

```
' FILE: frmServer
' DATE: 5/18/02
' AUTH: cwk
' DESC: Tele-control of Cye Robot (modified from tcpServer by P. Oh)
```

```
Option Explicit
Private Declare Function Out8255 Lib "8255.dll" (ByVal PortAddress As Integer, ByVal
PortData As Integer) As Integer
Private Declare Function In8255 Lib "8255.dll" (ByVal PortAddress As Integer) As
Integer
```

```
Dim currentHead As Double
Dim port As Integer
Dim direction As Integer
Dim SI As Integer
Dim dummy As Integer
Dim degPerStep As Integer
Dim currentCamAngle As Integer
```

```
Private Sub cmdEnd_Click()
End
End Sub
```

```
Private Sub cmdReset_Click()
'CyeCom1.SetPosition 0, 0
txtCurrPosX.Text = "0"
txtCurrPosY.Text = "0"
End Sub
```

```
Private Sub cmdResetAng_Click()
currentCamAngle = 0
txtCurrAng.Text = "0"
End Sub
```

```
Private Sub cmdResetHead_Click()
'CyeCom1.Heading = 0
txtCurrHead.Text = "0"
End Sub
```

```
Private Sub cmdStepCCW_Click()
direction = 0
Call stepCamera
End Sub
```

```
Private Sub cmdStepCW_Click()
direction = 8
```

```
Call stepCamera
End Sub
```

```
Private Sub cmdStop_Click()
'CyeCom1.SetWheelVelocities 0, 0
End Sub
```

```
Private Sub Form_Load()
```

```
' Set up local port and wait for connection
tcpServer.LocalPort = 5000
```

```
'initialize robot variables
currentHead = 0
'CyeCom1.SetPosition 0, 0
'CyeCom1.Heading = 0
'CyeCom1.RobotAddress = 4
currentCamAngle = 0
```

```
txtCurrAng.Text = Str(currentCamAngle)
```

```
'initialize 8255 vars
port = 608
degPerStep = 3
```

```
txtOutput.Text = "Waiting for connection ..."
```

```
Call tcpServer.Listen
End Sub
```

```
Private Sub Form_Terminate()
Call tcpServer.Close
End Sub
```

```
Private Sub tcpServer_Close()
Call tcpServer.Close ' client closed, server should too
txtOutput.Text = txtOutput.Text & "Client closed connection." & vbCrLf & vbCrLf
txtOutput.SelStart = Len(txtOutput.Text)
Call tcpServer.Listen ' listen for next connection
End Sub
```

```
Private Sub tcpServer_ConnectionRequest(ByVal requestID As Long)
' Ensure that tcpServer is closed
' before accepting a new connection
If tcpServer.State <> sckClosed Then
Call tcpServer.Close
End If
Call tcpServer.Accept(requestID) ' accept connection
```

```

' Display following message on server application:
txtOutput.Text = "The connection from IP Address: " & _
tcpServer.RemoteHostIP & " is successful" & vbCrLf & _
"Port #: " & tcpServer.RemotePort & vbCrLf & vbCrLf
End Sub
Private Sub tcpServer_DataArrival(ByVal bytesTotal As Long)
Dim message As String
Call tcpServer.GetData(message) ' get data from client
'send data to parseString routine to control robot and camera
Call parseString(message)
End Sub
Private Sub tcpServer_Error(ByVal Number As Integer, Description As String, ByVal
Scode As Long, ByVal Source As String, ByVal HelpFile As String, ByVal HelpContext
As Long, CancelDisplay As Boolean)
Dim result As Integer
result = MsgBox(Source & ": " & Description, _
vbOKOnly, "TCP/IP Error")
End
End Sub

```

```

Public Sub cyeUpdate(x As String, y As String)

```

```

'control robot, only allows robot to move forward, otherwise sets wheel velocities to 0

```

```

If y = "0" And x = "0" Then
    currentHead = currentHead + 0.5
    'CyeCom1.MoveDirection 50, currentHead
ElseIf y = "0" And x = "1" Then
    'CyeCom1.MoveDirection 50, currentHead
ElseIf y = "0" And x = "2" Then
    currentHead = currentHead - 0.5
    'CyeCom1.MoveDirection 50, currentHead
Else
    'CyeCom1.SetWheelVelocities 0, 0
End If

```

```

txtCurrHead.Text = Str(currentHead)

```

```

End Sub

```

```

Public Sub parseString(S As String)

```

```

Dim prs As String
Dim loc As Integer
Dim length As Integer

```

```
Dim xVal As String
Dim yVal As String
Dim aVal As String
Dim dVal As String

'if timer is not enabled, enable it

If Timer1.Enabled = False Then
    Timer1.Enabled = True
End If

length = Len(S)

'get letter after x
loc = InStr(S, "x")
xVal = Mid$(S, loc + 1, 1)

'get letter after y
loc = InStr(S, "y")
yVal = Mid$(S, loc + 1, 1)

'get letter after a
loc = InStr(S, "a")
aVal = Mid$(S, loc + 1, 1)

'get letter after d
loc = InStr(S, "d")
dVal = Mid$(S, loc + 1, 1)

'update robot position

Call cyeUpdate(xVal, yVal)

'step camera, CW for button a + CCW for button d

If aVal = "1" Then
    direction = 8
    Call stepCamera
```

End If

```
If dVal = "1" Then
    direction = 0
    Call stepCamera
End If
```

'TO DO: get letter after next set in case of multiple commands

```
'loc = InStr(loc + 1, S, "b")
```

```
'txtLoc2.Text = Mid$(S, loc + 1, 1)
```

End Sub

```
Public Sub stepCamera()
```

```
    SI = 4
```

```
    dummy = Out8255(port, direction + SI)
```

```
    'wait some fixed time
```

```
    For dummy = 0 To dummy = 1000
```

```
    Next
```

```
    SI = 0
```

```
    dummy = Out8255(port, SI + direction)
```

```
    If direction = 0 Then
        currentCamAngle = currentCamAngle - degPerStep
```

```
    ElseIf direction = 8 Then
        currentCamAngle = currentCamAngle + degPerStep
```

```
    End If
```

```
    txtCurrAng.Text = Str(currentCamAngle)
```

End Sub

```
Private Sub Timer1_Timer()
```

```
    'periodically send current heading + camera angle to client, and update x + y position text boxes
```

Dim send As String

send = "d" & Str(currentHead) & "c" & Str(currentCamAngle) & "e"

Call tcpServer.SendData(send)

'txtCurrPosX.Text = Str(CyeCom1.x)

'txtCurrPosY.Text = Str(CyeCom1.y)

End Sub