

# **Mobile Architecture & Product Design Lab**

A Practical Approach Experimental Manual  
For (B.Tech & M.Tech Students)

On  
**Laser Cutting Machine**



**Designed & Developed By:** Mr. Bramha S Tripathi, Senior Project Associate, CSE Under the  
**Guidance of:** Dr. SRN Reddy, Associate Professor & HOD, CSE Computer Science &  
Engineering Department

**Indira Gandhi Delhi Technical University for Women  
Kashmere Gate, Delhi-11000**

## **LIST OF EXPERIMENT**

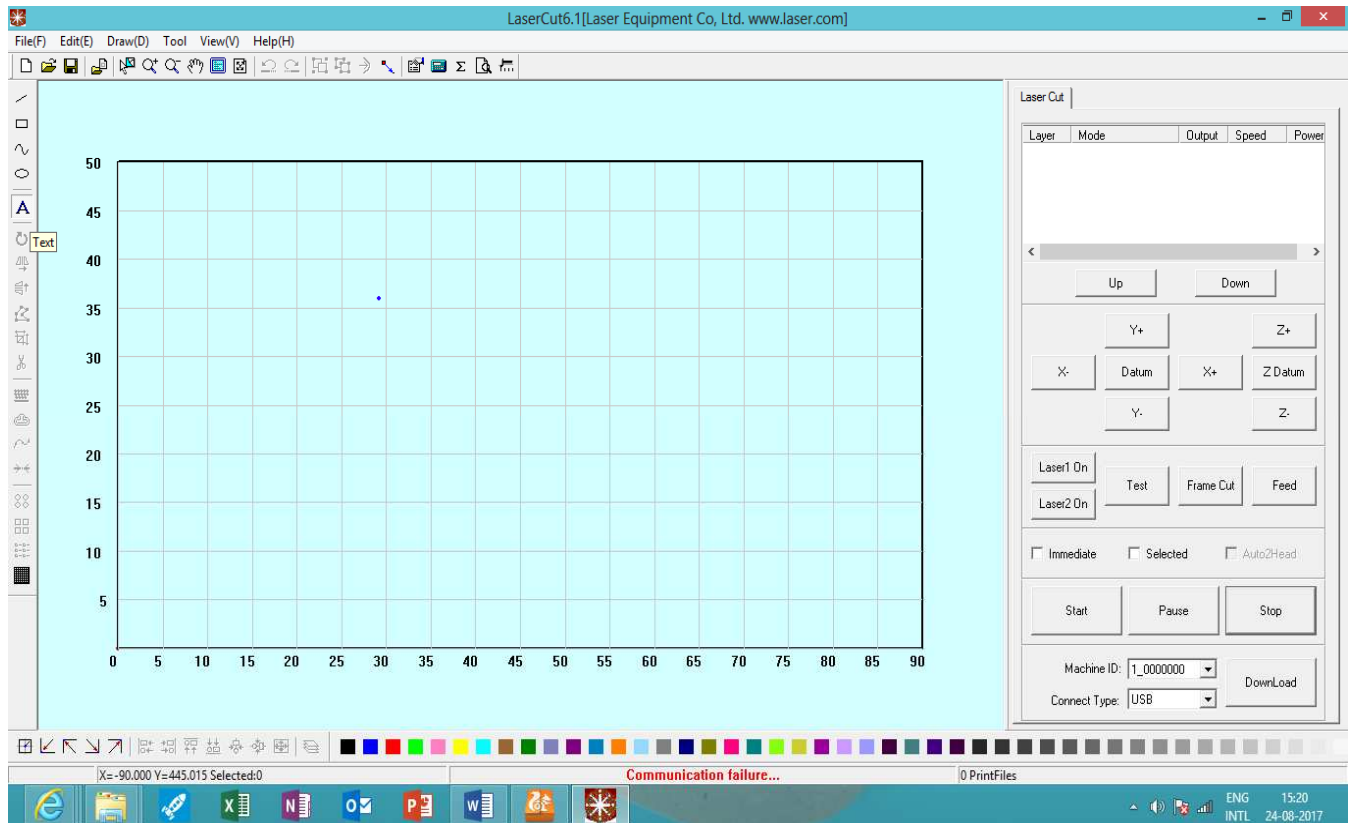
1. Cutting of text design
2. Engrave of text Design
3. Double Layer design (CUT & Engrave)
4. Separate Text inside of Rectangular Box (Cut & Engrave)
5. Cutting, Engrave, Flying cut of Various Design

## EXPERIMENT -1

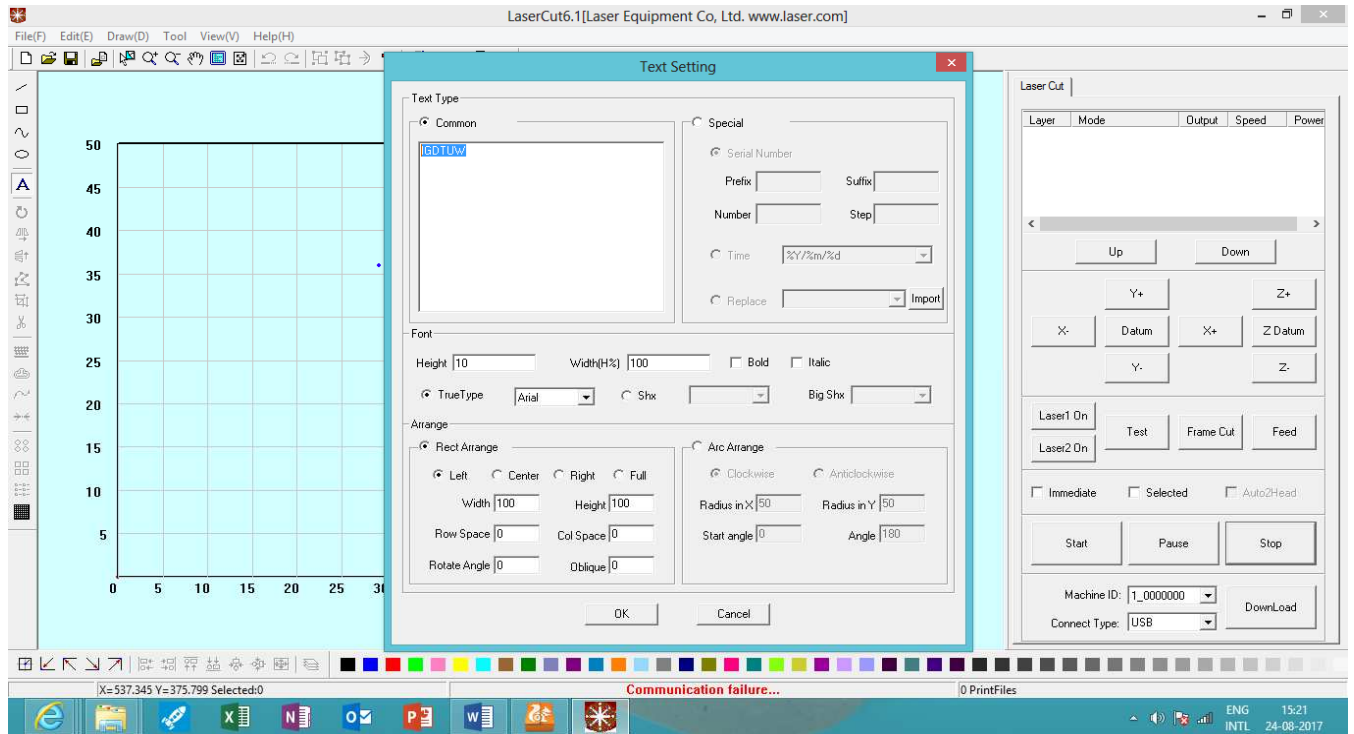
### Cutting of text design

- Step1.** Check all Electrical connections.
- Step2.** Before Start the 3D Machine First on the Chiller and wait for 5 minutes.
- Step3.** Start the Computer.
- Step4.** Pull the Emergency button of 3D machine to start, after 1 minute USB/Dongle connect to the Machine.
- Step5.** Open the Lasercut61 software successfully.  
(If error occur then check the connection of USB cable and change the setting from Computer Device Manager COM3. )
- Step 6.** Prepare your design for printing in machine using different design software(corel Draw etc.) Or Draw the circle / Rectangular or any Object on the space of Lasercut61 Software (40x60) Workspace and select the location/Area of your object as where you want.

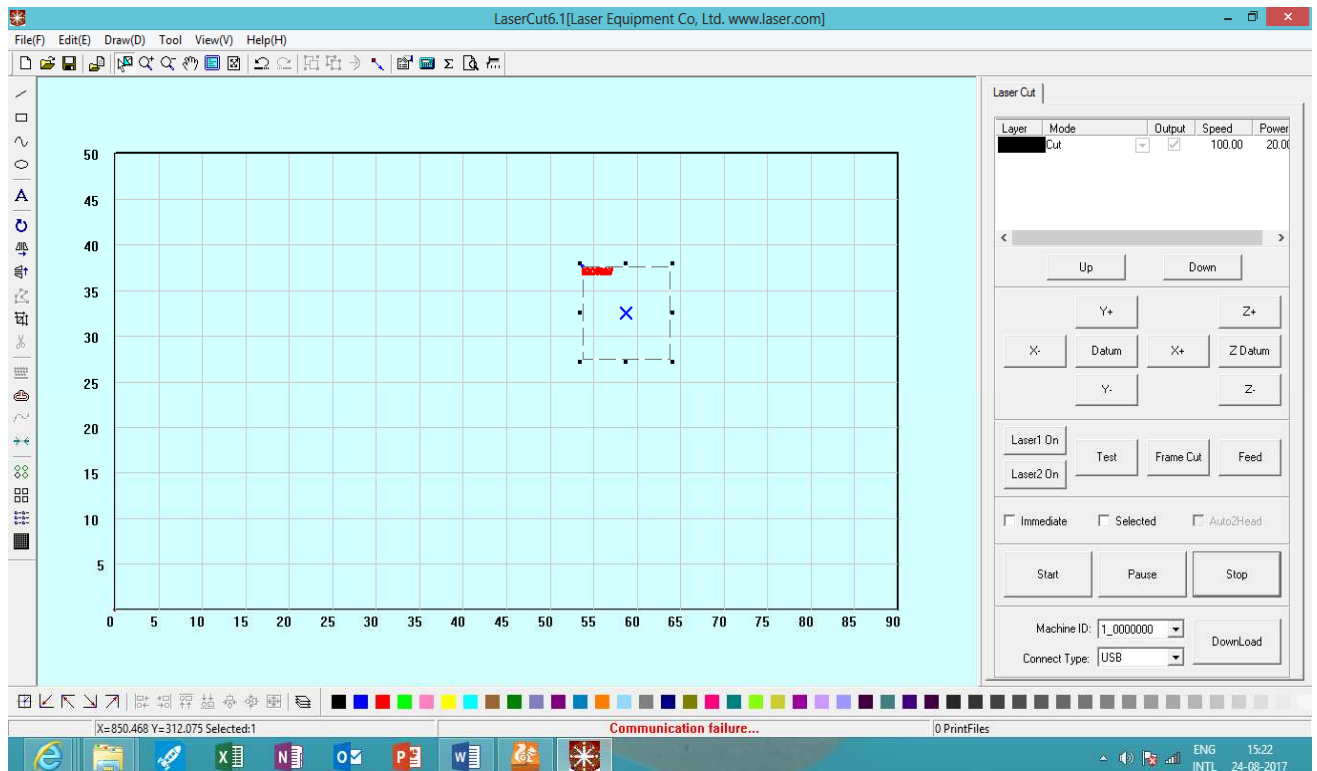
I. Select the object option as shown in below fig.



