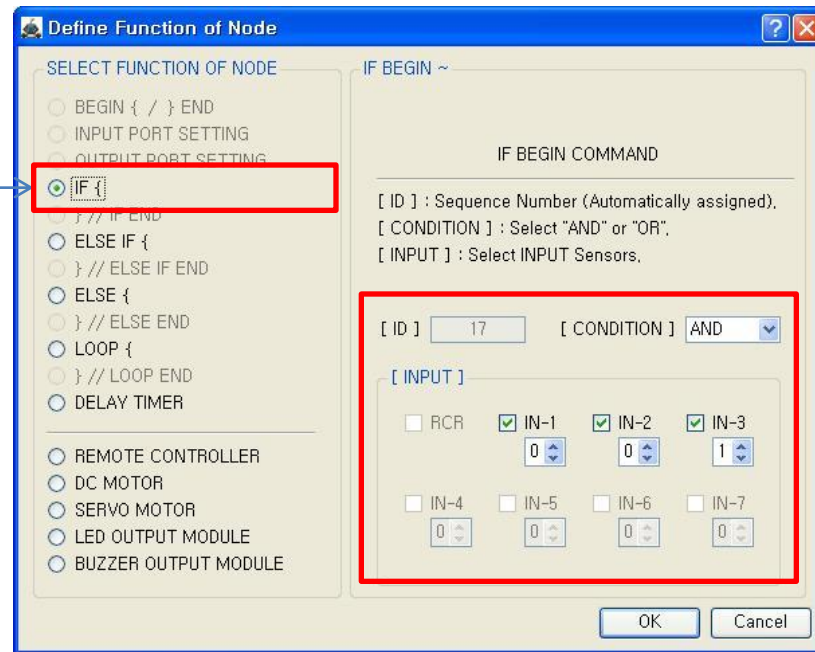
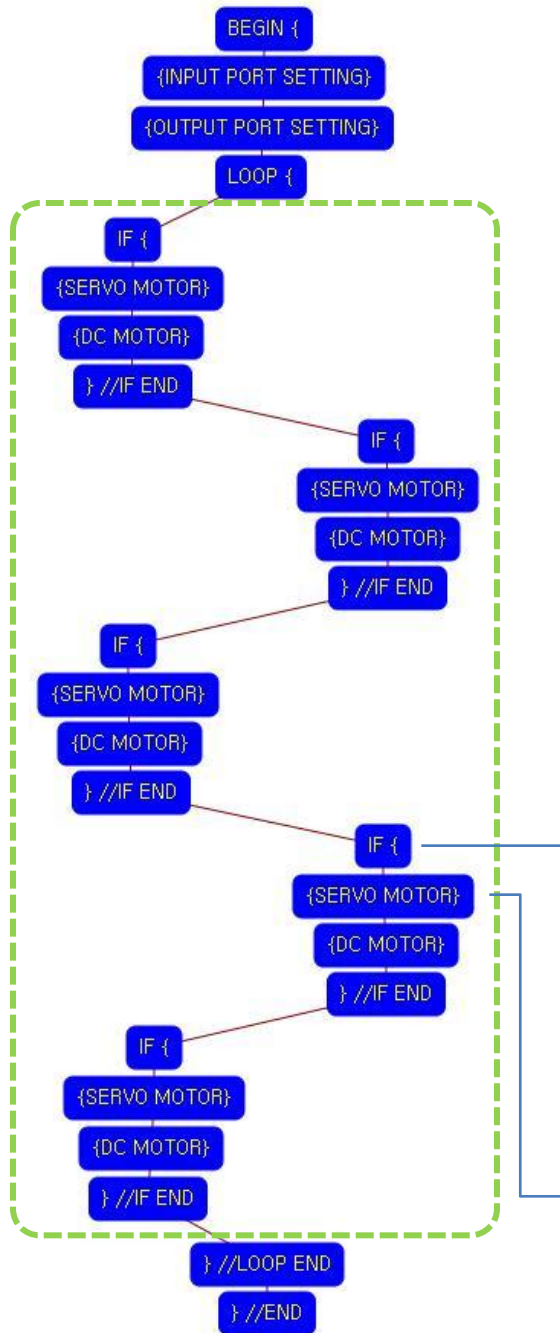
The DC Motor and Robot runs opposite direction because of the reduction gear transfer .



