Robot Client

ActiveX/COM

Developer Object

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Contents

Introduction

This document defines the Robot Client Attributes categorized as follows:

- **Properties**
- **Methods**
- **Events**

Properties

Confgure Ports (Values from 0 to 23)

The following properties are to permit configuration updates to the Server. These changes to the Port, Device and Type are executed by call the UpdateSettings Method.

- Ports (port#) [0 to 23]
- Device (Dev#) [1 to 127]
- Device Type (Type#) [0=Servo, 1=Switch, 2=Sensor]

New_Port1 Return Int
New_Port2 Return Int
New_Port3 Return Int
New_Port4 Return Int
New_Port5 Return Int
New_Port6 Return Int
New_Port7 Return Int
New_Port8 Return Int
New_Port9 Return Int
New_Port10 Return Int
New_Port11 Return Int
New_Port12 Return Int
New_Port13 Return Int
New_Port14 Return Int
New_Port15 Return Int
New_Port16 Return Int
New_Port17 Return Int
New_Port18 Return Int
New_Port19 Return Int
New_Port20 Return Int
New_Port21 Return Int
New_Port22 Return Int
New_Port23 Return Int
New_Port24 Return Int

Configure Device# (Values from 0 to 127)

New_Dev1 Return Int
New_Dev2 Return Int
New_Dev3 Return Int
New_Dev4 Return Int
New_Dev5 Return Int
New_Dev6 Return Int
New_Dev7 Return Int
New_Dev8 Return Int
New_Dev9 Return Int
New_Dev10 Return Int
New_Dev11 Return Int
New_Dev12 Return Int
New_Dev13 Return Int
New_Dev14 Return Int
New_Dev15 Return Int
New_Dev16 Return Int
New_Dev17 Return Int
New_Dev18 Return Int
New_Dev19 Return Int
New_Dev20 Return Int
New_Dev21 Return Int
New_Dev22 Return Int
New_Dev23 Return Int
New_Dev24 Return Int

Configure Device Type (Values : 0-Servo, 1-Switch, Sensor 2)

New_Type1 Return Int
New_Type2 Return Int
New_Type3 Return Int
New_Type4 Return Int
New_Type5 Return Int
New_Type6 Return Int
New_Type7 Return Int
New_Type8 Return Int
New_Type9 Return Int
New_Type10 Return Int
New_Type11 Return Int
New_Type12 Return Int
New_Type13 Return Int
New_Type14 Return Int
New_Type15 Return Int
New_Type16 Return Int
New_Type17 Return Int
New_Type18 Return Int
New_Type19 Return Int
New_Type20 Return Int
New_Type21 Return Int
New_Type22 Return Int
New_Type23 Return Int
New_Type24 Return Int

Configure TCP/IP and Joystick Attributes

Name
TCP_Delay Return Long

Description
Set TCP Delay for Client. Leave at default

Name
TCP_Manager_Limit Return Int

Description
Set New maximum users to login Into Manager Service

Name
TCP_Manager_IP Return Char

Description
Set Manager IP to connect

Name
TCP_Manager_Port Return Long

Description
Set new Manager Port

Name
TCP_Manager_Password Return Char

Description
Set new Password for Manager Service

Name
Password Return Char

Description
Set Password to connect to Server

Name
TCPAckClient Return Boolean

Description
Verify User connected if set to True. Now obsolete as managed under TCPSecure property

Name

RemoteIP Return Char

Description

Set Client Remote connection IP

Name

RemotePort Return Long

Description

Set Client remote connection Port

Name

TCPSecure Return Boolean

Description

Set Client to Secure TCP connections only if set to True

Name

TCP_Manager_Secure Return Boolean

Description

Set Manager to Secure TCP connections only if set to True

Name

JoystickPort Return Long

Description

Sets the JoyStick Port#

Name

JoystickStatus Return Boolean

Description

States if the Joystick is active and present (Default=False)

Name

ImageArchive Return Boolean

Description

When set to True allows Date/Time stamp postfix on Image Filename(Default=False)

Name
Jpeg2BMP Return Boolean

Description
When set to True implicitly changes a Jpeg into a BMP image (Default=False)

Name
Jpeg_Flip_Image_180 Return Boolean

Description
When set to True rotates a BMP 180 Degrees, applicable when Jpeg_Active = True on Server and JPG2BMP are True. (Default=True)

Name
BMP_Flip_Image_180 Return Boolean

Description
Flip the Camera Image 180 Deg , applicable when Jpeg_Active is False. Default is False

Name
DetectObject Return Boolean

Description
Enable Object Detection and Tracking. Default is False

Name
DetectXaxis Return Int

Description
Return X-Axis value [0 to 7]. Default is -1

Name
DetectYaxis Return Int

Description
Return Y-Axis value [0 to 7]. Default is -1

Name
Detect_Threshhold_Lower Return Int

Description
Set the lower detection variance. Default is 32

Name
Detect_Threshhold_Upper Return Int

Description
Set the upper detection variance. Default is 255

Name
DetectionTotal Return Long

Description
Returns the number of Sectors that detected an Object. Default is 0

Name
DetectMaxThreshold Return Long

Description
Returns the Max Threshold reached by a foreign Object. Default is 0

Name
FilterAmbientLight Return Boolean

Description
Enable filter to compensate for Ambient light. Default is False

Name
ImageFilePath Return Char

Description
File Path where Camera images are saved. Default is current path Application is launched