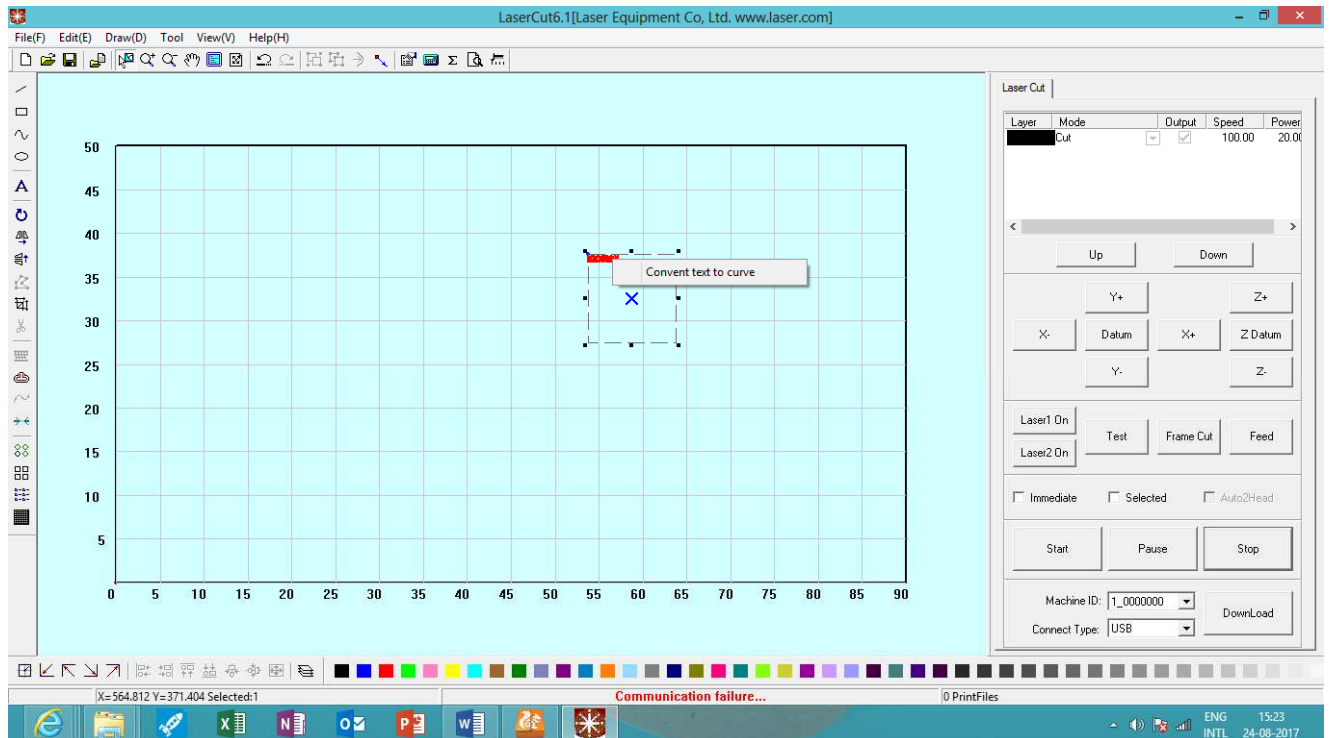
- II. and press the right side of mouse to text on the software platform and click on OK as shown in below fig.



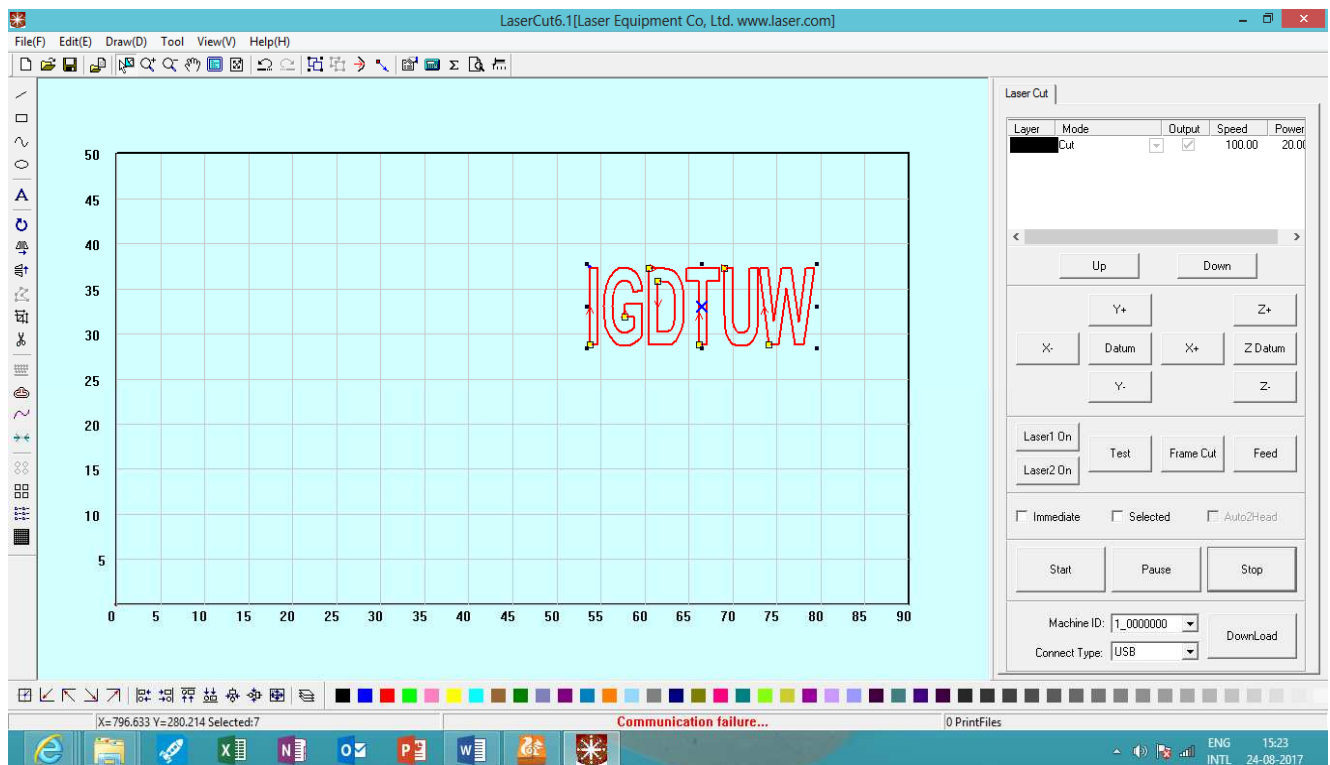
- III. After clicking the OK, the object size showing small see in the below fig.



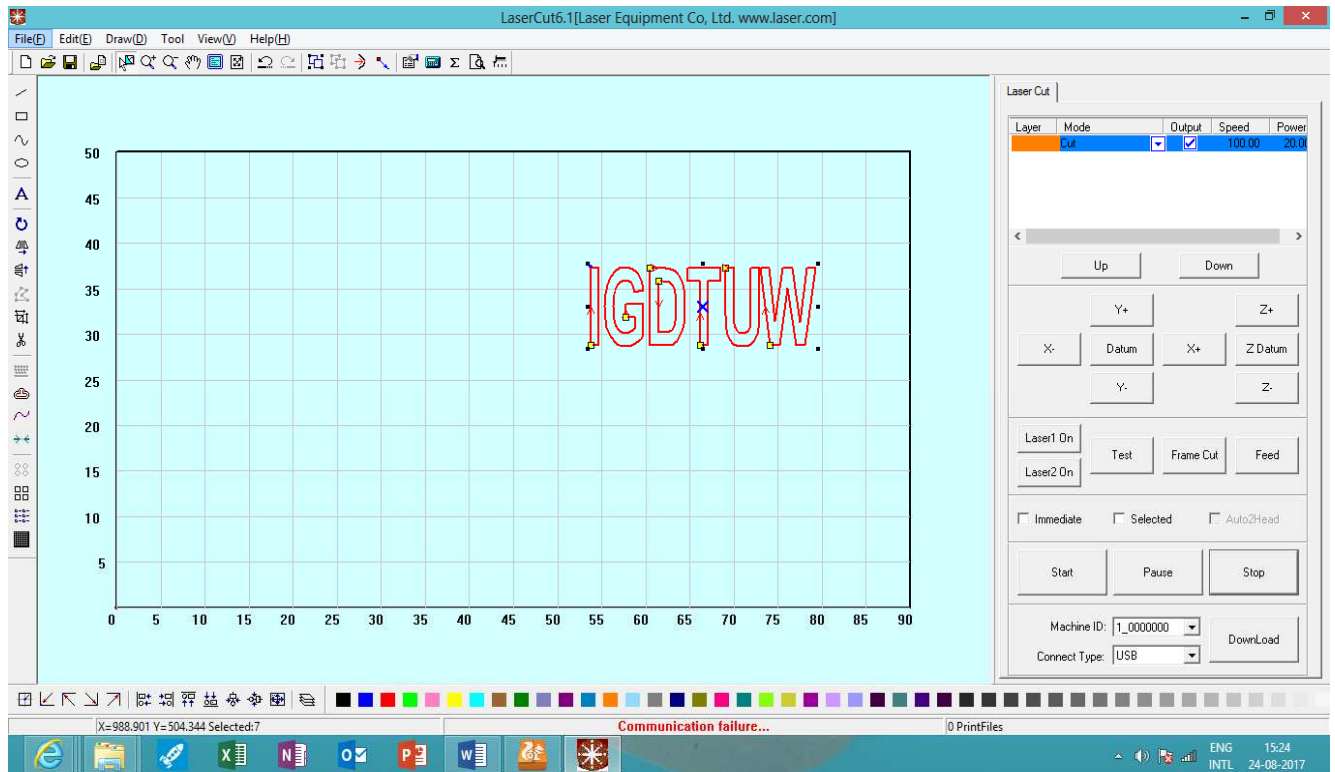
- IV. To click right side of mouse to resize the small text and click on the **convert text to curve**. See in the below fig.