The end point of 3rd "IF {" condition.

You have to assigned the ID of paired "IF {" condition.

(It is necessary to know that which "IF {" among the many "IF {" conditions in program.

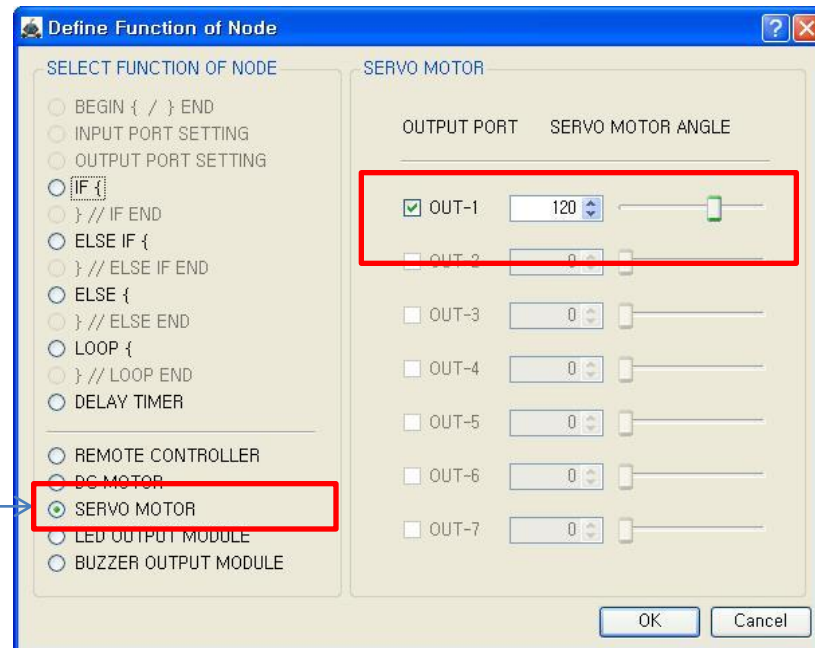


4th condition

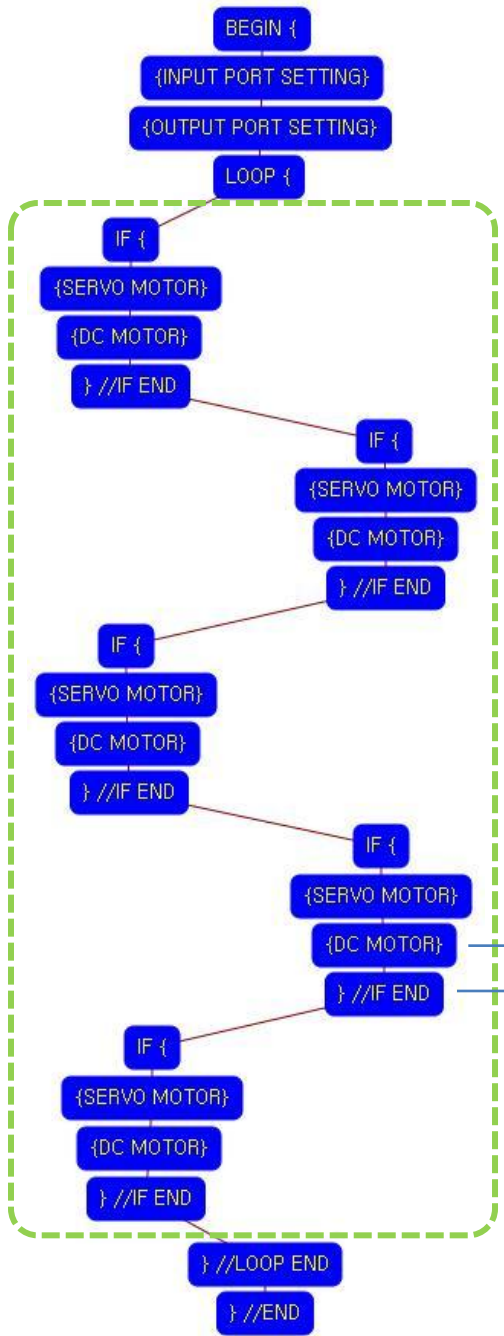
True condition is

- Ⓐ IR sensor of IN-1 : detects no object
- AND
- Ⓑ IR sensor of IN-2 : detects no object
- AND
- Ⓒ IR sensor of IN-3 : detects object

