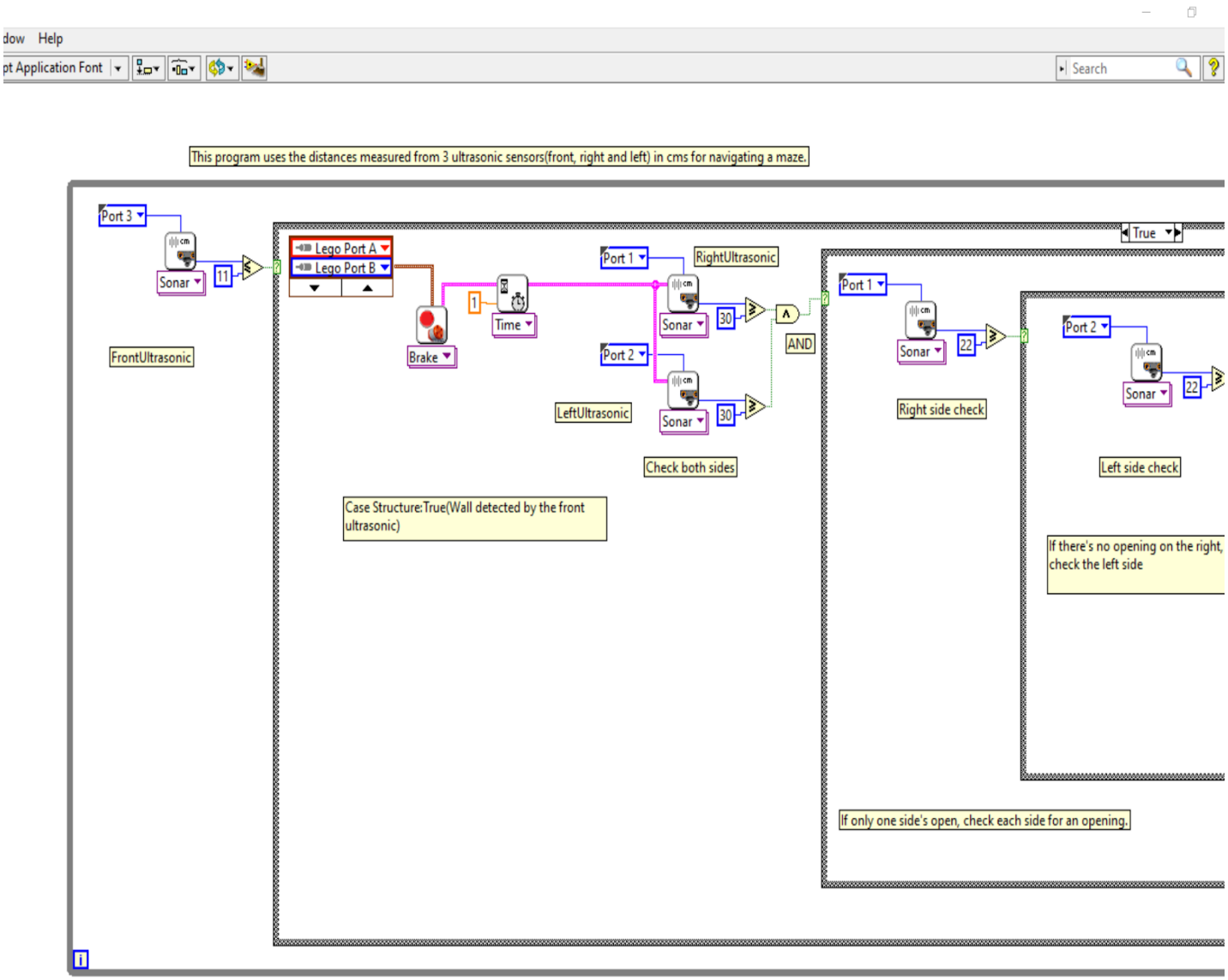
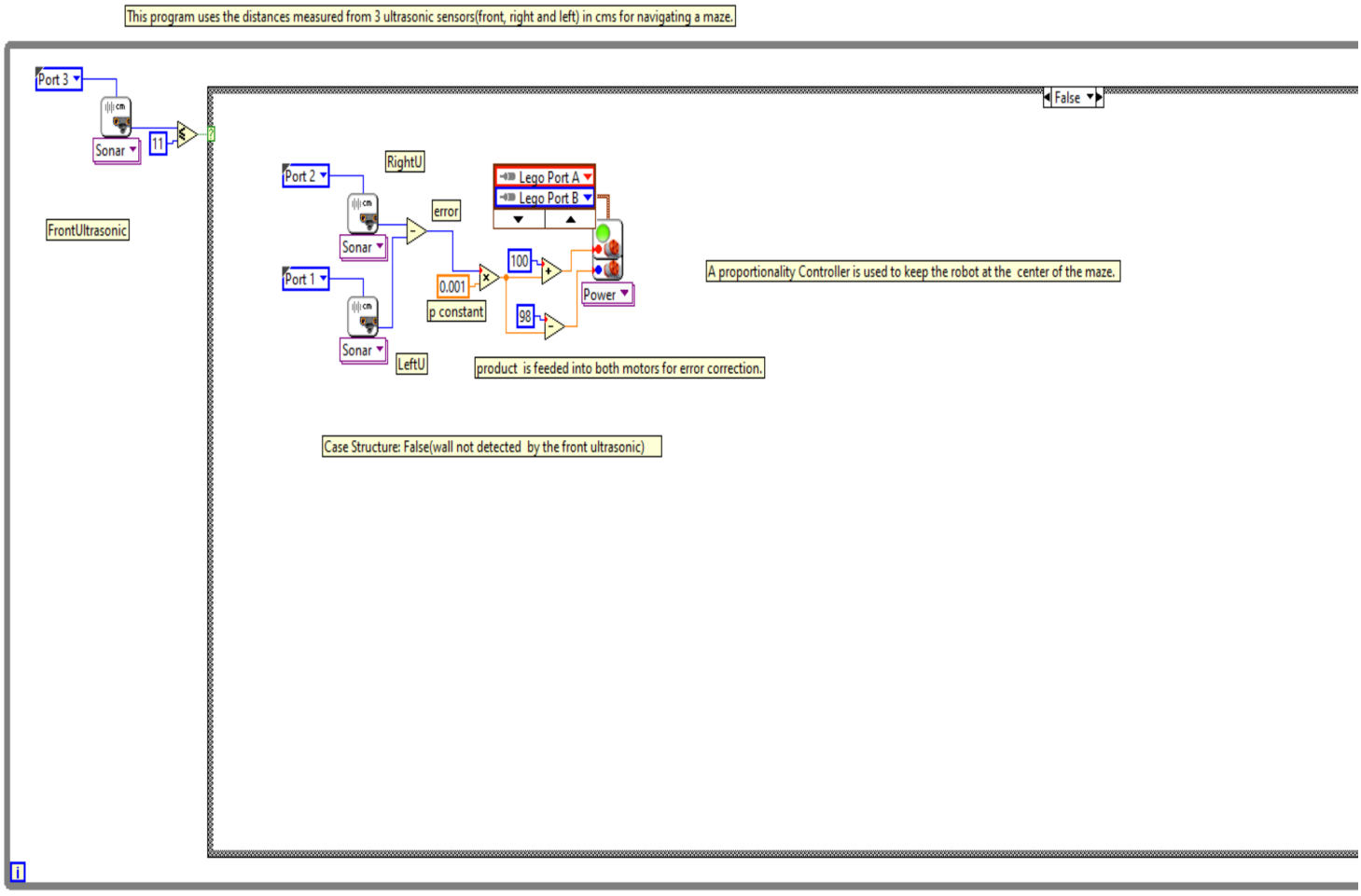
Program Name: “navigate”

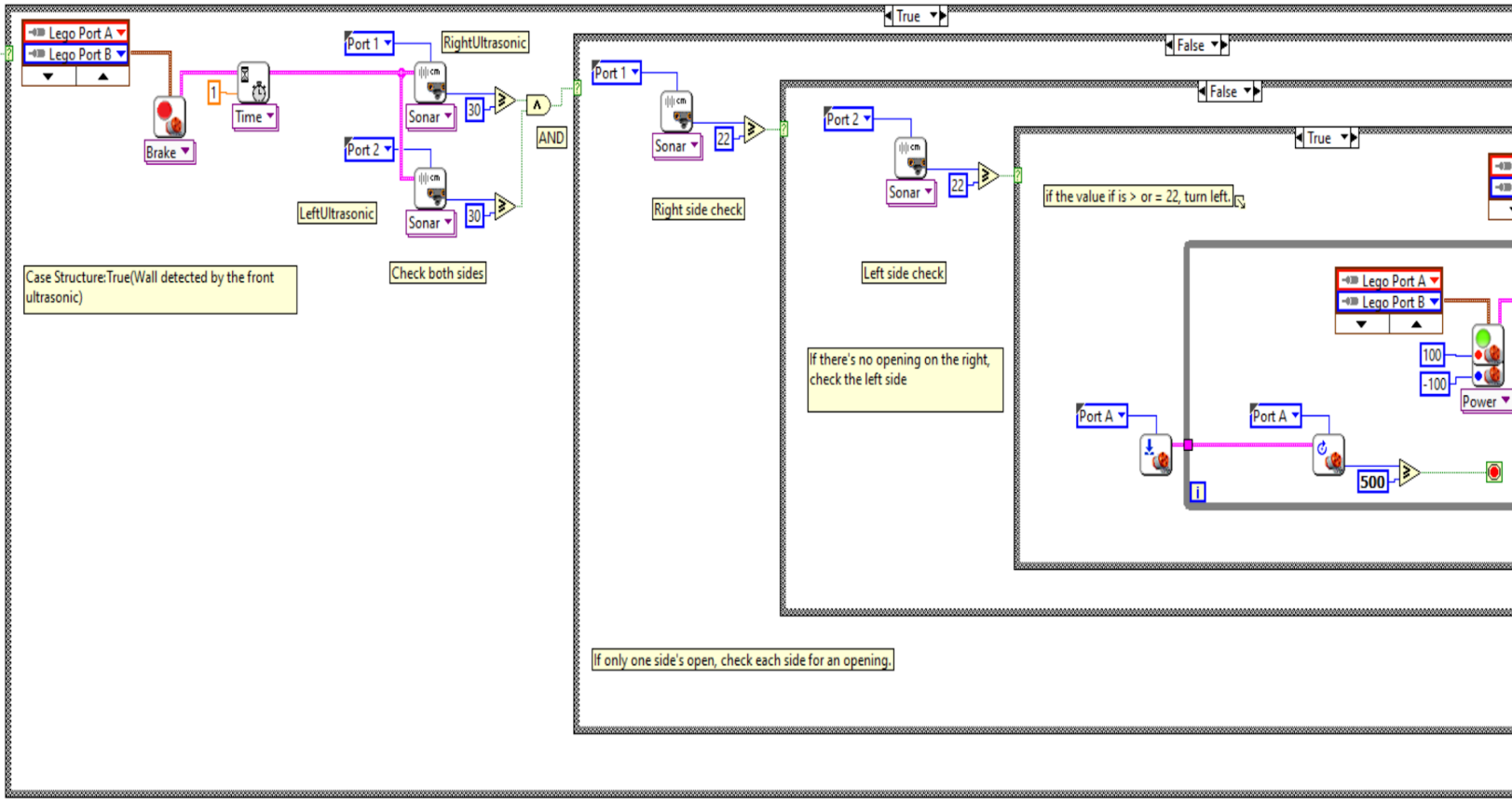
Programming Environment: Labview 2015 with the Lego Mindstorms Module