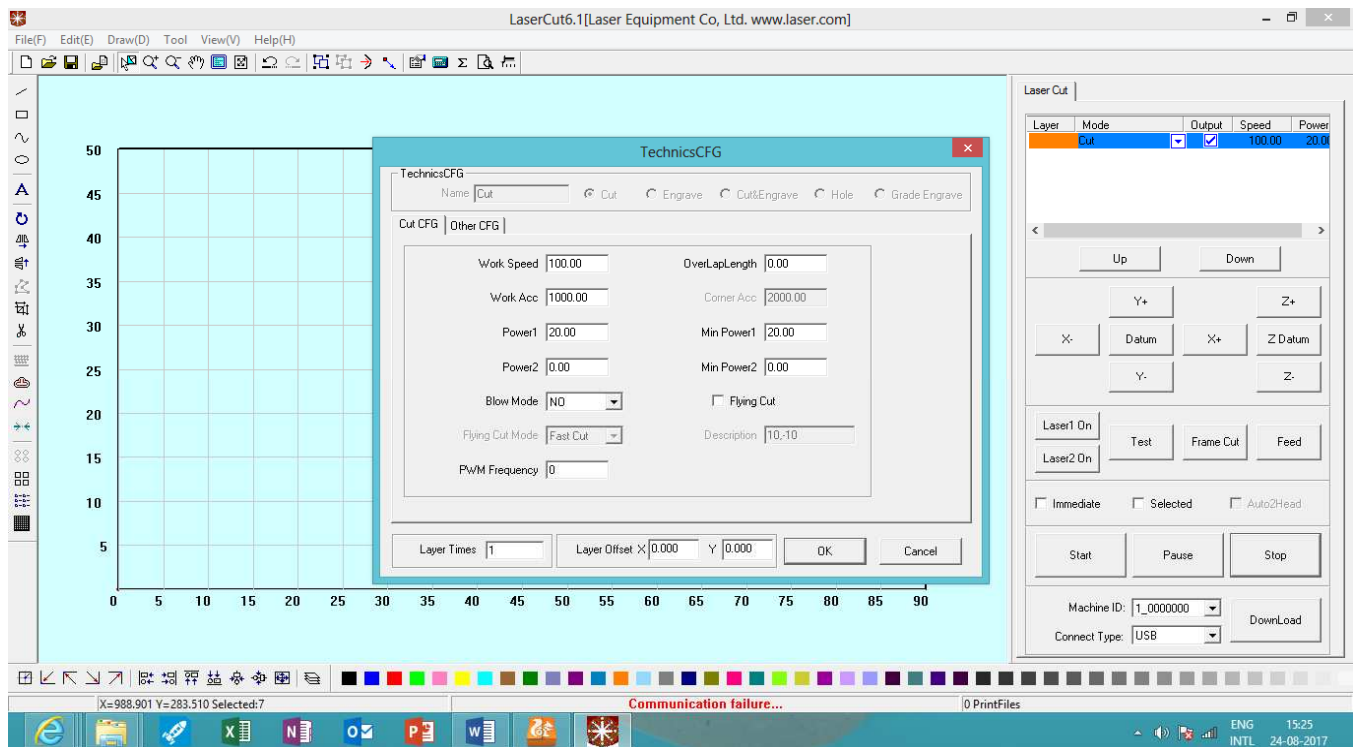
- V. To select the middle point of object and draw as your desirable size. shown in below fig.



- VI. To select the color from given bottom color option for the object in The Right side of given laser cut option. shown below fig.

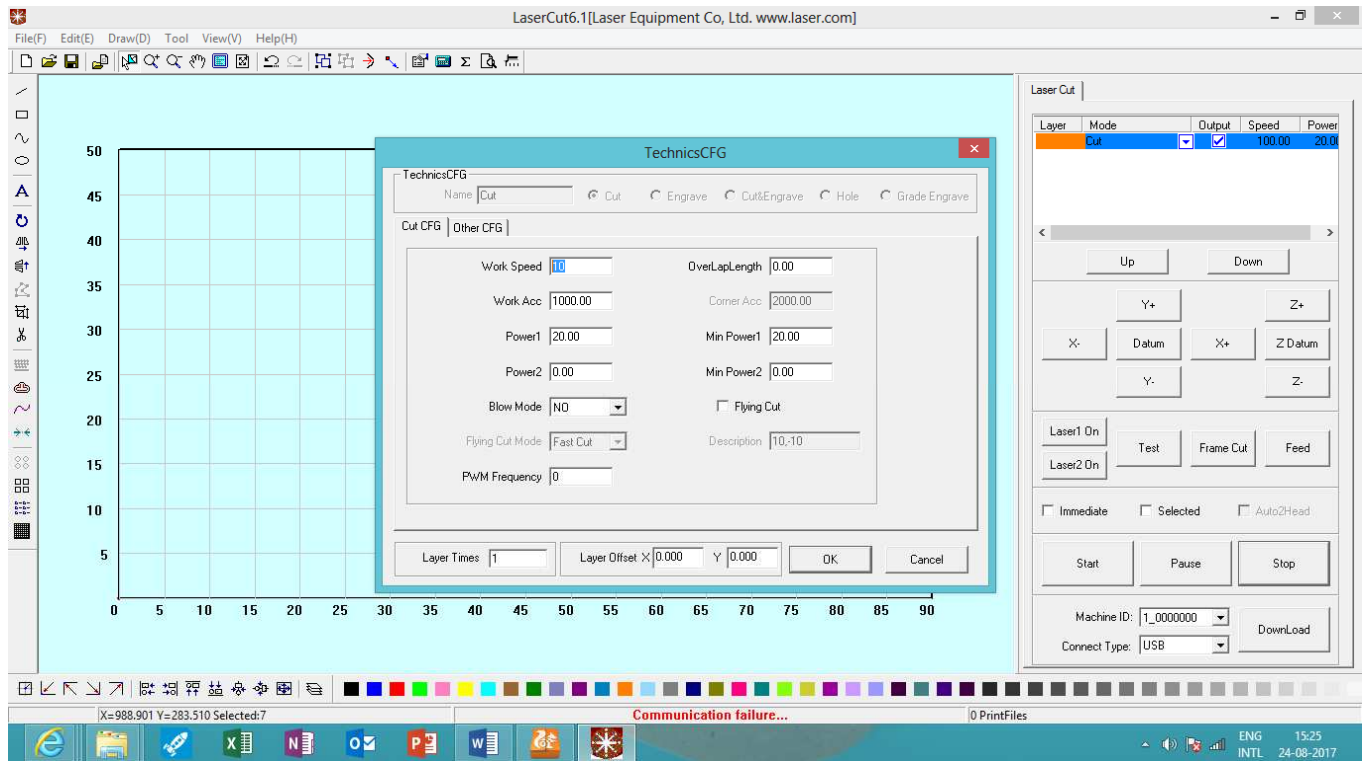


- a. To click on the speed option of the laser cut and set the parameter of the object to cut. shown below fig.