If the condition is true, the next "{SERVO MOTOR}" command is executed, else the next "IF {" command is executed.



If the 4th "IF {" condition is true, the servo motor of OUT-1 is set the 120 degree.



- Left DC Motor
- Direction : Forward
 - Speed : 100
 - Running Time : 1
- Right DC Motor
- Direction : Backward
 - Speed : 100
 - Running Time : 1

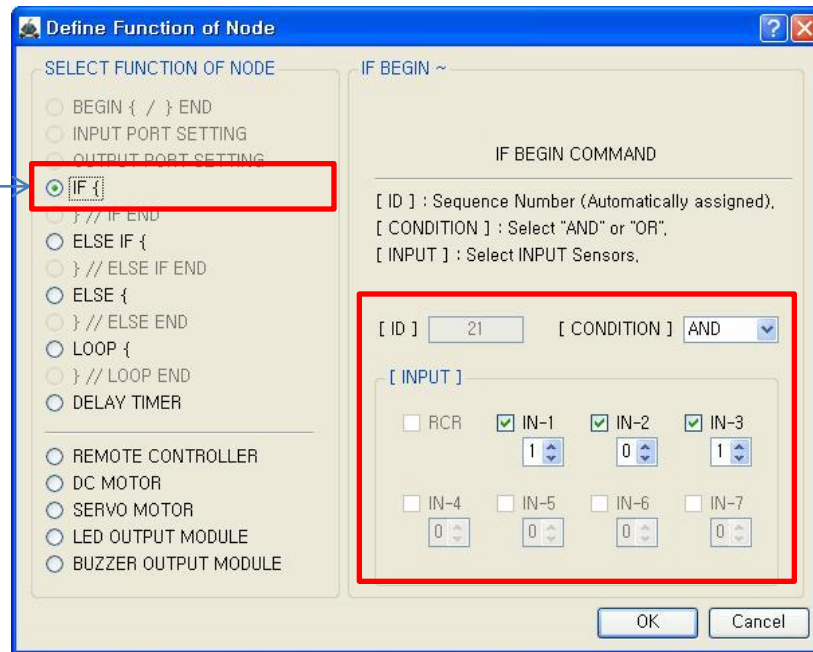
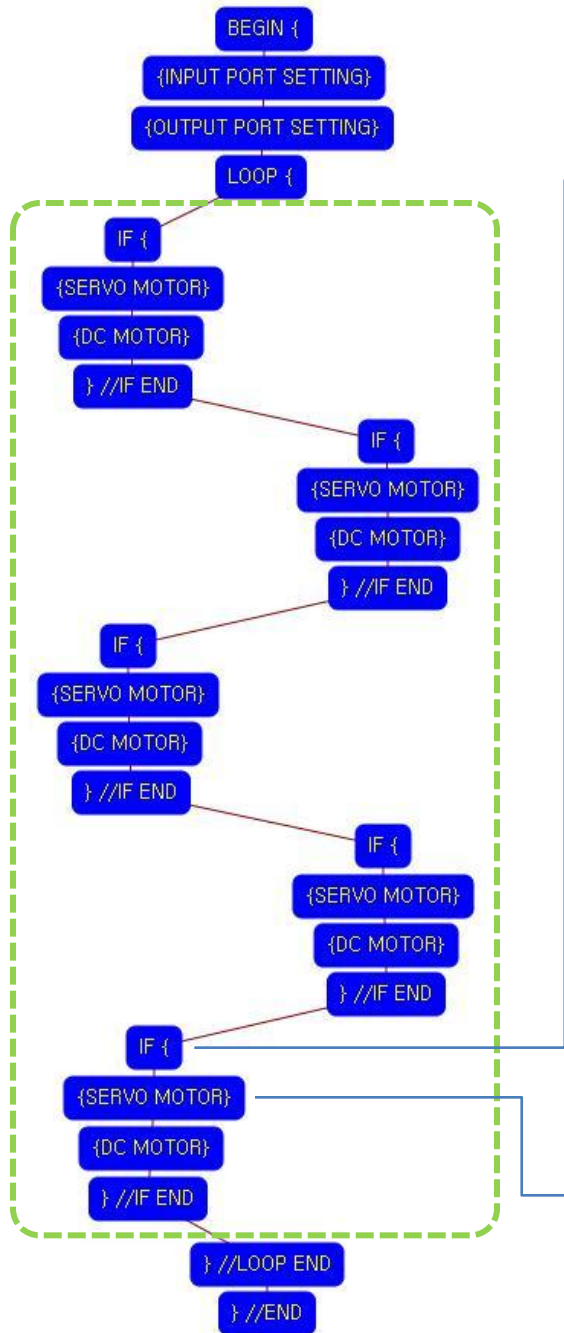
→ Robot turns left during 0.1 second