Microcontroller: EV3 by Lego.

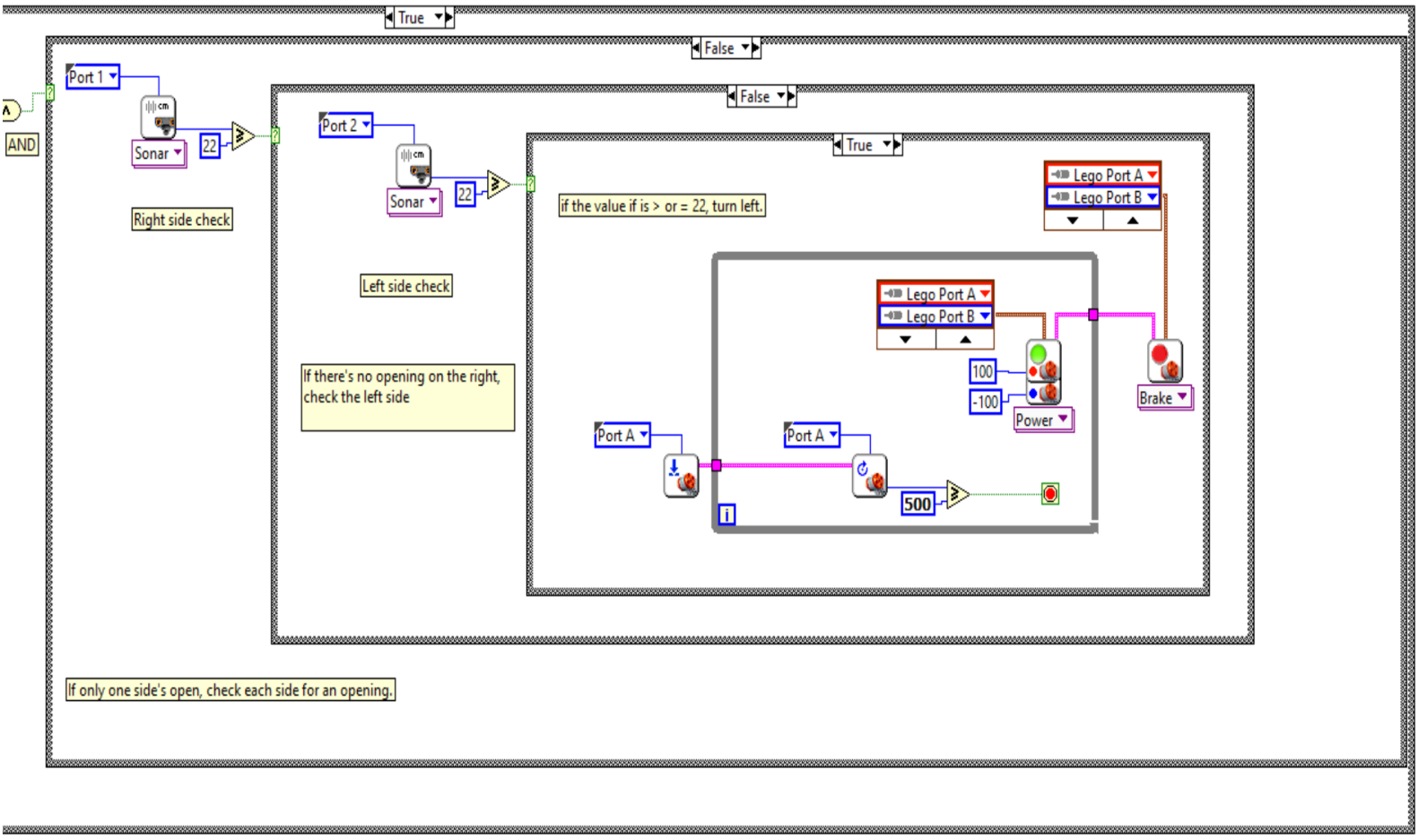
This program involves controlling a maze solving robot with a program known as “navigate” within the Labview environment. Sensors including 3 ultrasonic