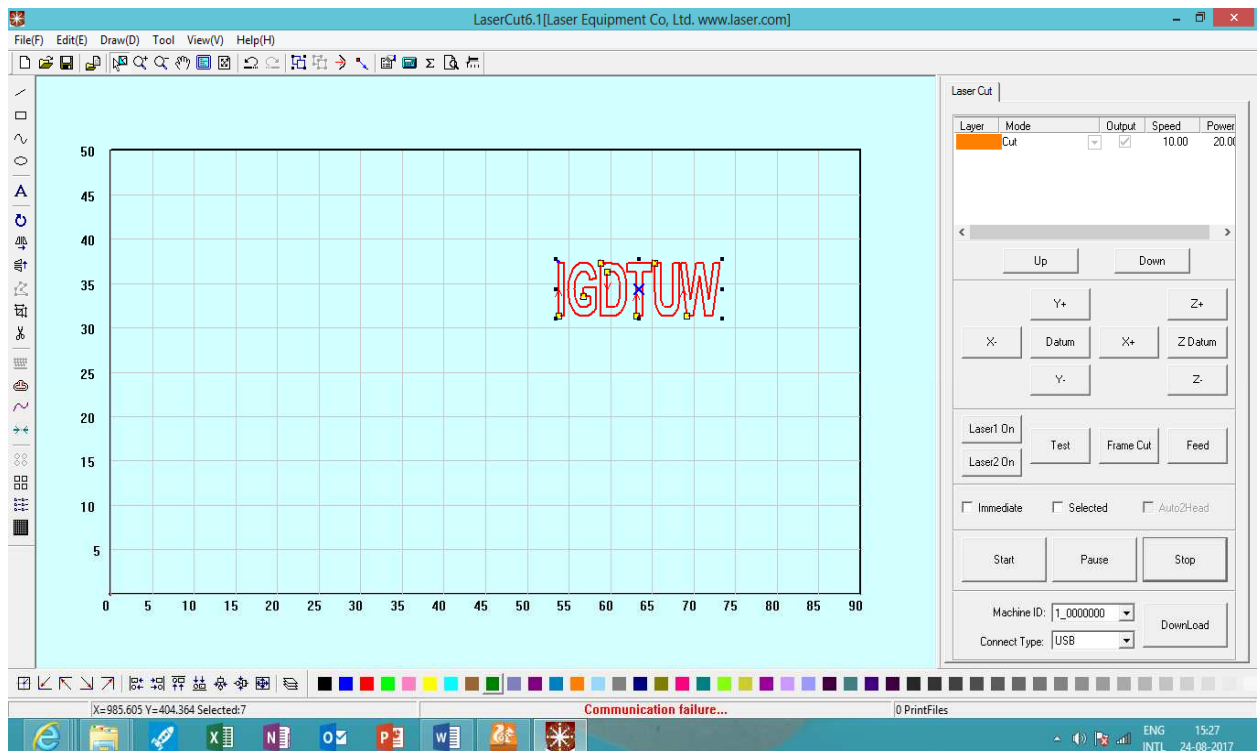
- VII. To set the parameter of the object as Work Speed. It's speed is very according to material.



- Step7.** Keep the rough material on the workspace for measuring the location of Cutting.



**Step8.** Click on **START** after select the object.



**Step 9.** Check on Screen of Machine the object Displayed/detected or not and wait while a Minute. Machine will start to cut the materials. Shown in the fig.





**Step10.** If you want to PAUSE the process then press the PAUSE Button on computer / on Machine key board and again want to start from there then press **START Button**.



**Step11.** If you want to stop the process then press **STOP** Button and create New object and Press **START** button.

**RESULT :-**



### Turn Off

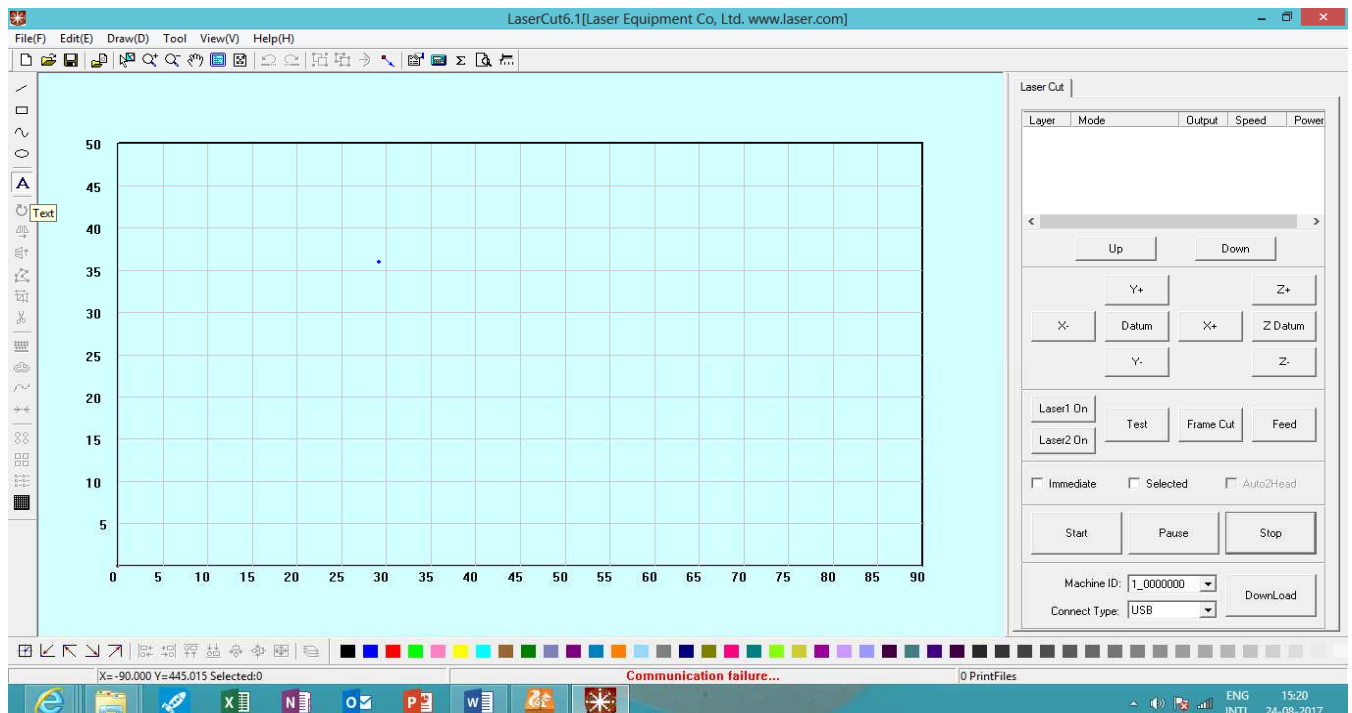
Turn off laser power, principal machine, blower fan, water pump and air pump in turn.

## EXPERIMENT -2

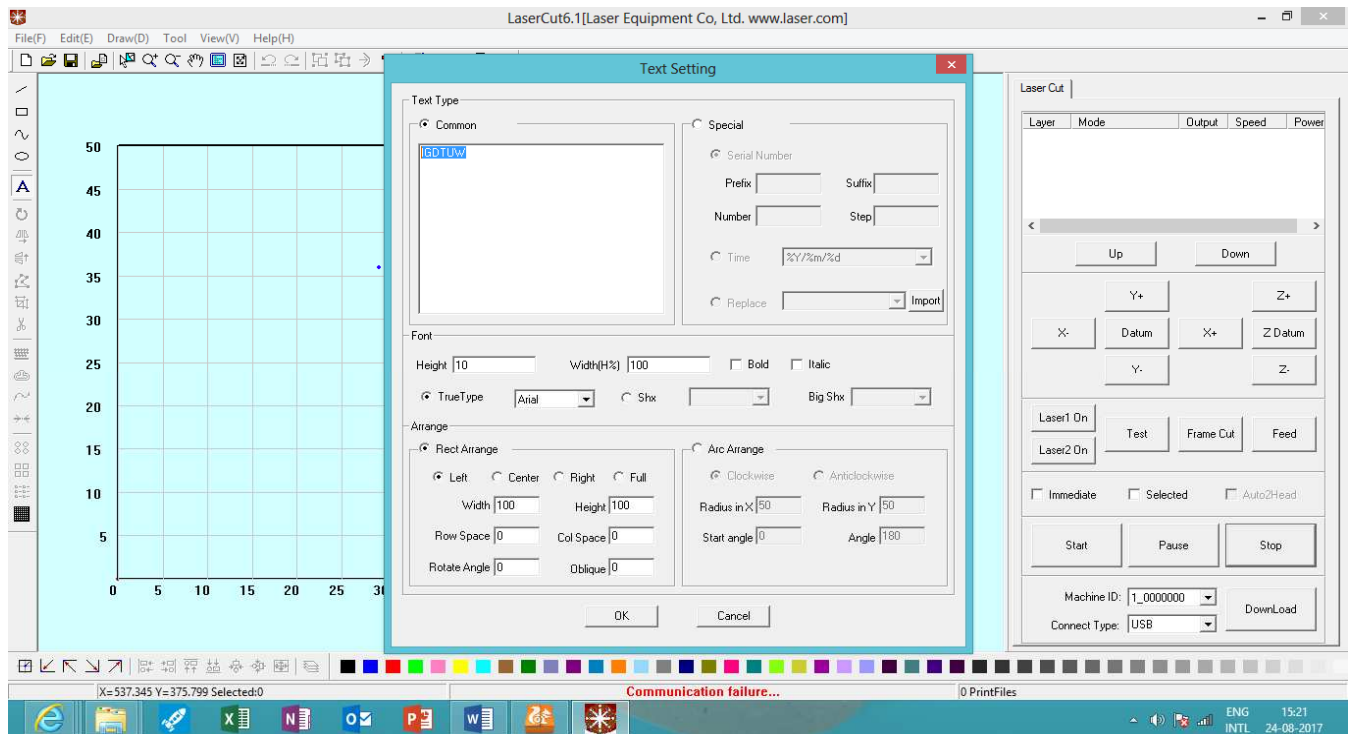
### Engrave of text Design

- Step1.** Check all Electrical connections.
- Step2.** Before start the 3D Machine First on the Chiller and wait for 5 minutes.
- Step3.** Start the Computer.
- Step4.** Pull the Emergency button of 3D machine to start, after 1 minute USB/Dongle Connect to the Machine.
- Step5.** Open the Lasercut61 software successfully.  
(If error occur then check the connection of USB cable and change the setting from Computer Device Manager COM3. )
- Step 6.** Prepare your design for printing in machine using different design software (corel Draw etc.) Or Draw the circle / Rectangular or any Object on the space of Lasercut61 Software (40x60) Workspace and select the location/Area of your object as where you want.