The DC Motor and Robot runs opposite direction because of the reduction gear transfer .

The end point of 4th "IF {" condition.

You have to assigned the ID of paired "IF {" condition.

(It is necessary to know that which "IF {" among the many "IF {" conditions in program.

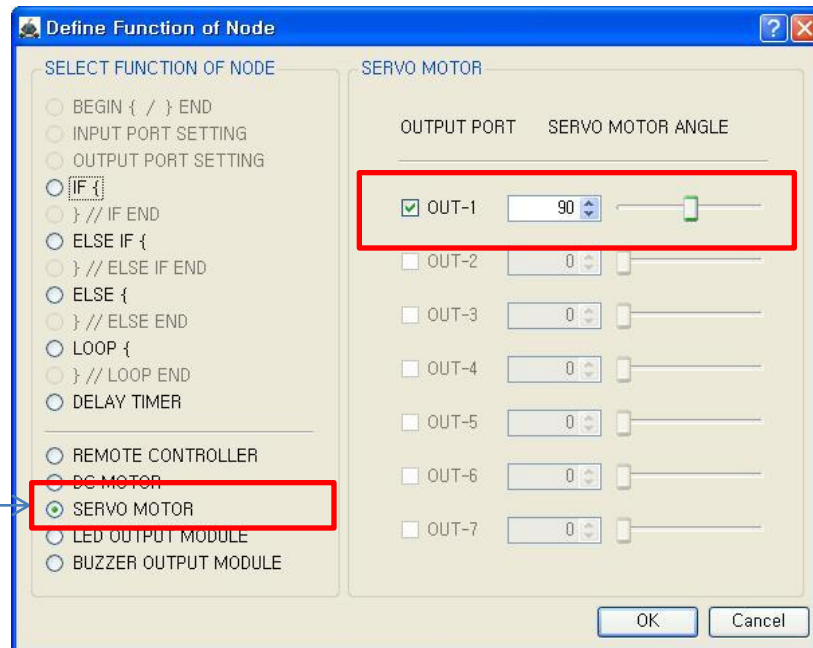


5th condition