Name
DetectXSectors Return Int

Description
Set/Return the number of X Sectors. Default is 8

Name
DetectYSectors Return Int

Description
Set/Return the number of Y Sectors. Default is 8

Name

ResetCameraAfterJPG Return Boolean

Description

Reset Camera after a Jpeg is retrieved if set to True. Default is False

Name

RotateImageArray Return Int

Description

Camera Image is Rotated RotateImageArray Degrees. If RotateImageArray =0 then Image is unchanged(Default = 0)

Methods

Name
SendPasswordostr()

Description
Send logins password. Obsolete

Name
RequestImage(Int Resolution, Long Packetsize, Int Jpegcompression, Int ColourDepth1)

Description
Send request message to Server to receive Camera image, Resolution = [1,3,5,7,8,9,16,17] {Low to High} using Packetsize = [64 .. 2048]. Jpegcompression [0..9] only applicable when set to Jpeg Image type. ColourDepth1 =[1 to 6] only applicable when Jpeg_Active = False on Server ActiveX

Name
RunExtScript(Int strValuePassed)

Description
Send request message to Server to Run External Script

Name
RunIntScript(Int strValuePassed)

Description
Send request message to Server to Run Internal Script

Name

SensorReqistr(Char strValuePassed) Return Int

Description

Parse returned sensor message to return sensor value as numeric. **Redundant** as PortDataArrived Event returns the sensor value. You can only use this method in the DataArrived Event

Name

SensorRequest(Int pval)

Description

Send request message to Server to Run retrieve Sensor Value

Name

ServoMove(Int pval, Int dval)

Description

Send request message to Server to move servo

Name

SetMultiServoPos(Int devnum , Int servomax, Int startport, Long sp1, Long sp2, Long sp3, Long sp4, Long sp5, Long sp6, , Long sp7, Long sp8, Long sp9, Long sp10, Long sp11, Long sp12)

Description

Set Multiple Servos Positions in one asynchronous move instruction or turn on/off relay switch(s). servomax is the max number of servos to set [1 to 12],startport is the starting servo to move [0 to 23]. sp1 = servo position 1, .. sp12 = servo position 12.

Name

ServoSpeed(Int pval, Int dval)

Description

Send request message to Server to set servo speed

Name

ServoPosistr(Char strValuePassed) Return Int

Description

Parse returned Servo position message to return Servo value as numeric. **Redundant** as PortDataArrived Event returns the sensor value. You can only use this method in the DataArrived Event

Name

ServoPosRequest(Int pval)

Description

Send request message to Server to retrieve Servo current position

Name

SettingsDeviceType(Char strValuePassed, Int devid) Return Char

Description

State the device type (Servo, Sensor or Switch)

Name

SettingsReqMaxDevistr(Char strValuePassed) Return Int

Description

State the maximum Channels

Name

SettingsRequestMaxDev()

Description

Send message request to query Max Channels configured on controller

Name

SettingsRequest()

Description

Send message request to settings on controller

Name

StopExtScript()

Description

Send message request to stop external script

Name

StopIntScript()

Description

Send message request to stop Internal script

Name
SwitchOff(pval (Int)

Description
Send message request to turn off Switch

Name
SwitchOn(pval (Int)

Description
Send message request to turn on switch

Name
UpdateSettings(Char setstr)

Description
Send message to update settings on controller

Name
TCPConnect()

Description
Connect Client to Server

Name
TCPDisconnect()

Description
Disconnect Client from Server

Name
TCP_Manager_Connect()

Description
Connect Client to Server Manager

Name
TCP_Manager_Disconnect()

Description
Disconnect Client from Server Manager

Name

TCP_Manager_Change_Port(Long server_port)

Description

Send message to request change of Server TCP Port

Name

TCP_Manager_Change_Password(Char server_password)

Description

Send message to request change of Server Password

Name

TCP_Manager_Stop_Server()

Description

Send message to request Server to be Stopped

Name

TCP_Manager_Start_Server()

Description

Send message to request Server to Start

Name

TCP_Manager_Change_Script1(Char scriptname)

Description

Send message to request script1 name change on Server

Name

TCP_Manager_Change_Script2(Char scriptname)

Description

Send message to request script2 name change on Server

Name

TCP_Manager_Change_Script3(Char scriptname)

Description

Send message to request script3 name change on Server

Name

TCP_Manager_Change_Script4(Char scriptname)

Description

Send message to request script4 name change on Server

Name

TCP_Manager_Change_Script5(Char scriptname)

Description

Send message to request script5 name change on Server

Name

TCP_Manager_Change_Script6(Char scriptname)

Description

Send message to request script6 name change on Server

Name

TCP_Manager_Change_Limit(Int server_limit)

Description

Send message to request user limit change on Server

Name

TCP_Manager_Change_Com_Port(Int server_serial_comport)