sensors, and one color sensor are used in this robot. The maze robot is used for solving a physical maze that dead ends, and T- connecting paths.

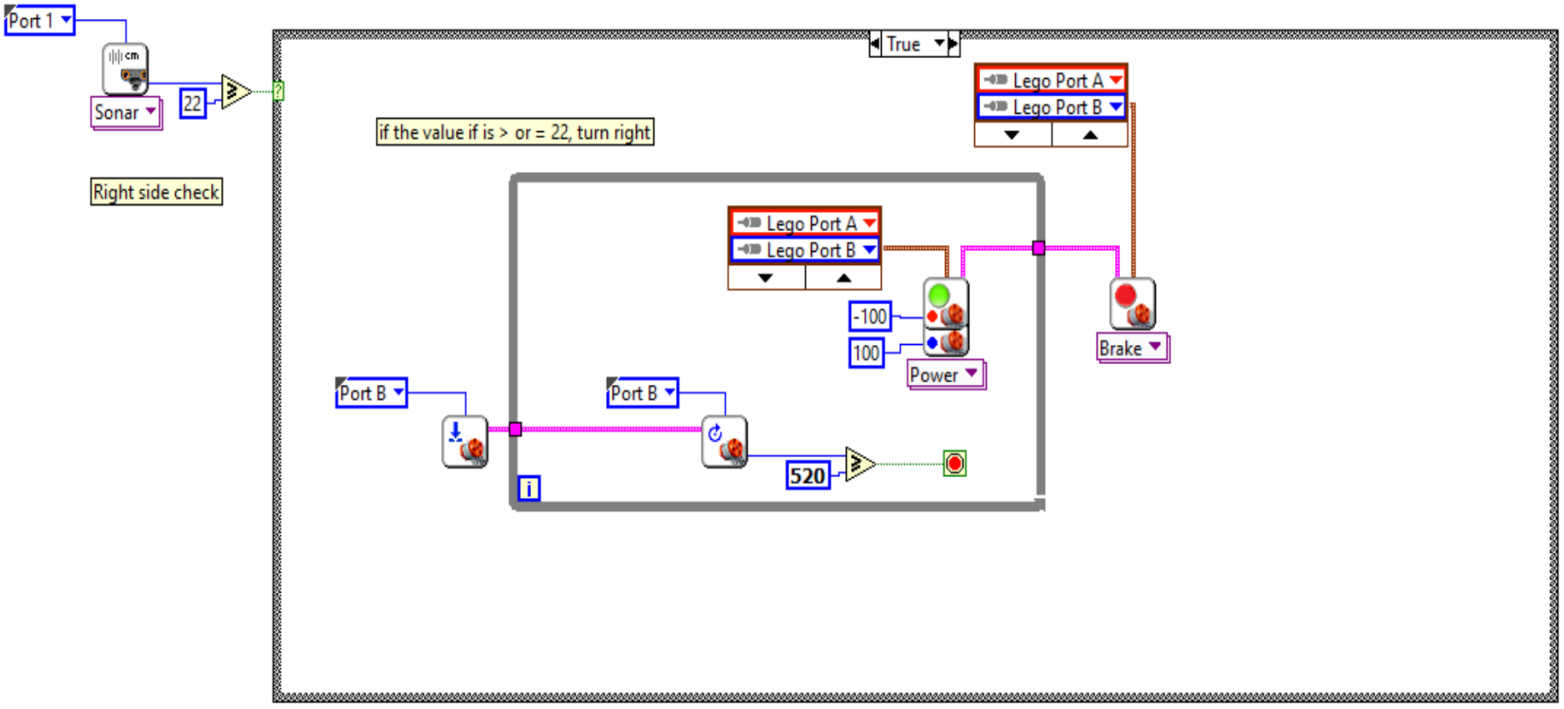


