



Sending data from excel to autocad

Alexandru BABĂ*

University of Pitești, Romania

*Corresponding author e-mail: sandubaba59@yahoo.com

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Abstract: The interaction between Excel and AutoCad using VBA is useful for all engineers who use AutoCad, so in this article I want to show that using VBA in Excel can draw objects in AutoCad. Therefore, by programming in VBA from Excel, you can launch AutoCAD and with the help of a spreadsheet application we transmit the data in AutoCAD to draw objects.

Keywords: VBA Excel, Autocad, Excel and Autocad, VBA Excel Documentation, Link Excel to Autocad using VBA

1. Introduction

In the design activity, engineers using Autocad must integrate the power of Microsoft Excel through a programming concept necessary for connecting and exchanging data between the two products through VBA Excel or VBA Autocad.

To connect Excel to Autocad we must first launch Excel, then VBA Excel and from Tools / References select Autocad objects to use together with their properties in our VBA code.

The following code is also used to open Autocad using Excel VBA:

```
Sub Opendwg ()
    Dim acadApp As Object
    Dim acadDoc As Object
    'Check if AutoCAD application is open. If is not opened create a new
    'instance and make it visible.
    Set acadApp = GetObject(, "AutoCAD.Application")
    Set acadDoc = acadApp.ActiveDocument
    If acadApp Is Nothing Then
        Set acadApp = CreateObject("AutoCAD.Application")
        acadApp.Visible = True
    End If
End sub
```

2. Sending data from Excel to AutoCAD

The problem is whether you can draw the outline of an object (part) in AutoCad using the coordinates in an Excel file. In other words, we have an Excel file that contains the point coordinates (x, y) and we want to join them by lines or by a polyline, to create the profile of the part in 2D.

	A	B
1	numar_rand1,numar_coloana1	numar_rand1,numar_coloana2
2	numar_rand2,numar_coloana1	numar_rand2,numar_coloana2
3		
4		

Figure 1. Excel sheet containing the coordinates of the line

The general code for sending data to Autocad, in order to draw a line in ModelSpace, is:

```
Public Sub DesenareLinie()          'Start LineDraw macro
'Declaring variables
Dim Line As Acad Line 'declares Line Oject

'The matrices that will hold the two points that define the line are declared.

Dim StartLine (0 to 2) As Double 'is declared the starting point of the line
Dim EndLine (0 to 2) As Double 'is declared the end point of the line

'The coordinate values in the spreadsheet are assigned to
'the StartLine and EndLine matrices, see Fig.1

StartLine (0) = Cells (row_number1, column_number1) .Value
StartLine (1) = Cells (row_number1, column_number2) .Value

EndLine (0) = Cells (row_number2, column_number1) .Value
EndLine (1) = Cells (row_number2, column_number2) .Value

'Draw the line in ModelSpace
Set Line = AutoCad.Application.ActiveDocument.ModelSpace.AddLine (StartLine,
EndLine)

'The DrawAutoCADLine macro is terminated
End Sub
```

	A	B	C	D	E	F
1		X	Y			
2	StartLine	10	20			
3	EndLine	40	50			
4						
5						
6						

Figure 2. Example of an Excel sheet containing the coordinates of the line

Example of assigning the coordinates from the spreadsheet of the StartLine and EndLine matrices, (see Fig.2):

```
StartLine(0) = Cells(2, 2).Value
StartLine(1) = Cells(2, 3).Value
```

```
EndLine(0) = Cells(3, 2).Value
EndLine(1) = Cells(3, 3).Value
```

