' Robotics with the Boe-Bot - RomingwithIrandPhotoresisterbyus3.bs2

' Boe-Bot to detect using the infared and photorisistor.

' {$STAMP BS2}

' {$PBASIC 2.5}

DEBUG "Program is Ready To Run!"

'[ Variable for Ir]

irDetectLeft VAR Bit

irDetectRight VAR Bit

photoDetectLeft VAR Bit

photoDetectRight VAR Bit

pulseCount VAR Byte

counter VAR Nib

'[ Initialization ]

FREQOUT 4, 2000, 3000

'[ Main Routine for Ir]

DO

 FREQOUT 8, 1, 45500

 irDetectLeft = IN9

 FREQOUT 2, 1, 45500

 irDetectRight = IN0

 IF (irDetectLeft = 0) AND (irDetectRight = 0)THEN

 GOSUB Back\_Up ' Both IR pairs detect obstacle

 GOSUB Turn\_Left ' Back up & U-turn (left twice)

 GOSUB Turn\_Left

 ELSEIF (photoDetectLeft = 0) AND (photoDetectRight = 0) THEN ' Both photoresistors detects

 GOSUB Back\_Up ' shadow, back up & U-turn

 GOSUB Turn\_Left ' (left twice).

 GOSUB Turn\_Left

 ELSEIF (irDetectLeft = 0) THEN ' Left IR pair detect

 GOSUB BACK\_UP ' Back up & turn right

 GOSUB Turn\_Right

 ELSEIF (photoDetectLeft = 0) THEN ' Left photoresistor detects

 GOSUB Back\_Up ' shadow, back up & turn right.

 GOSUB Turn\_Right

 ELSEIF (irDetectRight = 0) THEN ' Right IR pair detect

 GOSUB Back\_Up ' Back up & turn left

 GOSUB Turn\_Left

 ELSEIF (photoDetectRight = 0) THEN ' Right photoresistor detects

 GOSUB Back\_Up ' shadow, back up & turn left.

 GOSUB Turn\_Left

 ELSE ' Both IR pairs 1, no detects

 GOSUB Forward\_Pulse ' Apply a forwards pulse

 ENDIF ' and check again

LOOP

'[ Subroutines ]

Forward\_Pulse: ' Send a single forward pulse.

 PULSOUT 13, 850

 PULSOUT 12, 650

 PAUSE 20

 RETURN

Turn\_Left:

 FOR pulseCount = 0 TO 20 ' Left turn, about 90-degrees.

 PULSOUT 13, 650

 PULSOUT 12, 650

 PAUSE 20

 NEXT

 RETURN

Turn\_Right:

 FOR pulseCount = 0 TO 20 ' Right turn, about 90-degrees.

 PULSOUT 13, 850

 PULSOUT 12, 850

 PAUSE 20

 NEXT

 RETURN

Back\_Up:

 FOR pulseCount = 0 TO 40 ' Back up.

 PULSOUT 13, 650

 PULSOUT 12, 850

 PAUSE 20

 NEXT

 RETURN