SONAR Assignment Code

' {$STAMP BS2}

CmConstant CON 2260

cmDist VAR Word

leftDist VAR Word

rightDist VAR Word

a VAR Word

time VAR Word

x VAR Word

turns VAR Byte

s VAR Byte

t VAR Byte

'25in - 63.5 - around 60 cm '22 diff bw wide and narrow @ beginning

'10in - 25.4 - around 25 cm 'around width of one tile

'134in - 340.36 '131

'116 '116

'48/49in left dist when goes left '122/125cm

'~62in in leftDist when goes right '157.5cm

' normal rightDist is around 160cm

'125 74

ButtonPress:

IF IN5 = 0 THEN ButtonPress

turns = 0

s = 0

t = 0

a = 0

ButtonPress1:

a = a+1

IF a>500 THEN longButtonPress

IF IN5=1 THEN ButtonPress1

a = 0

ButtonPress2:

a = a+1

IF IN5 = 1 THEN DoublePress

IF a < 150 THEN ButtonPress2

PULSOUT 14, 740

PAUSE 10

GOTO ButtonPress

DoublePress:

IF IN5 = 1 THEN DoublePress

PULSOUT 14, 760

PAUSE 10

GOTO ButtonPress

LongButtonPress:

IF IN5 = 1 THEN LongButtonPress

FOR x = 1 TO 160 '80

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 500

GOTO main

center:

PULSOUT 14, 750

PAUSE 700

RETURN

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main:

GOSUB center

GOSUB senseLeft

PAUSE 500

GOSUB center

GOSUB straightenLeft

PAUSE 500

GOSUB center

GOSUB senseRight

PAUSE 500

GOSUB center

GOSUB straightenRight

cmDist = 100

IF rightDist - leftDist > 45 AND rightDist - leftDist < 55 THEN right '50

IF leftDist - rightDist > 40 AND leftDist - rightDist < 50 THEN left

IF leftDist > 115 AND leftDist < 128 THEN right

IF leftDist > 145 AND leftDist < 165 THEN left

IF rightDist < 135 AND leftDist >= 270 THEN leftBefTurn

IF rightDist > 158 AND leftDist >= 270 THEN rightBefTurn

PAUSE 1000

FOR x = 1 TO 90 '80

PULSOUT 12, 700 '705

PULSOUT 13, 845 '885

PAUSE 20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 500

IF leftDist => 270 AND rightDist < 371 THEN turnTimer

GOTO main

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senseLeft:

PULSOUT 14, 750

PAUSE 100

'NEXT

FOR x = 0 TO 43

PULSOUT 14, 770

PAUSE 10

NEXT

PULSOUT 15, 5

PULSIN 15, 1, time

leftDist = CmConstant\*\*time

RETURN

straightenLeft:

PULSOUT 14, 750

PAUSE 100

FOR x = 0 TO 28

PULSOUT 14, 721

PAUSE 10

NEXT

RETURN

senseRight:

PULSOUT 14, 750

PAUSE 100

FOR x = 0 TO 34

PULSOUT 14, 720

PAUSE 10

NEXT

PULSOUT 15, 5

PULSIN 15, 1, time

rightDist = CmConstant\*\*time

RETURN

straightenRight:

PULSOUT 14, 750

PAUSE 100

FOR x = 0 TO 38

PULSOUT 14, 772

PAUSE 10

NEXT

RETURN

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turnTimer:

FREQOUT 7, 250, 870

FREQOUT 7, 1000, 1026

FREQOUT 7, 500, 1360

turns = turns +1

s = s+1

IF (turns > 3 OR s > 2) AND (s > 0 OR t >4) THEN turn

GOTO main

left:

FREQOUT 7, 3000, 1026

'forward and left a little

FOR x = 1 TO 2

PULSOUT 12, 600

PULSOUT 13, 700

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 25

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 80

GOTO main

right:

FREQOUT 7, 2000, 960

FREQOUT 7, 2000, 1200

FOR x = 1 TO 2

PULSOUT 13, 900

PULSOUT 12, 800

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 45

PULSOUT 12, 705 '706

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 80

GOTO main

leftBefTurn:

turns = turns +1

t = t+1

FREQOUT 7, 6000, 1026

'forward and left a little

FOR x = 1 TO 2

PULSOUT 12, 600

PULSOUT 13, 700

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 50

PULSOUT 12, 700

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 20

IF (turns > 3 OR s > 2) AND (s > 0 OR t > 4) THEN turn

GOTO main

rightBefTurn:

turns = turns +1

t= t+1

FREQOUT 7, 4000, 960

FREQOUT 7, 4000, 1200

FOR x = 1 TO 2

PULSOUT 13, 900

PULSOUT 12, 800

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 50 '25

PULSOUT 12, 700 '705

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 20

IF (turns > 3 OR s > 2) AND (s > 0 OR t > 4) THEN turn

GOTO main

turn:

turns = 0

FOR x = 1 TO 20

PULSOUT 12, 700

PULSOUT 13, 845 '885

PAUSE 20

NEXT

FOR x = 0 TO 21 '19

PULSOUT 12, 610 '620

PULSOUT 13, 700

PAUSE 20

NEXT

FOR x = 1 TO 8

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 20

NEXT

FOR x = 1 TO 420

PULSOUT 12, 700

PULSOUT 13, 845 '885

PAUSE 20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 500

GOTO main2

main2:

GOSUB center

GOSUB senseLeft

PAUSE 500

GOSUB center

GOSUB straightenLeft

PAUSE 500

GOSUB center

GOSUB senseRight

PAUSE 500

GOSUB center

GOSUB straightenRight

cmDist = 100

IF rightDist >= 270 THEN left2

IF leftDist >= 270 THEN left2

IF leftDist - rightDist > 60 THEN left2

IF rightDist - leftDist > 60 THEN right2

'125 - 74 left 51 right 38cm between door and lockers

' 188cm 130

IF leftDist > 140 AND leftDist < 180 THEN left2

IF leftDist > 125 AND leftDist < 140 THEN right2

IF rightDist > 220 THEN left2

PAUSE 500

FOR x = 1 TO 150 '80

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 500

GOTO main2

left2:

FREQOUT 7, 500, 1026

FOR x = 1 TO 2

PULSOUT 12, 600

PULSOUT 13, 700

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 35

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 80

GOTO main2

right2:

FREQOUT 7, 500, 960

FREQOUT 7, 500, 1200

FOR x = 1 TO 2

PULSOUT 13, 900

PULSOUT 12, 800

PAUSE 20

NEXT

PAUSE 50

FOR x = 1 TO 35

PULSOUT 12, 705

PULSOUT 13, 845 '885

PAUSE 25 '20

NEXT

PULSOUT 12, 750

PULSOUT 13, 750

PAUSE 80

GOTO main2