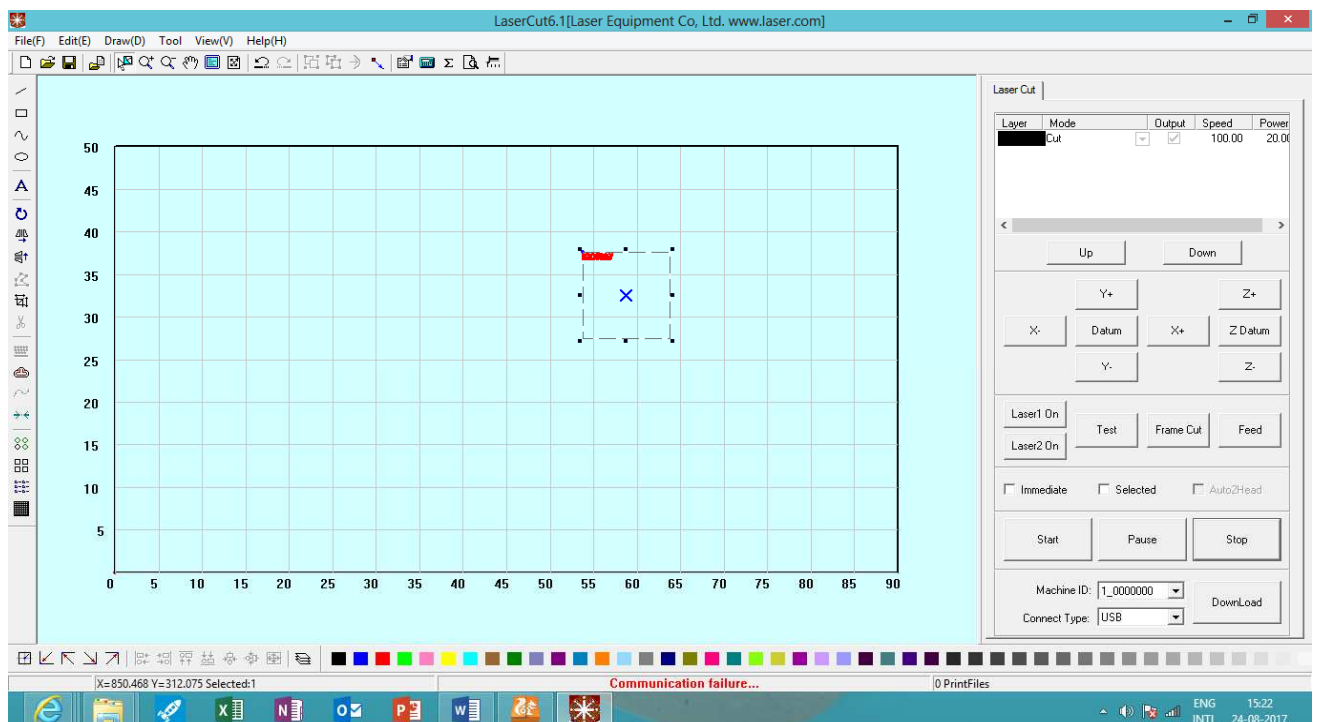
I. Select the object option as shown in below fig.



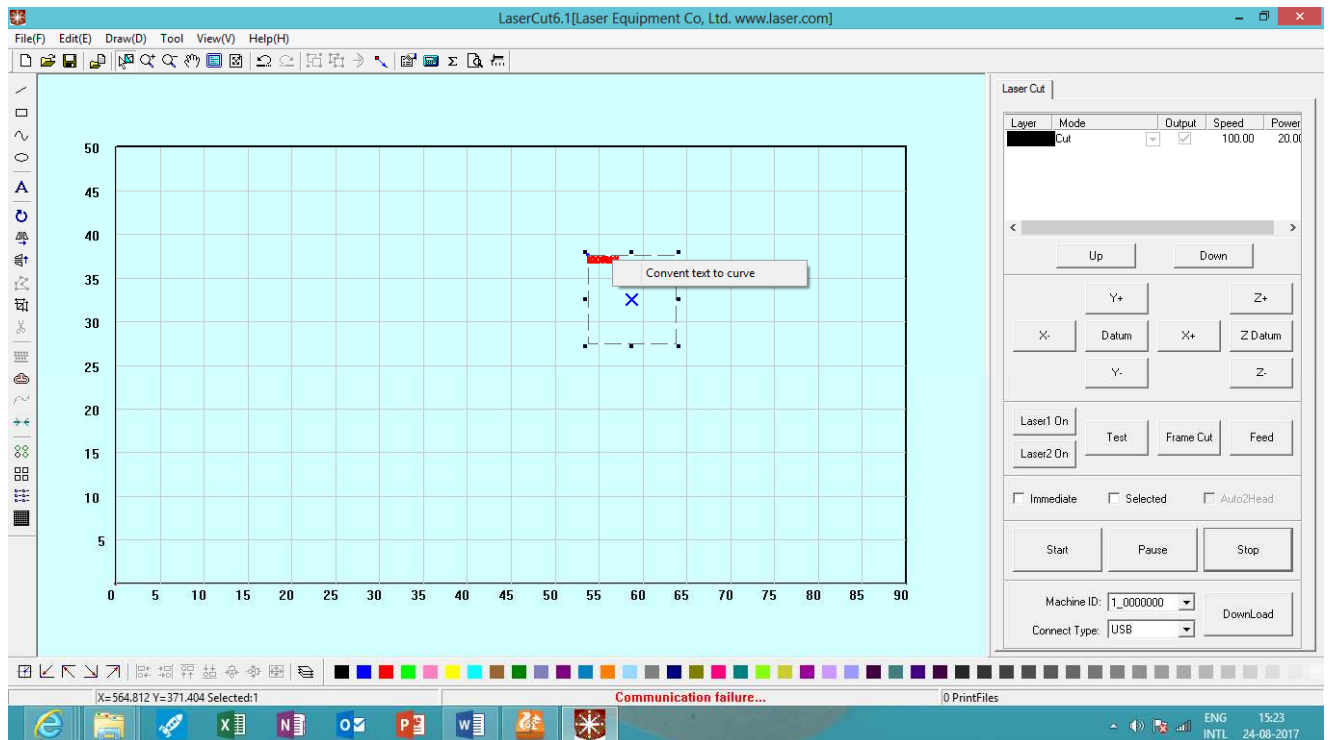
II. and press the right side of mouse to text on the software platform and click on OK as shown in below fig.



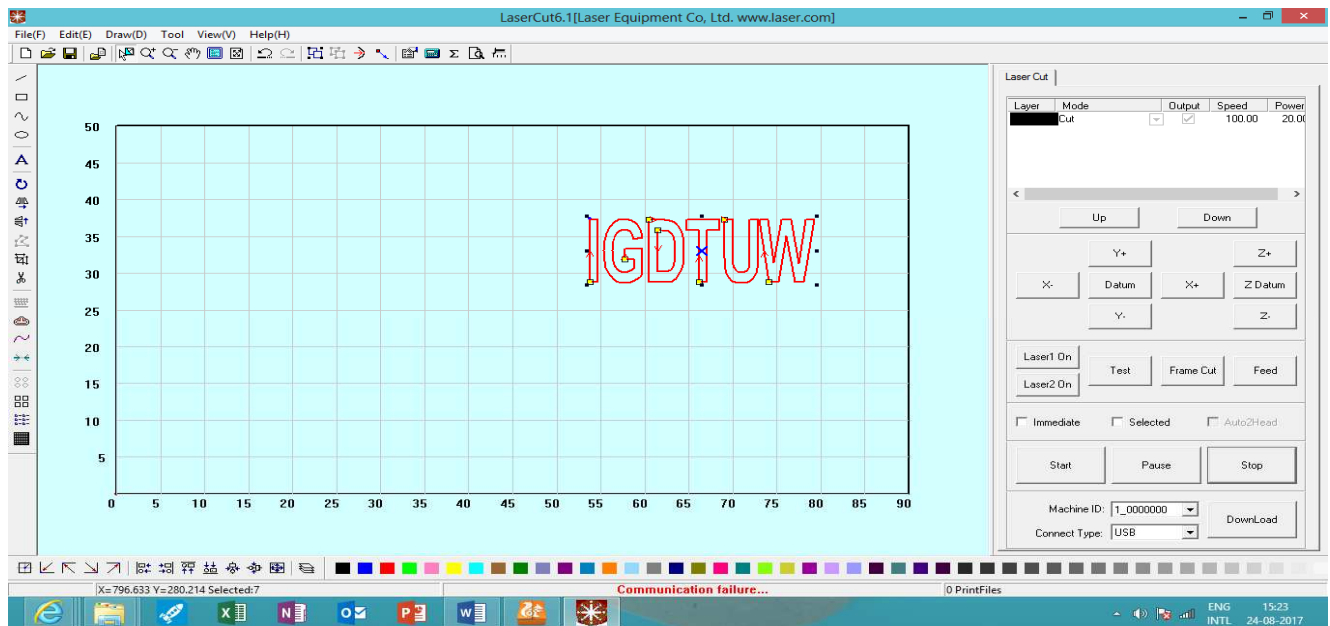
III. After clicking the OK, the object size showing small see in the below fig.



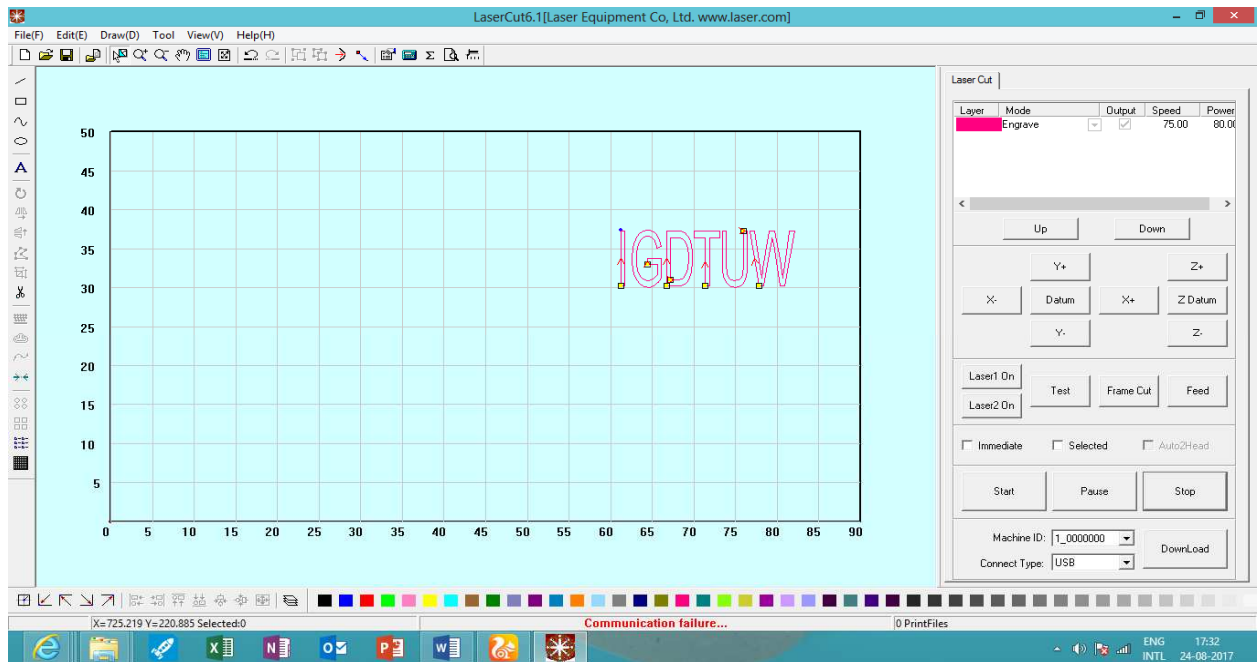
IV. To click right side of mouse to resize the small text and click on the **convent text to curve**. See in the below fig.



