```
'' MKII uMite Robot Control Language - ActoBotics Kernel

Sub START
 SetPin 2, dout
 SetPin 3, dout
 SetPin 25, dout
 SetPin 23, dout
 Option EXPLICIT
 Dim freq, lduty, rduty, cspd, spd, stp, dt, pg1, pg2
 Dim ang, KeyCode, sno, ipsec, dadj
 Dim wd, wc, rotd, rotc, trnd, trnc
 freq = 500
 lduty = 25 : rduty = 25
 cspd = 0 : dadj = 1
 spd = 0 : stp = 0
 ipsec = 1 : sno = 0
 pg1 = 6.0 : pg2 = 15.0 : ang = 0
 Const wd = 2.0 : wc = 6.28
 Const rotd = 4.63 : rotc = 14.5
 Const trnd = 9.25 : trnc = 29.0
 Servo 1, 1.5
 Servo 1, stop
End Sub


Sub LDF
  Pin(2) = 0 : Pin(3) = 1
End Sub

Sub LDB
  Pin(2) = 1 : Pin(3) = 0
End Sub

Sub RDF
  Pin(23) = 1 : Pin(25) = 0
End Sub

Sub RDB
  Pin(23) = 0 : Pin(25) = 1
End Sub

Sub s1
  lduty = 25 : rduty = 25
  spd = 1 : cspd = 25
  ipsec = 1.1 : dadj = 1.11
End Sub

Sub s2
  lduty = 50 : rduty = 50
  spd = 2 : cspd = 50
  ipsec = 2.15 : dadj = 1.09
End Sub

Sub s3
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  lduty = 30 : rduty = 30
  spd = 3 : cspd = 30
  ipsec = 3.2 :  dadj = 1.09
End Sub

Sub s4
  lduty = 60 : rduty = 60
  spd = 4 : cspd = 60
  ipsec = 4.75 : dadj = 1.11
End Sub

Sub F
  LDF : RDF
  PWM 2, freq, lduty, rduty
End Sub

Sub B
  LDB : RDB
  PWM 2, freq, lduty, rduty
End Sub

Sub RL
  LDF : RDB
  PWM 2, freq, lduty, rduty
End Sub

Sub RR
  LDB : RDF
  PWM 2, freq, lduty, rduty
End Sub

Sub TR
  RDF
  PWM 2, freq, lduty, 0
End Sub

Sub TL
  LDF
  PWM 2, freq, 0, rduty
End Sub

Sub S
  PWM 2, freq, 0, 0
End Sub

Sub GF (in)
  F : Pause in*1000/ipsec : S
End Sub

Sub GB (in)
  B : Pause in*1000/ipsec : S
End Sub

Sub GRL (deg)
```

```
  RL : Pause (rotc/360)*deg*dadj*1000/ipsec : S
End Sub

Sub GRR (deg)
  RR : Pause (rotc/360)*deg*dadj*1000/ipsec  : S
End Sub

Sub GTR (deg)
  TR : Pause (trnc/360)*deg*dadj*1000/ipsec  : S
End Sub

Sub GTL (deg)
  TL : Pause (trnc/360)*deg*dadj*1000/ipsec  : S
End Sub

Sub GO (ldy, rdy)
  lduty = ldy : rduty = rdy
End Sub

Sub VR
  GTR 5 :  F
End Sub

Sub VL
  GTL 5 :  F
End Sub

Sub RU (dt)
  Local I
  For I = 10 To cspd
    lduty = I : rduty = I
    F : Pause dt
  Next
End Sub

Sub RD (dt)
  Do While lduty > 10
    lduty = lduty - 1 : rduty = rduty - 1
    F : Pause dt
  Loop : S
End Sub

Function PING(x)
  PING = Cint(Distance(7,14)*10/2.54)/10
  Pause 60
End Function

Sub pars
  Print "Ping (inches): " PING(0)
  Print "Current Duty (%L/R): " lduty,rduty
  Print "Servo Angle (deg): " ang
  Print "Velocity (rpm): " Cint(ipsec*600/6.28)/10
  Print "  "
End Sub
```

```
Sub SERV (angle)
  If angle < -91 Or angle < 91 Then
     ang = 1.5 - (angle/90)
     Servo 1, ang
     ang = angle
     Pause 100
  EndIf
  Servo 1, stop
End Sub

Sub AVOID1
  Local l,r
  If PING(0) < pg1 Then
    SetTick 0, 0, 1
    S : Pause 100 : GB 6
    SERV -45 : l = PING(0)
    Pause 150
    SERV 45 : r = PING(0)
    If l > r Or l < 0 And r > 0 Then
        GTL -45
    Else
        GTR 45
    EndIf
    stp = 1 : serv 0 : F
  EndIf
End Sub

Sub AUTO1 (dt)
  Timer = 0 : stp = 0
  SetTick 200, AVOID1, 1
  Do While Timer < dt*1000
    If stp = 1 Then
      stp = 0
      SetTick 200, AVOID1, 1
    EndIf
  Loop
  S
End Sub

Sub Noop
End Sub

Sub IROPEN
 Local devcode
 keycode = 100
 IR DevCode, KeyCode, IRGO
 Do
  IRGO
  NOOP
 Loop Until keycode = 20
 S
End Sub
```

```
Sub IRGO
  Select Case KeyCode
    Case 0
     F
    Case 1
     B
    Case 2
     RR
    Case 3
     RL
    Case 4
     TR
    Case 5
     TL
    Case 6
     RU
    Case 7
     RD
    Case 8
     VR
    Case 9
     VL
    Case 16
     S1
    Case 18
     S2
    Case 17
     S3
    Case 19
     S4
    Case 20
     IR CLOSE
    Case 21
     S
  End Select
End Sub

Sub SetStep (no)
  Select Case no
    Case 0
      LDF : RDF
    Case 1
      LDB : RDB
    Case 2
      LDB : RDF
    Case 3
      LDF : RDB
    Case 4
      RDL : rduty = 0
    Case 5
      LDF : lduty = 0
  End Select
End Sub
```

```
Sub zsno
  sno = 0
End Sub


Sub GStep (x,dt)
  zsno
  Do While sno < x
    PWM 2, freq, lduty, rduty
    Pause dt
    S : sno = sno + 1
    Pause dt
  Loop
End Sub
```