The whole program is present in a loop that has an end condition which is when the stop button is pressed. Within this loop

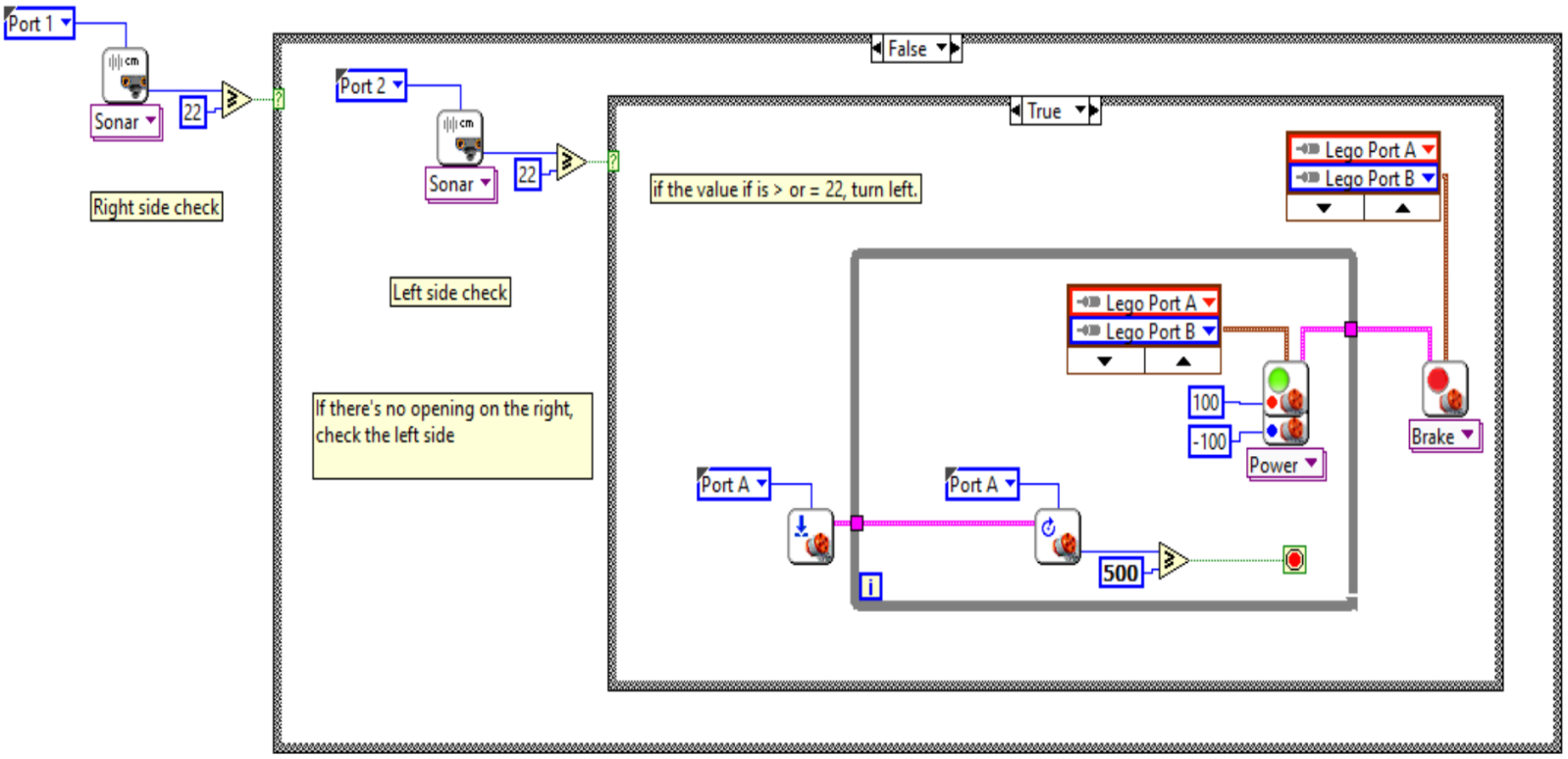



Lego Port A
Lego Port B
Brake
1
Time
Port 1
RightUltrasonic
Sonar
30
Port 2
LeftUltrasonic
Sonar
30
AND
Case Structure:True(Wall detected by the front ultrasonic)
Check both sides
True
Port 1
Sonar
22
Right side check
False
Port 2
Sonar
22
Left side check
False
True
if the value if is > or = 22, turn left.