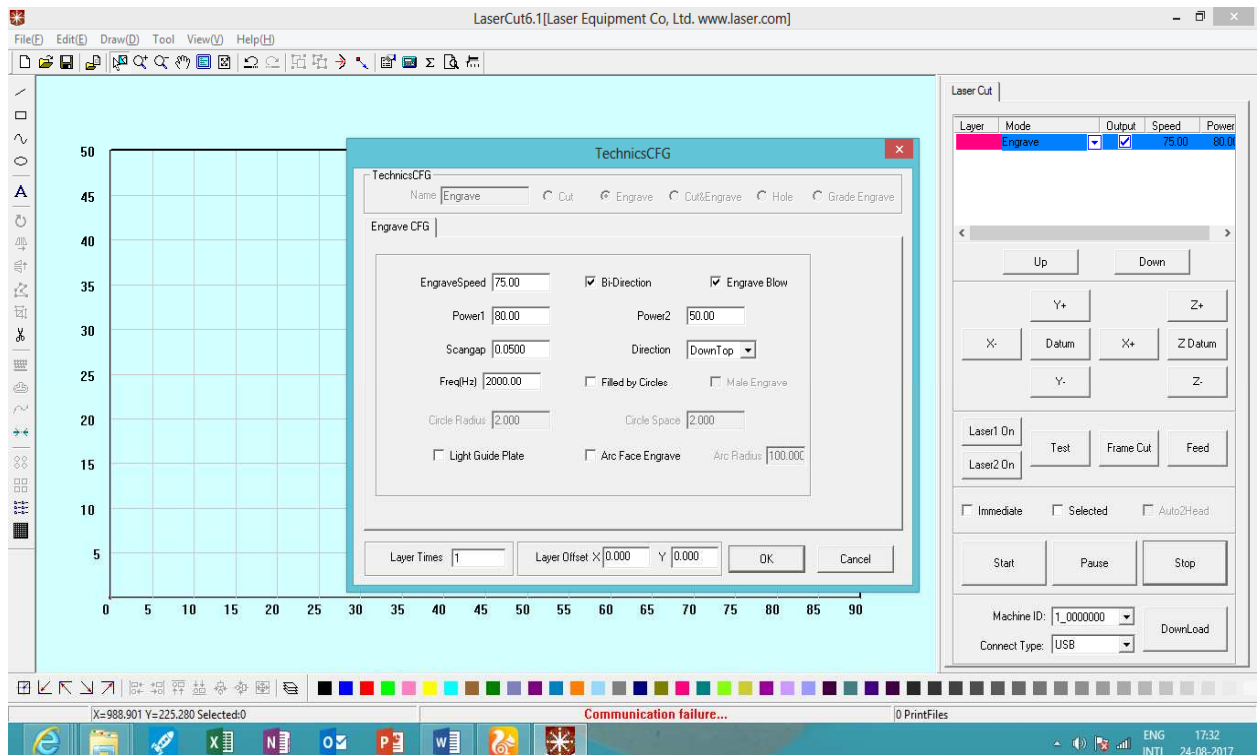
- V. To select the middle point of object and draw as your desirable size. shown in below fig.



- VI. To select the color from given bottom color option for the object in The Right side of given laser **Engrave** option. shown below fig.

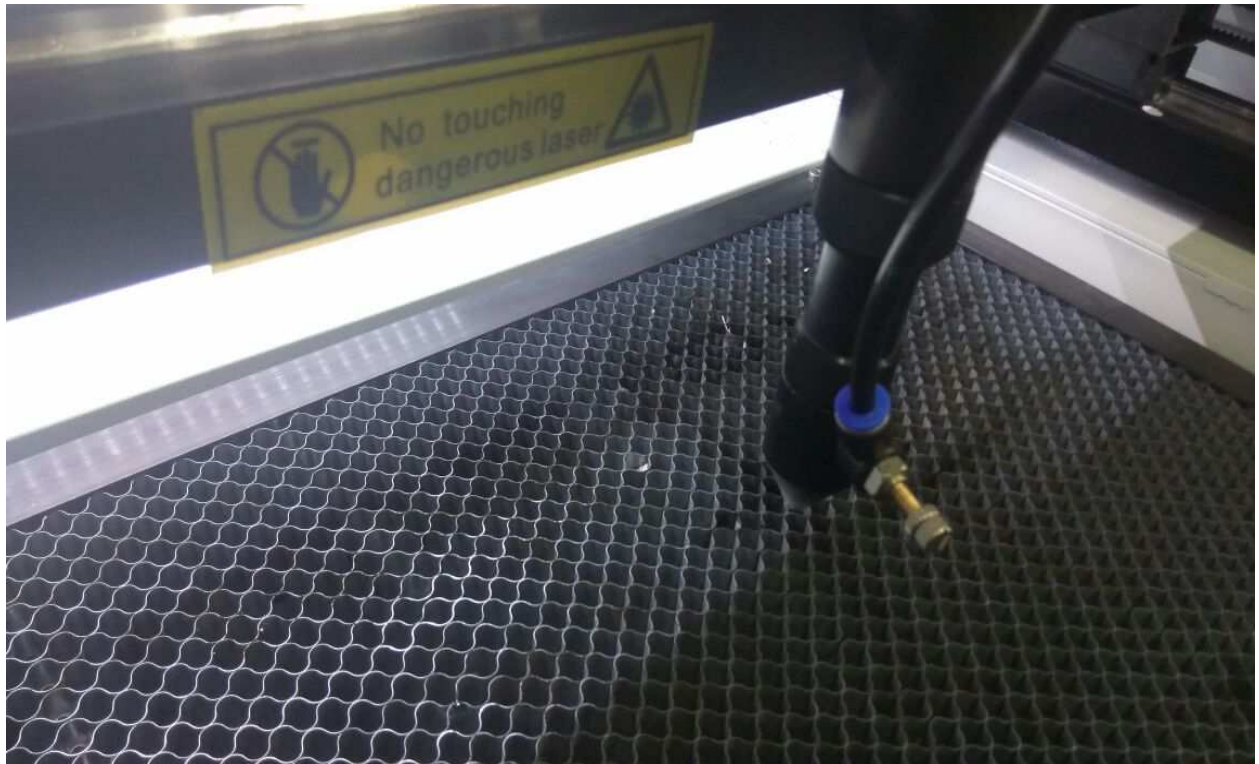


- VII. To click on the laser Cut option and set the parameter of the object to Engrave as shown below fig. and also set the parameter of the object as Work Speed. It's speed is very according to material.



**Step7.** Keep the rough material on the workspace for measuring the location of Cutting.





**Step 8.** Check on Screen of Machine the object Displayed/detected or not and wait while a Minute. Machine will start to Engrave the materials. Shown in the fig.



**Step10.** If you want to PAUSE the process then press the PAUSE Button on computer / on Machine key board and again want to start from there then press **START Button**.





**RESULT :-**



### Turn Off

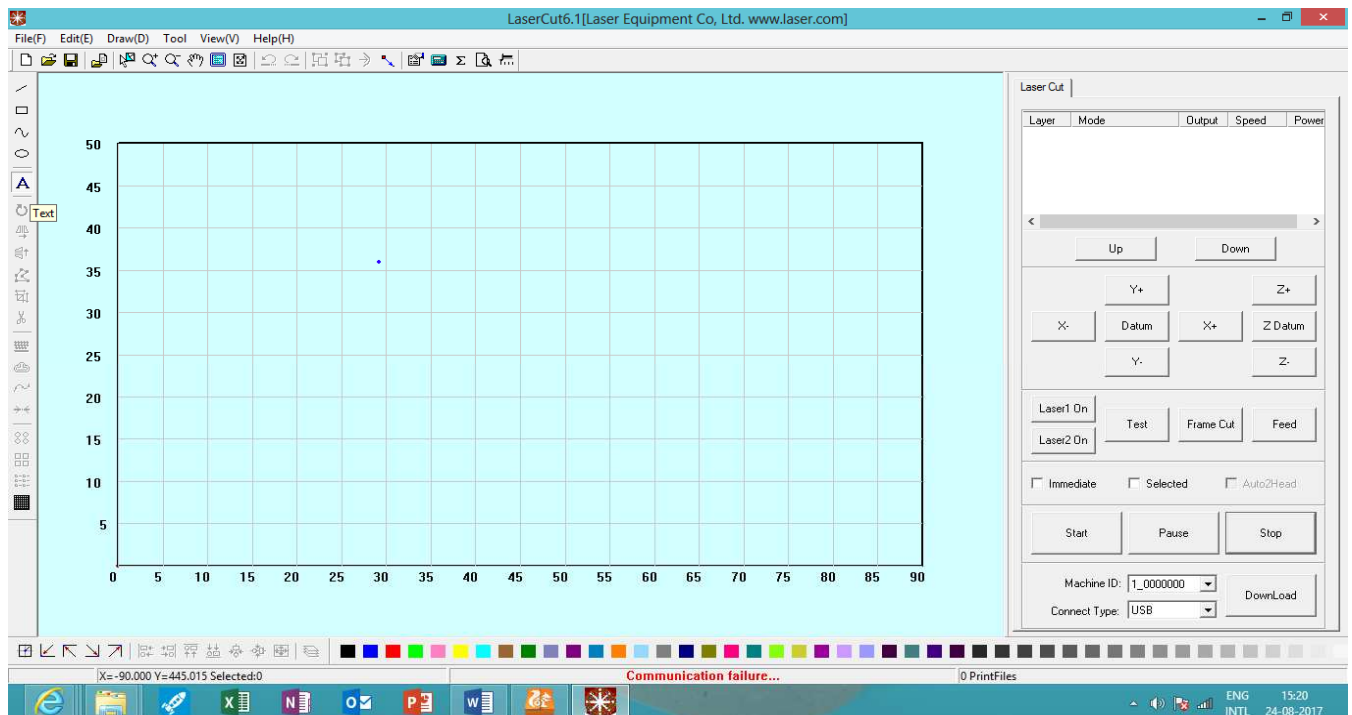
Turn off laser power, principal machine, blower fan, water pump and air pump in turn.