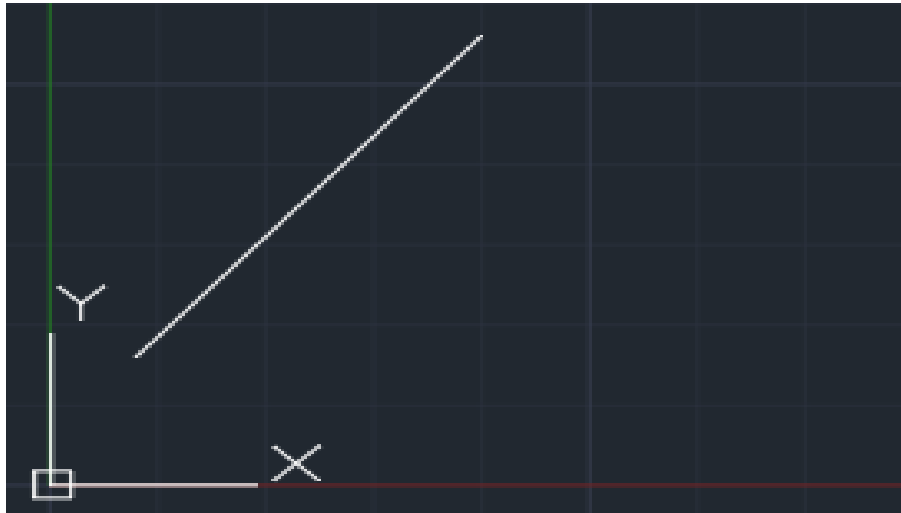


Figure 3. Running Macro DrawingLine ()

	A	B	C	D	E
1	Cerc	X	Y	Raza	
2	O	10	10	5	
3					
4					
5					

Figure 4. Example of an Excel sheet containing the coordinates of the circle

The general code for sending data to Autocad, in order to draw a circle in ModelSpace, is:

```
Sub DesenareCerc()
  'Declare variables
  Dim Cerc As AcadCircle 'Circle Object
  Dim Centru (0 To 2) As Double 'Center of the circle
  Dim Raza As Double 'Radius of the circle
  'Create a circle using data from an Excel sheet
  'Assign the coordinate values from the spreadsheet: Radius, Center (see Fig.4)
  Raza = Cells(2,4).Value
```

```

Centru (0) = Cells (2, 2) .Value
Centru (1) = Cells (2, 3) .Value

'Draw a circle
Set Cerc = Acad.Application.ActiveDocument.ModelSpace.AddCircle (Center, Radius)
End Sub

```

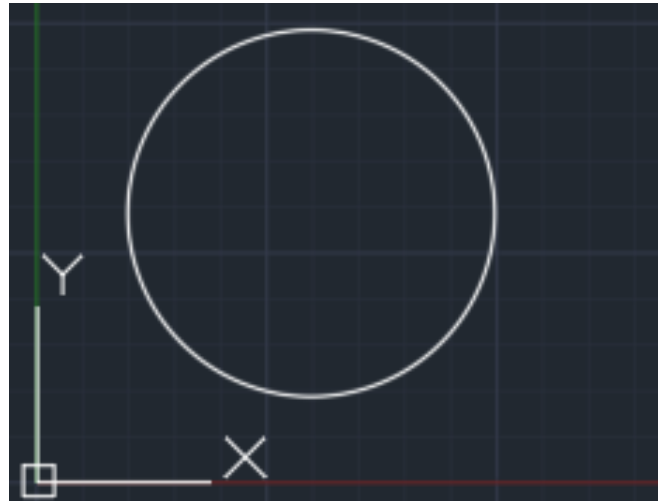


Figure 5. Macro run DesenareCerc()

Proposed example: Let be an Excel sheet with the coordinates of a piece (see Fig. 6). Using a VBA Excel CrearePiesa(), procedure, pass the data from the Excel sheet to Autocad to draw the part.

