

```
{$STAMP BS2}
{$PBASIC 2.5}
```

```
ir_det_pin CON 8
pause_time CON 20
active_low CON 0
```

```
ir_detect VAR IN8
```

```
ir_pulse VAR Word
counter VAR Nib
type VAR Nib
pulse_delay_time CON 2
```

```
debounce_time CON 20
ir_message VAR Byte
active_high CON 1
decimal_value VAR Word
```

```
main:
```

```
IF ir_detect = 1 THEN main
GOSUB find_and_display_start_pulse
GOSUB check_for_stop_bit
GOSUB convert_to_binary_number_display
GOSUB program_select
GOTO main
```

```
find_and_display_start_pulse:
```

```
FOR counter = 0 TO 15
PULSIN ir_det_pin,active_low,ir_pulse(0)
NEXT
```

```
RETURN
```

```
check_for_stop_bit:
```

```
PULSIN ir_det_pin,active_high,ir_pulse(0)
IF ir_pulse(0) > 1400 AND ir_pulse(0) <> 0 THEN continue
GOTO check_for_stop_bit
```

```
continue:
```

```
PULSIN ir_det_pin,active_low,ir_pulse(0)
PULSIN ir_det_pin,active_low,ir_pulse(1)
PULSIN ir_det_pin,active_low,ir_pulse(2)
PULSIN ir_det_pin,active_low,ir_pulse(3)
PULSIN ir_det_pin,active_low,ir_pulse(4)
PULSIN ir_det_pin,active_low,ir_pulse(5)
PULSIN ir_det_pin,active_low,ir_pulse(6)
PULSIN ir_det_pin,active_low,ir_pulse(7)
PULSIN ir_det_pin,active_low,ir_pulse(8)
PULSIN ir_det_pin,active_low,ir_pulse(9)
PULSIN ir_det_pin,active_low,ir_pulse(10)
PULSIN ir_det_pin,active_low,ir_pulse(11)
```

```
RETURN
```

```
convert_to_binary_number_display:
```

```
FOR counter = 0 TO 10
LOOKDOWN ir_pulse(counter), < [400,800],
ir_message.LOWBIT(counter)
```

```
NEXT
```

```
RETURN
```

```
program_select:
```

```
IF (ir_message = %00000100) THEN stop0
IF (ir_message = %00000001) THEN front0
IF (ir_message = %00000011) THEN left0
```

```
IF (ir_message = %00000101) THEN right0
IF (ir_message = %00000111) THEN back0
IF (ir_message = %00000110) THEN area_cover
IF (ir_message = %00001000) THEN wall
```

```
RETURN
```

```
stop0:
DO
IF ir_detect = 0 THEN main
LOOP
```

```
front0:
FOR x = 1 TO 5
PULSOUT 14, 649
PULSOUT 15, 892
PAUSE 20
NEXT
GOTO main
```

```
back0:
FOR x = 1 TO 5
PULSOUT 14, 850
PULSOUT 15, 650
PAUSE 20
NEXT
GOTO main
```

```
left0:
FOR x = 1 TO 3
PULSOUT 14, 650
PULSOUT 15, 725
PAUSE 20
NEXT
GOTO main
```

```
right0:
FOR x = 1 TO 3
PULSOUT 14, 775
PULSOUT 15, 850
PAUSE 20
NEXT
GOTO main
```

```
'-----Variables-----
irmid VAR Bit
irleft VAR Bit
irright VAR Bit
irback VAR Bit
x VAR Word
a VAR Word
v VAR Word
w VAR Word
n VAR Byte
m VAR Byte
```

```
'-----Constants-----
freq CON 38500
```

```
Area_Cover:
IF ir_detect = 0 THEN main
```

```
'-----IR Readings-----
FREQOUT 6, 1, freq
irmid = IN4
```

```
'-----Maneuvers-----
```

IF irmid = 0 THEN turn

PULSOUT 14, 649
PULSOUT 15, 892
PAUSE 20

GOTO Area_Cover

turn:

x = x + 1
a = (x / 2) * 2
IF (x = a) THEN left
IF (x <> a) THEN right

right:

FOR n = 1 TO 220
PULSOUT 14, 743
PULSOUT 15, 850
PAUSE 20
NEXT

GOTO Area_Cover

left:

FOR x = 1 TO 209
PULSOUT 14, 650
PULSOUT 15, 757
PAUSE 20
NEXT

FOR x = 1 TO 65
PULSOUT 14, 649
PULSOUT 15, 892
PAUSE 20
NEXT

FOR x = 1 TO 65
PULSOUT 14, 725
PULSOUT 15, 892
PAUSE 20
NEXT

GOTO Area_Cover

'-----

wall:

IF ir_detect = 0 THEN main
FREQOUT 6, 1, freq '38500
IF IN4 = 0 THEN turn1

forward1:

PULSOUT 14, 649
PULSOUT 15, 892
PAUSE 20

GOTO wall

turn1:

FREQOUT 2, 1, freq '38500
irright = IN0

FREQOUT 10, 1, freq '38500
irleft = IN9

IF irright = 0 THEN left1

IF irleft = 0 THEN right1

GOTO wall

'-----Maneuvers-----

right1:

FOR m = 1 TO 140

PULSOUT 14, 743

PULSOUT 15, 850

PAUSE 20

NEXT

'-----straighten roller-----

FOR m = 1 TO 85

PULSOUT 14, 649

PULSOUT 15, 892

PAUSE 20

NEXT

FOR m = 1 TO 65

PULSOUT 14, 649

PULSOUT 15, 765

PAUSE 20

NEXT

GOTO back1

left1:

FOR m = 1 TO 150

PULSOUT 14, 650

PULSOUT 15, 757

PAUSE 20

NEXT

FOR m = 1 TO 70

PULSOUT 14, 649

PULSOUT 15, 892

PAUSE 20

NEXT

FOR m = 1 TO 65

PULSOUT 14, 735

PULSOUT 15, 892

PAUSE 20

NEXT

GOTO back1

back1:

PULSOUT 14, 850

PULSOUT 15, 650

PAUSE 20

FREQOUT 7, 1, 38500

IF 0 = IN5 THEN forward1

GOTO back1