## **EXPERIMENT -3**

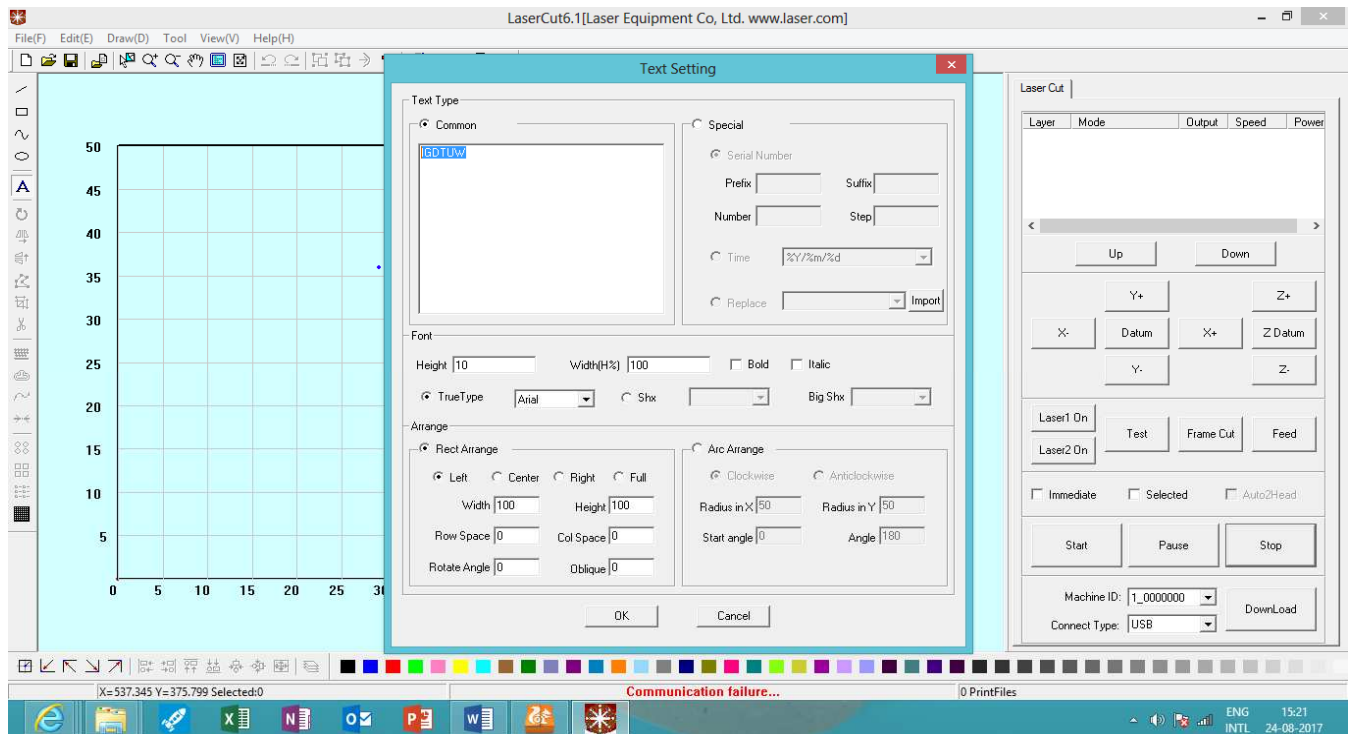
### **Double Layer design (CUT & Engrave)**

- Step1.** Check all Electrical connections.
- Step2.** Before start the 3D Machine First on the Chiller and wait for 5 minutes.
- Step3.** Start the Computer.
- Step4.** Pull the Emergency button of 3D machine to start, after 1 minute USB/Dongle Connect to the Machine.
- Step5.** Open the Lasercut61 software successfully.  
(If error occur then check the connection of USB cable and change the setting from Computer Device Manager COM3. )
- Step 6.** Prepare your design for printing in machine using different design software (corel Draw etc.) Or Draw the circle / Rectangular or any Object on the space of Lasercut61 Software (40x60) Workspace and select the location/Area of your object as where you want.

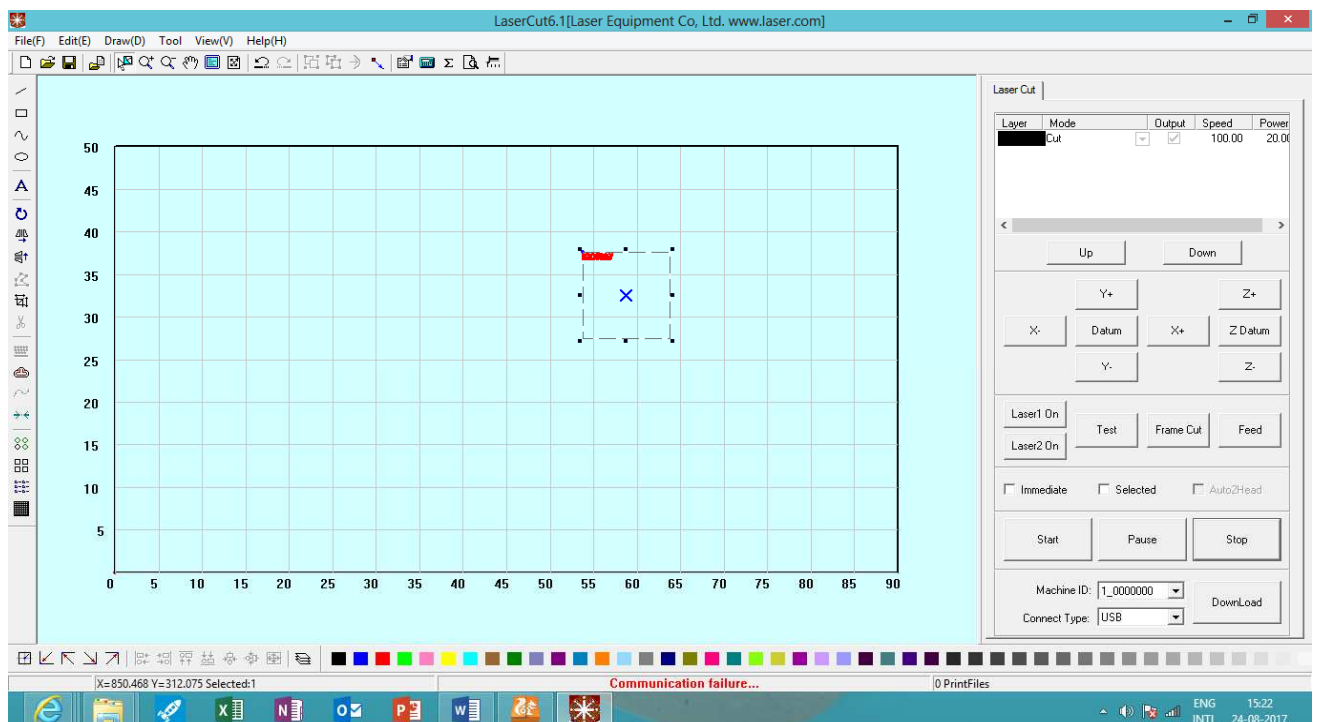
I. Select the object option as shown in below fig.



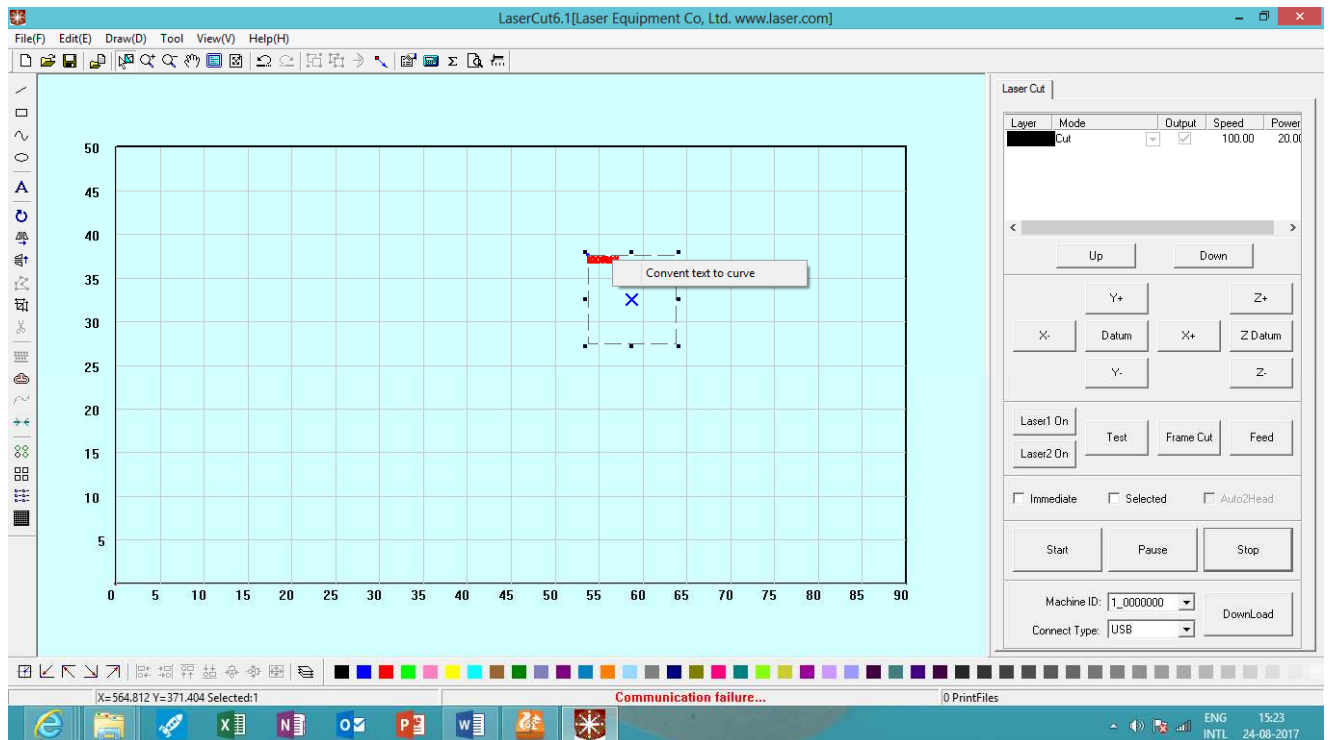
II. and press the right side of mouse to text on the software platform and click on OK as shown in below fig.