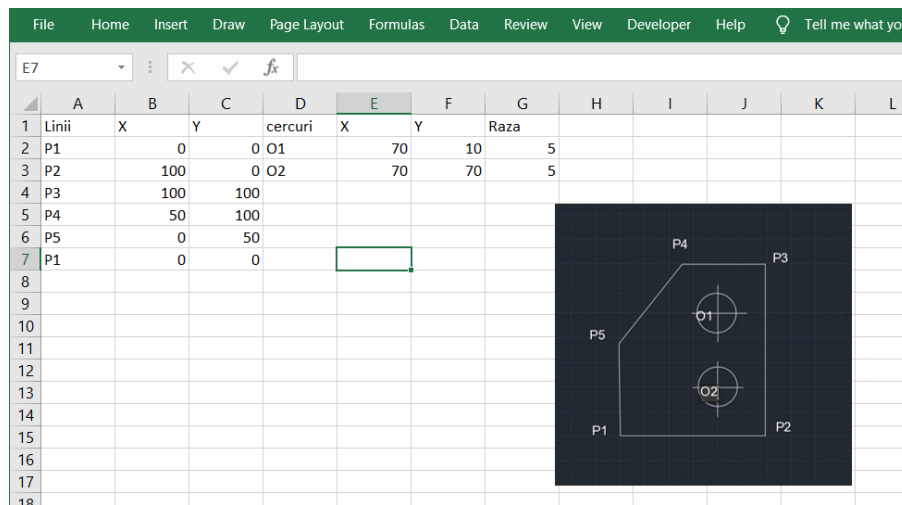


Figure 6. Excel sheet with the coordinates of the piece

Pseudocode of the procedure:

```

Procedure CrearePiesa()
Line de tip Acad Line
StartPoint, EndPoint de tip Double
Integer Row 'Count the row in Excel
' Variable declaration for circles
Cerc type AcadCircle ' Circle object
Centru type Double 'The center of the circle
Raza type Double ' Circle's radius
Coloana type Double intreg 'Count the column in Excel
'For drawing lines
For Rand = 2 to 7 executes

```

```

Assigns coordinate values from the spreadsheet to the StartPoint matrix
Assigns coordinate values from the spreadsheet to the EndPoint matrix
Draw the line
Next (Rand)
,For drawing circles
For Rand = 2 to 3 Executes
For Column = 5 to 6 Executes
The coordinate values in the Center spreadsheet are assigned
Next (Column)
`The coordinate values in the Radius spreadsheet are assigned
Draw a circle
Next (Column)
End of procedure
VBA Code:
Private CreatePiesa()
`Declaring variables
Dim Line As AcadLine
Dim StartPoint(0 To 2) As Double
Dim StartPoin (0 To 2) As Double
Dim Rand As Integer
Dim Cerc As AcadCircle
Dim Centru(0 To 2) As Double
Dim Raza AS Double
Coloana As Integer
`For drawing lines
For rand = 2 To 7
` Assigns coordinate values from the spreadsheet to the matrix
StartPoin, EndPoin
StartPoint t(0) = Sheet1.Cells(Rand, 2).Value
StartPoint (1) = Sheet1.Cells(Rand, 3).Value
EndPoint (0) = Sheet1.Cells(Rand + 1,2).Value
EndPoint (1) = Sheet1.Cells(Rand + 1, 3).Value
`For drawing lines
Set Line = AutoCAD.Application.ActiveDocument.ModelSpace.AddLine(StPt, EnPt)
Next(Rand)
,For drawing circles
For Rand = 2 To 3
For Coloana = 5 To 6
`The coordinate values in the spreadsheet are assigned Centru
Centru(Coloana - 1) = Sheet1.Cells(Rand,Coloana).Value
Next(Coloana)
,The coordinate values in the spreadsheet are assigned Raza
Raza = Sheet1.Cells(Rand,7).Value
`Draw a circle
Set Cerc =
autoCad.Application.ActiveDocument.ModelSpace.AddCircle (Centru,Raza)
Next(Rand)
End Sub
Stop

```

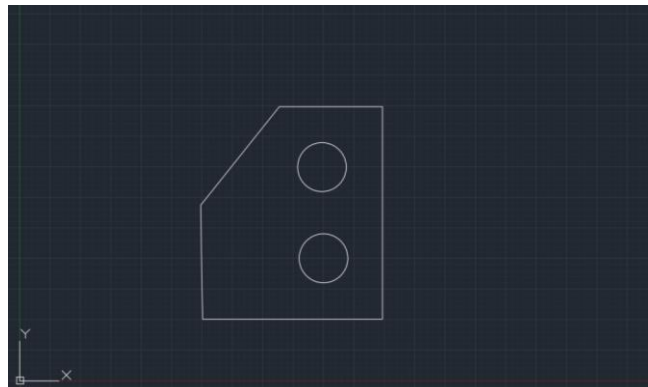


Figure 7. Result after running CreatePiesa macro ()

3. Conclusions

Linking Excel to Autocad using VBA makes it easier for engineers and more. By creating applications we can automate some processes, we can draw objects, we can calculate the cost of a product, we can change the attributes of some blocks, in the case of components of a drawing or entities of an Autocad drawing, we can generate a list of materials, we can apply for profiled bars, screws, nuts, standard or standardized objects, etc

References

- [1] AutoCad 2006 VBA A Programmer's Reference, Joe Sutphin, Editura Aprees, 2006
- [2] <https://vdocuments.mx/autocad-excel-vba-tutorial-558452a84d484.html>
- [3] <https://frfly.wordpress.com/2018/01/28/excel-vba-autocad-basics/>
- [4] <https://drive-cad-with-code.blogspot.com/>