Description

Send message to request change of Serial Com Port

Name

TCP_Manager_Close_Com_Port()

Description

Send message to request change TCP Port

Name

TCP_Manager_Open_Com_Port()

Description

Send message to request open of Serial Com Port

Name

Generate_Settings_Update_Str(Int ports) Return Char

Description

Generate Update Settings Message

Name

Extra_Command_Output(Int data1, Long data2)

Description

Send message to execute Extra Command Output event on Server

Name

Extra_Command_Update(Int data1, Char data2)

Description

Send message to execute Extra Command Update event on Server

Name

Extra_Command_Image_Send ()

Description

Send message to Request Image from Server

Name

JoystickStart

Description

Starts Joystick listener if Joystick present at JoystickPort

Name

JoystickStop

Description

Stops Joystick listener

Name

DetectCameraImage(Int ResData1, Long Packetsize1,Int Jpegcompression1, Int ColourDepth1)

Description

Detect Object and return the coordinate in DetectXaxis and DetectYaxis properties. ResData1=[1,3,5,7,8,9,11,16,17], PacketSize=[256 to 2048], Jpegcompression1 =[0 to 9], ColourDepth1=[1 to 6]. This method is only applicable when either Jpeg_Active = False on Server ActiveX or Jpeg2Bmpmust be True if Jpeg_Active = True on Server ActiveX. You must initiate RequestImage prior to calling this Method and DetectObject = True for this method to function

DigitalZoom(Int SectorX, Int SectorY)

Description

The picture is divided up into 16 sectors and by selecting a coordinate by using SectorX=1 to 4 and SectorY=1 to 4 you can zoom in 16x into that particular Sector. You must capture an image where the resultant output is a BitMap prior to using this Method

DigitalZoomAdjust(Int SectorX, Int SectorY, Int Zoom)

Description

The picture is divided up into Zoom sectors and by selecting a coordinate by using SectorX=1 to $Zoom^{1/2}$ and SectorY=1 to $Zoom^{1/2}$ you can zoom in Zoom times into that particular Sector. You must capture an image where the resultant output is a BitMap prior to using this Method

ObjectDetectInSector(Int Xcoord, Int Ycoord) Return Boolean

Description

Return True if Object detected at the Coordinate. Xccord= 0 to DetectXSectors-1, Ycoord = 0 to DetectYSectors-1

ObjectVarianceInSector (Int Xcoord, Int Ycoord) Return Long

Description

Return the Variance Threshold at the Coordinate. Xccord= 0 to DetectXSectors-1, Ycoord = 0 to DetectYSectors-1

Name

RotateImage (Int Angle)

Description

Rotate Captured image by Angle(0 to 360) Degrees and fires RotateImage Event. Made obsolete to new property RotateImageArray which modifies the Image array and the rotated image is returned in the ImageFileReceived event

Events

Name
ManagerConnecting(Char msg1)

Description
Manager user connecting

Name
ManagerConnected(Char msg1)

Description
Manager user connected

Name
DataArrived(Char buff1)

Description
Data arrived from Server

Name
SecurityValidated(Char msg1)

Description
Secure user passed TCP handshake

Name
PasswordVerified(Char msg1)

Description
User logged onto Server

Name
Rejected(Char msg1)

Description
User connected rejected

Name
Disconnected(Char msg1)

Description
User disconnected from Server

Name

PortDataArrived(Int Data1)

Description

Servo Position or Sensor Input arrived

Name

ConfigurationArrived(Char configstr)

Description

Controller configuration settings arrived

Name

MaxDevArrived(Int devmax)

Description

Maximum Channel Limit arrived

Name

ImageFileIncoming(Char imagebufferjustreceived, Long image_buffer_received, Long image_total_file_size)

Description

Camera Image file arrived

Name

ImageFileReceived(Char filename, Char imagebuffer)

Description

Camera Image file arrived

Name

ImageFileNotReceived()

Description

Camera Image file Not received

Name

ImageFileReceivedwithError(Char filename, Char imagebuffer)

Description

Camera Image file arrived with errors

Name

Connected(Char msg1, Char ipst)

Description

New User Connected

Name

JoystickTriggered(Long xaxis, Long yaxis , Long zaxis , Integer button)

Description

Joystick movement or Button fires the JoystickTriggered event to provide the movement and button pressed

Name

ExtraCommandImageSend (Char msg1)

Description

Returns the image data requested from Extra_Command_Image_Send

Name

Event ImageDetectionArrived(int xaxis, int yaxis, Long ThreshMax, Long DetectedTotal)

Description

Event fires after DetectCameraImage . xaxis = 0 to DetectXSectors -1, yaxis = 0 to DetectYSectors -1

Name

Event DigitalZoomCompleted(FileName Char)

Description

Event fires after DigitalZoom or DigitalZoomAdjust is completed

Name

Event DigitalZoomStatus(StatusError Int, StatusMsg Char)

Description

Event fires after DigitalZoom or DigitalZoomAdjust is completed to give the status of a Zoom request

Name

Event RotateImageEvent(RotatedImageName Char)

Description

Event fires after RotateImage is completed to return the name of the rotated image

Startup Example