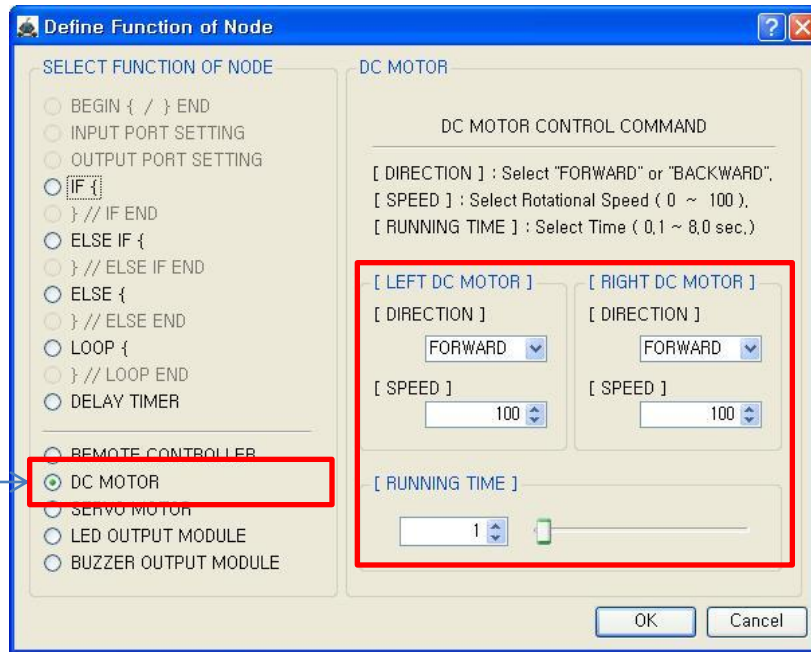
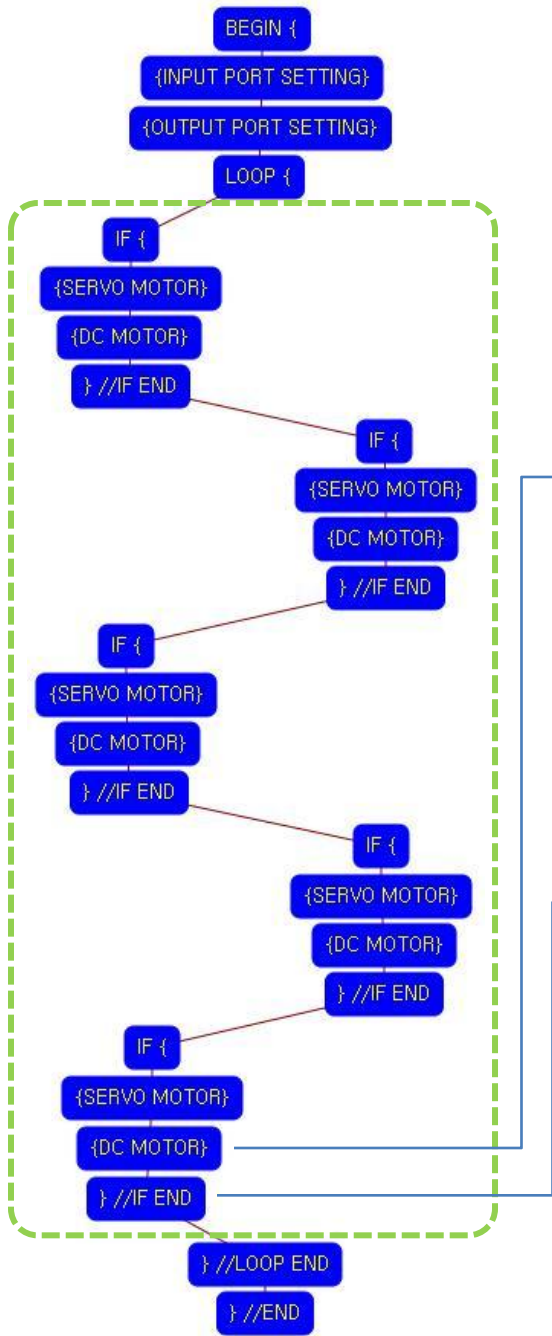
True condition is

- Ⓐ IR sensor of IN-1 : detects object
- AND
- Ⓑ IR sensor of IN-2 : detects no object
- AND
- Ⓒ IR sensor of IN-3 : detects object

If the condition is true, the next "{SERVO MOTOR}" command is executed, else the next "} //LOOP END" command is executed.

