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

count = 0
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(counter)
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

calculate_average

FOR counter = 0 TO 10
  LOCKDOWN ir_pulse(counter), < [400,800], ir_message.LOWBIT(counter)
NEXT
RETURN

program_select:

IF (ir_message = %00000010) 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