If there's no opening on the right, check the left side
Lego Port A
Lego Port B
100
-100
Power
Port A
Port A
500
i
If only one side's open, check each side for an opening.

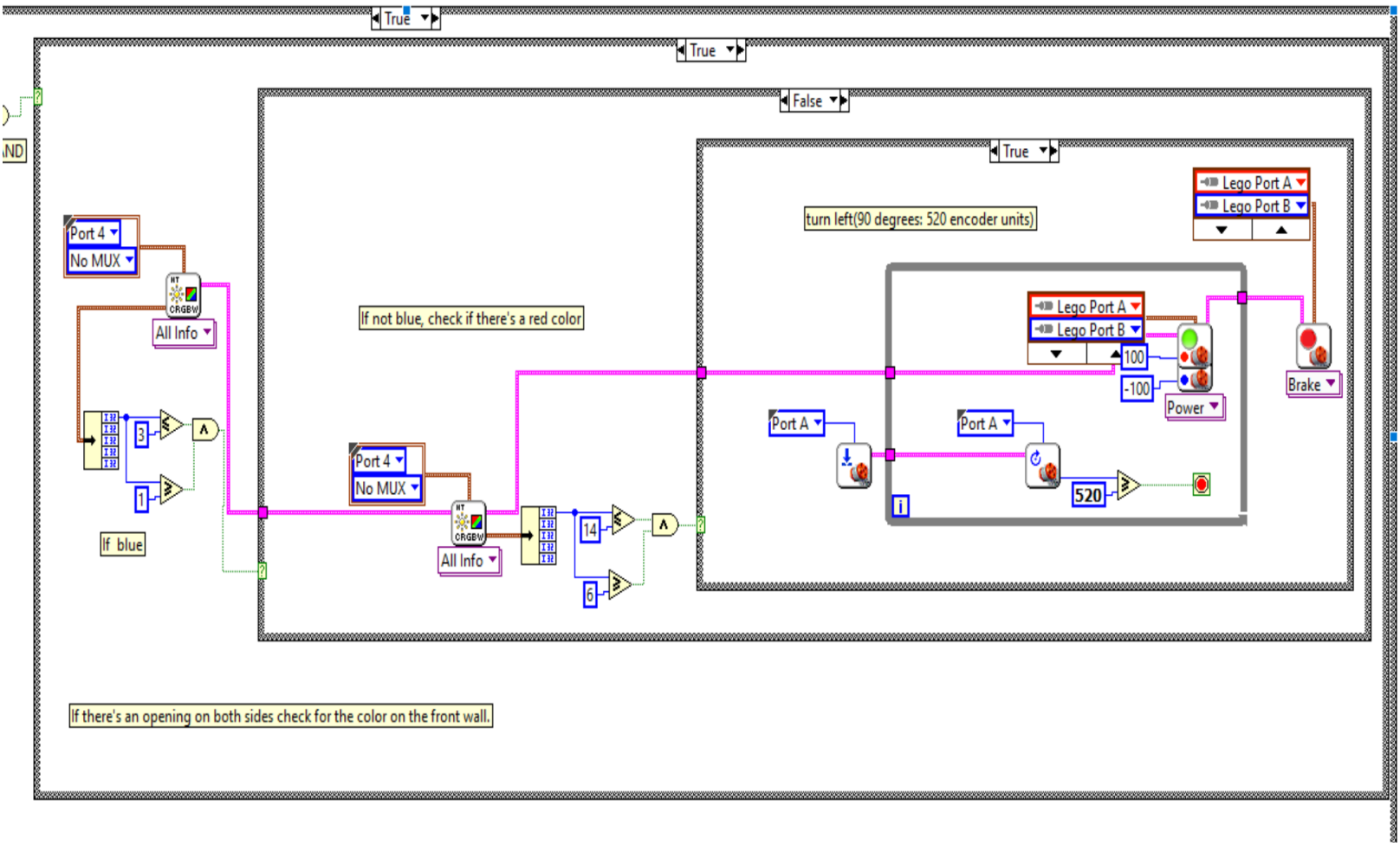

True
False
Port 1
Sonar
22
AND
Right side check
False
Port 2
Sonar
22
Left side check
If there's no opening on the right, check the left side
True
if the value if is > or = 22, turn left.