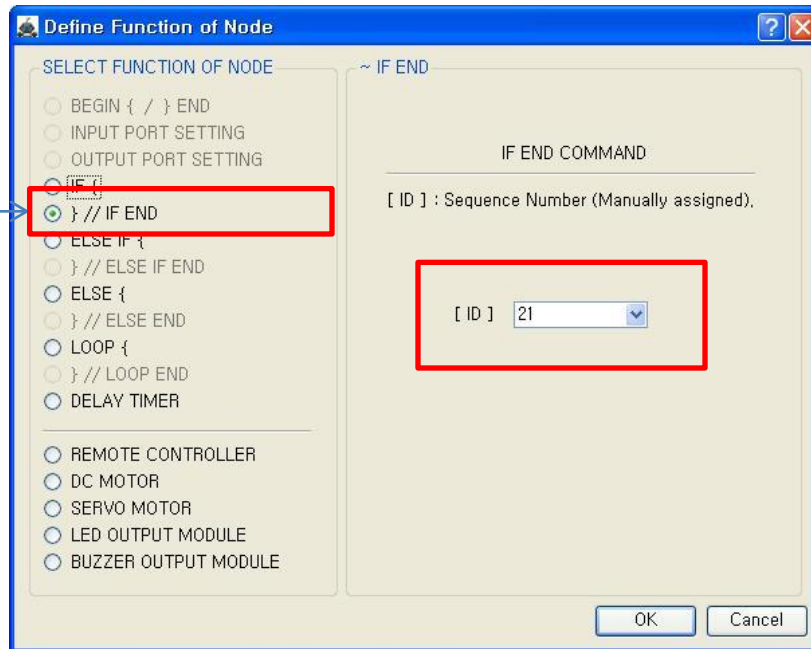


If the 5th "IF {" condition is true, the servo motor of OUT-1 is set the 90 degree.



Both DC Motor
 - Direction : Forward
 - Speed : 100
 - Running Time : 1
 → Robot goes backward during 0.1 second

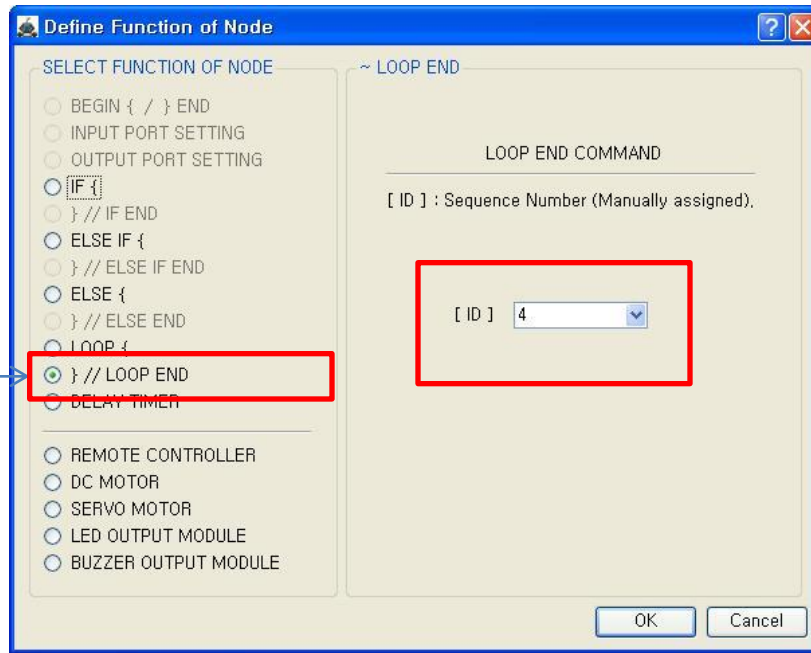
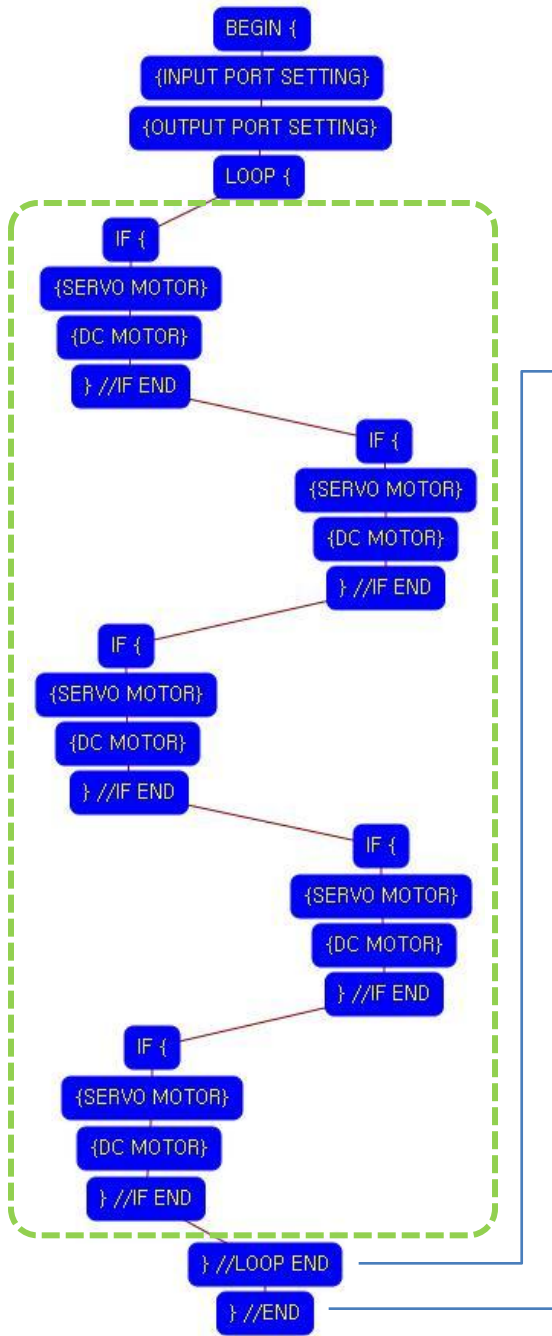
The DC Motor and Robot runs opposite direction because of the reduction gear transfer .