Lego Port A
Lego Port B
Lego Port A
Lego Port B
100
-100
Power
Brake
Port A
Port A
500
i
If only one side's open, check each side for an opening.

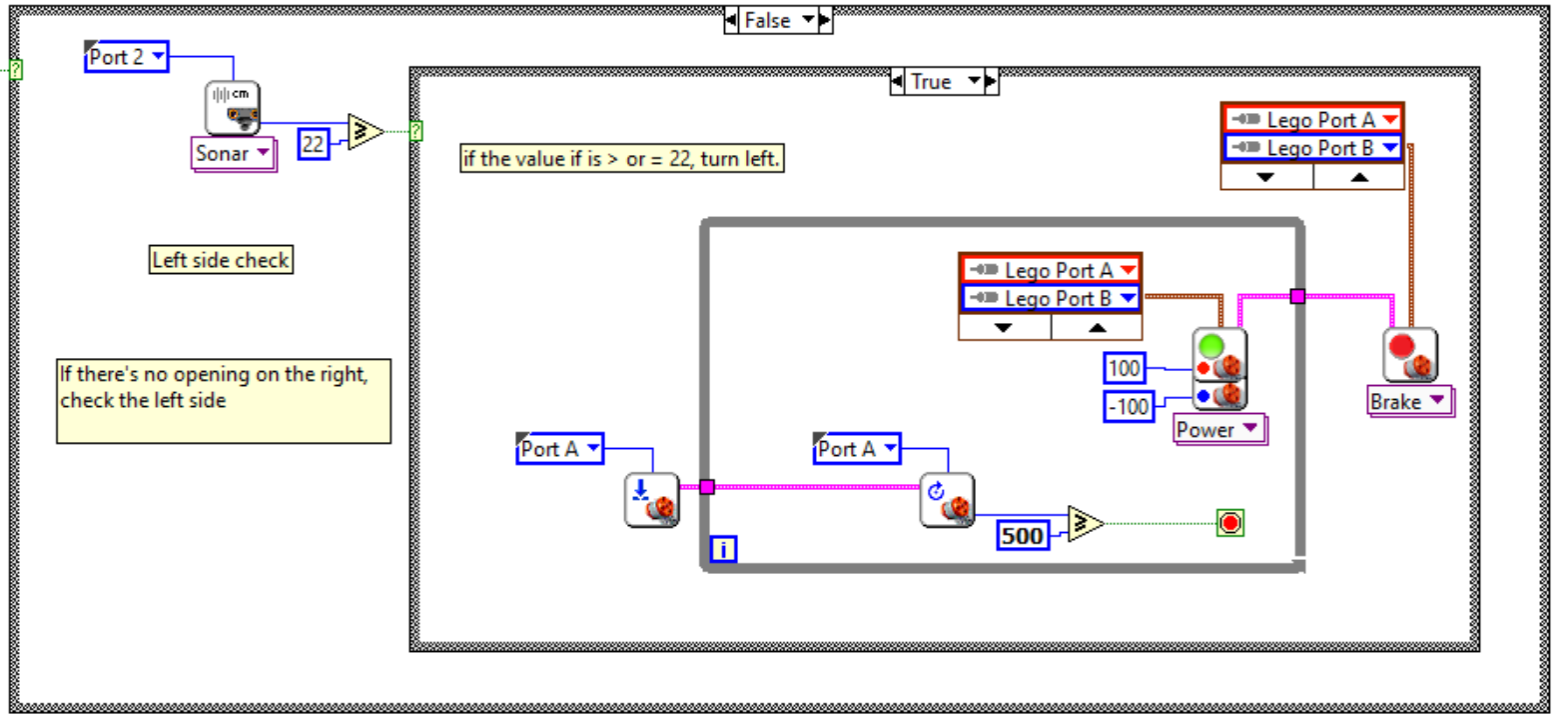


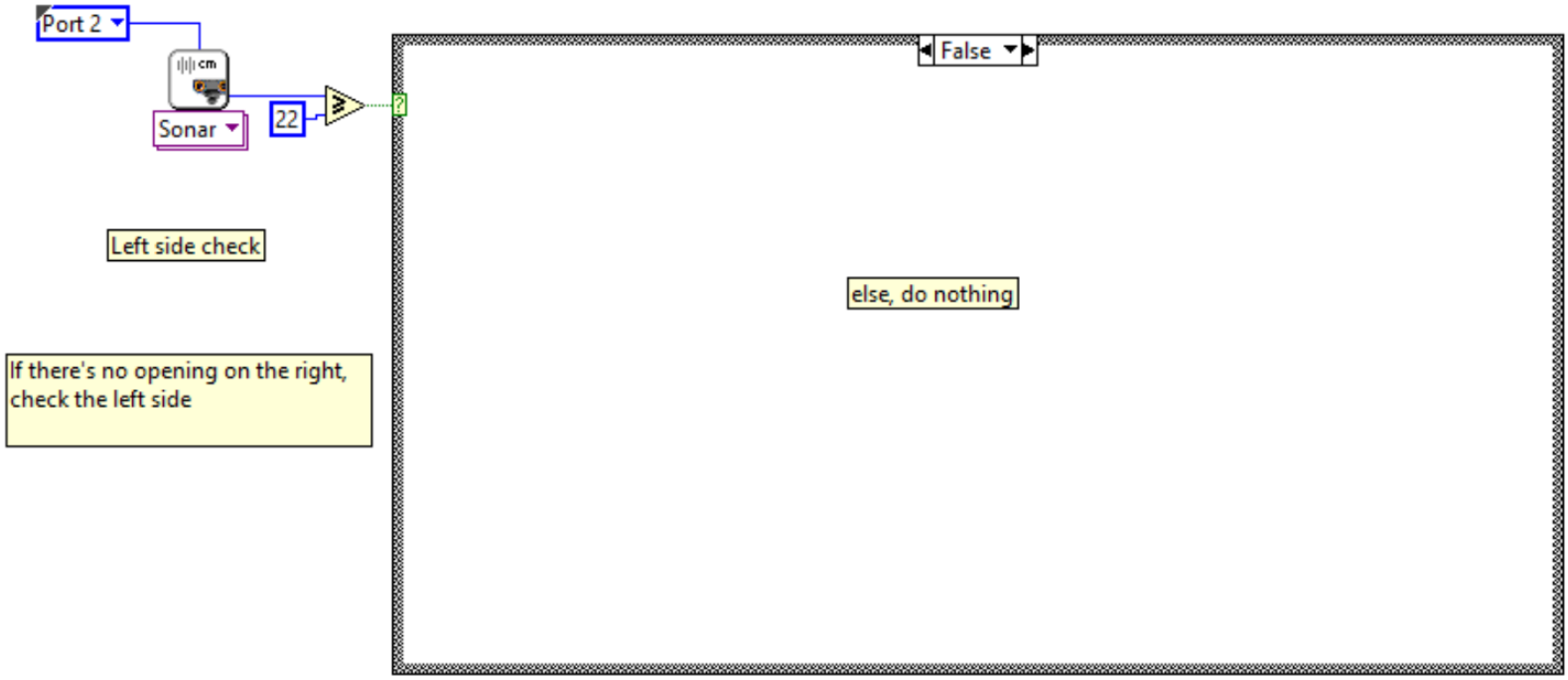
If only one side's open, check each side for an opening.



If only one side's open, check each side for an opening.


True
True
False
True
Port 4
No MUX
All Info
3
1
If blue
If not blue, check if there's a red color
Port 4
No MUX
All Info
14
6
turn left(90 degrees: 520 encoder units)
Lego Port A
Lego Port B
Port A
Port A
Lego Port A
Lego Port B
100
-100
Power
Brake
520
i
If there's an opening on both sides check for the color on the front wall.


False
Port 2
cm
Sonar
22
Left side check
If there's no opening on the right, check the left side
True
if the value if is > or = 22, turn left.
Lego Port A
Lego Port B
Lego Port A
Lego Port B
100
-100
Power
Brake
Port A
Port A
500
i


Port 2
Sonar
22
False
Left side check
else, do nothing
If there's no opening on the right, check the left side