The end point of 5th "IF {" condition.

You have to assigned the ID of paired "IF {" condition.

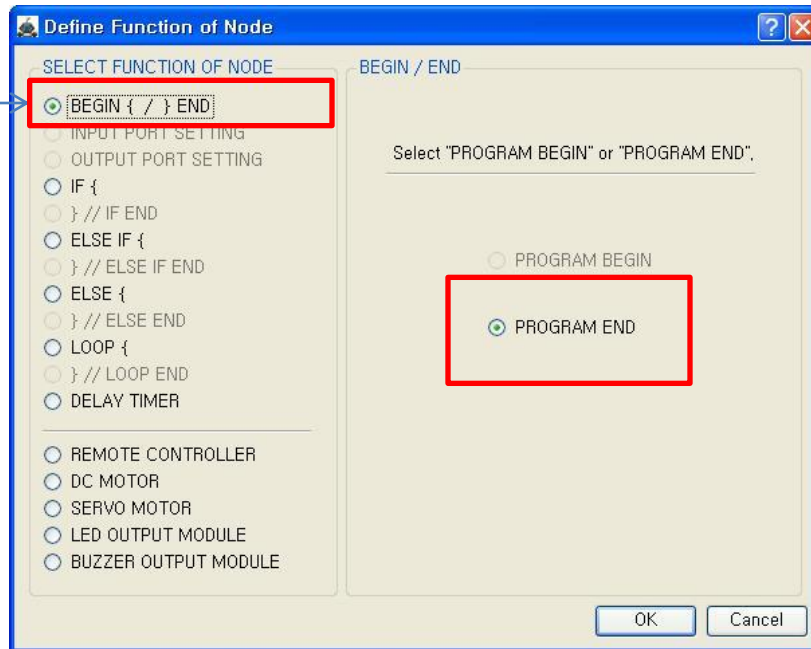
(It is necessary to know that which "IF {" among the many "IF {" conditions in program.



The end point of “LOOP {” repetition command.

You have to assigned the ID of paired “LOOP {” repetition command.

(It is necessary to know that which “LOOP {” among the many “LOOP {” repetition commands in program.



This means that program ends hear.

You have to place this node at the end of program.

“PROGRAM BEGIN” is not active because you already define at the program.

To run the robot, it is necessary to download the program into the robot. (Refer to download manual)