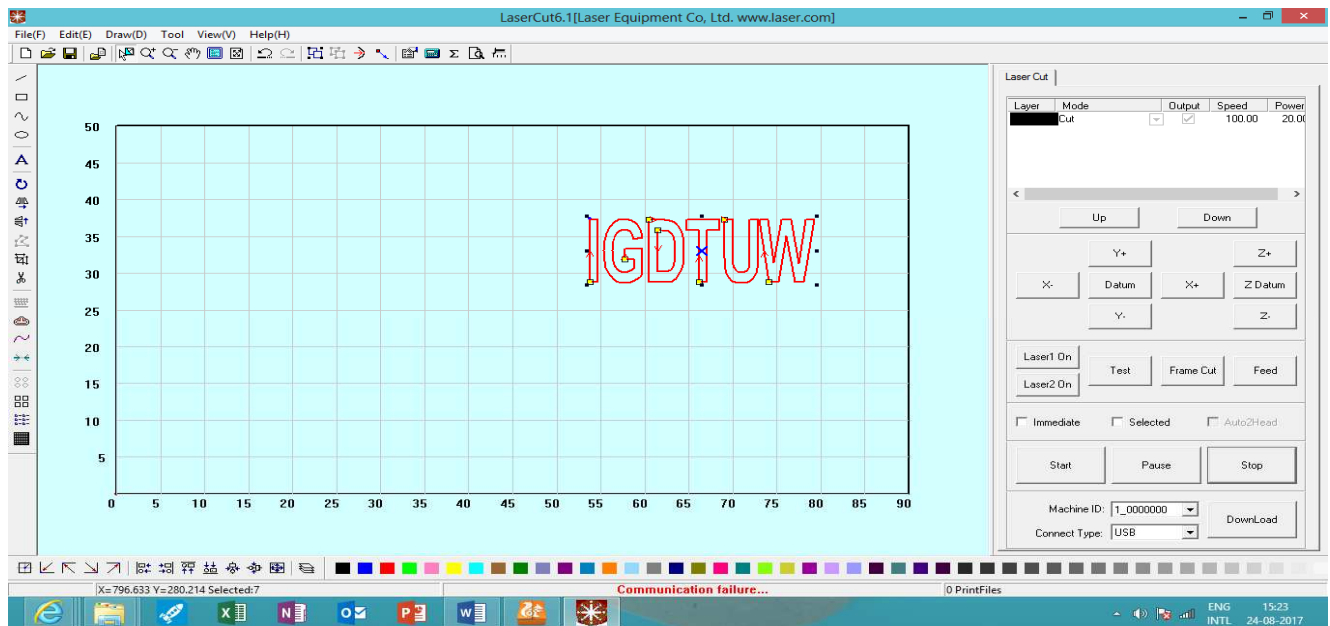
III. After clicking the OK, the object size showing small see in the below fig.



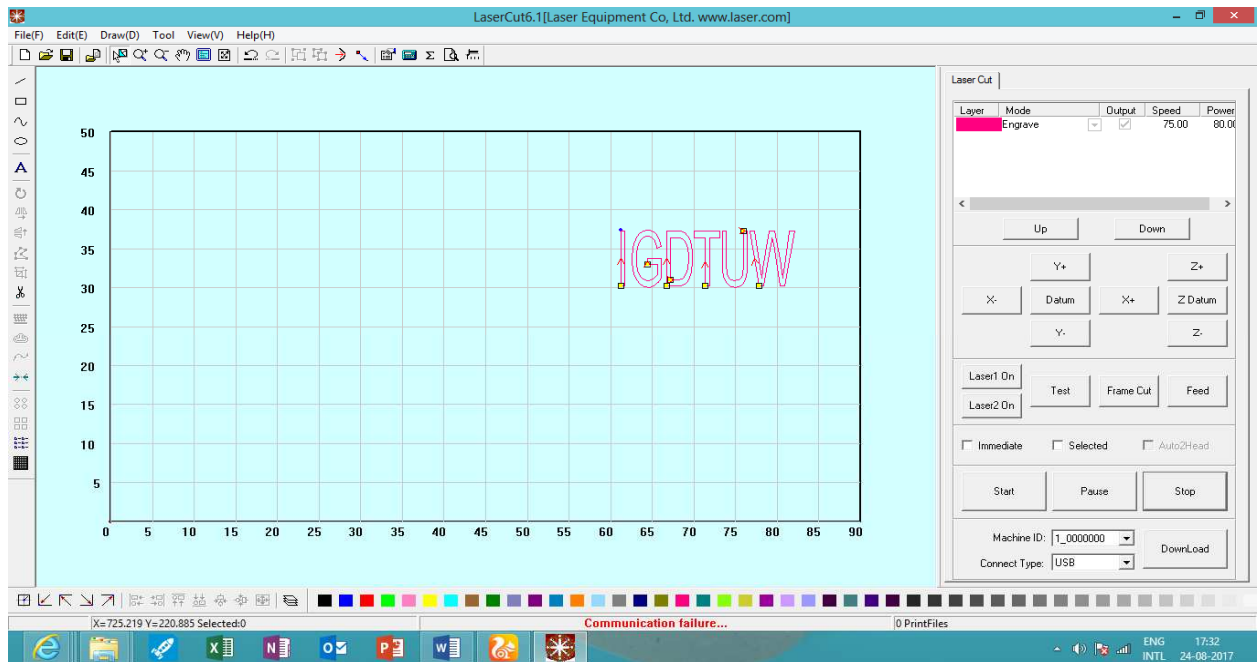
IV. To click right side of mouse to resize the small text and click on the **convent text to curve**. See in the below fig.



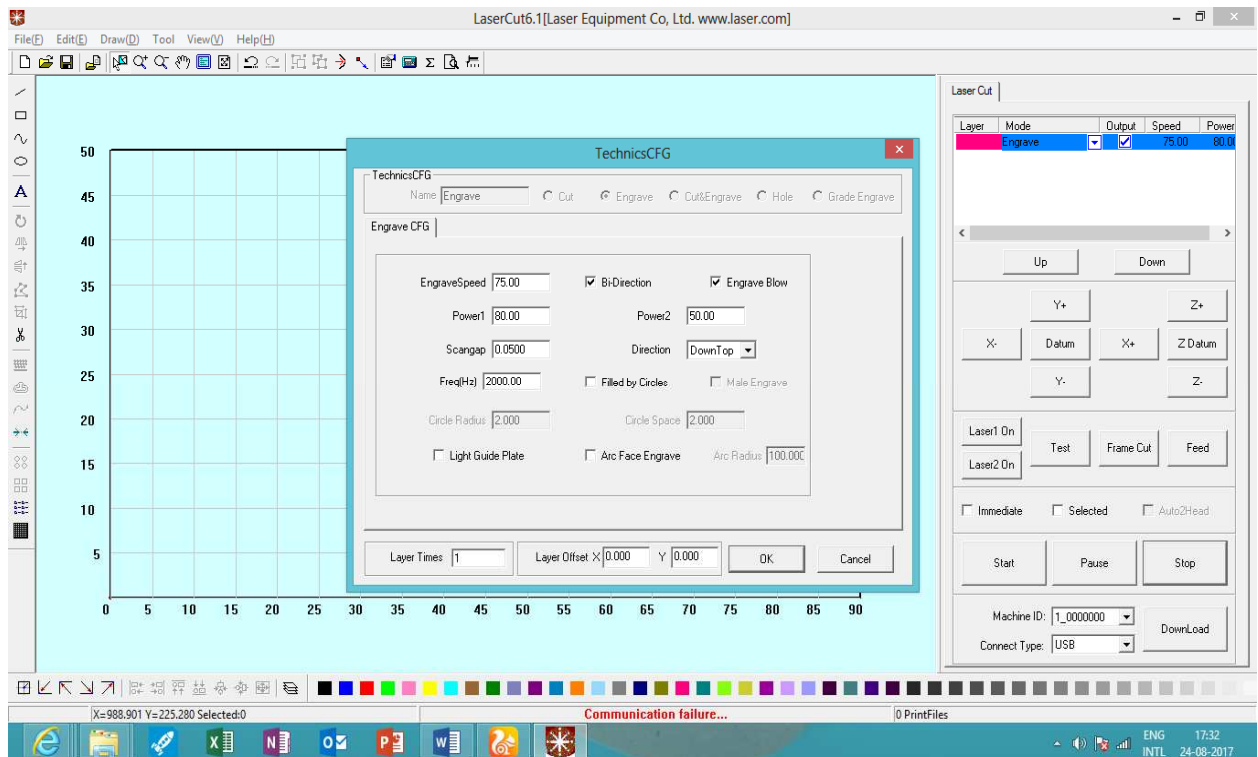
- V. To select the middle point of object and draw as your desirable size. shown in below fig.



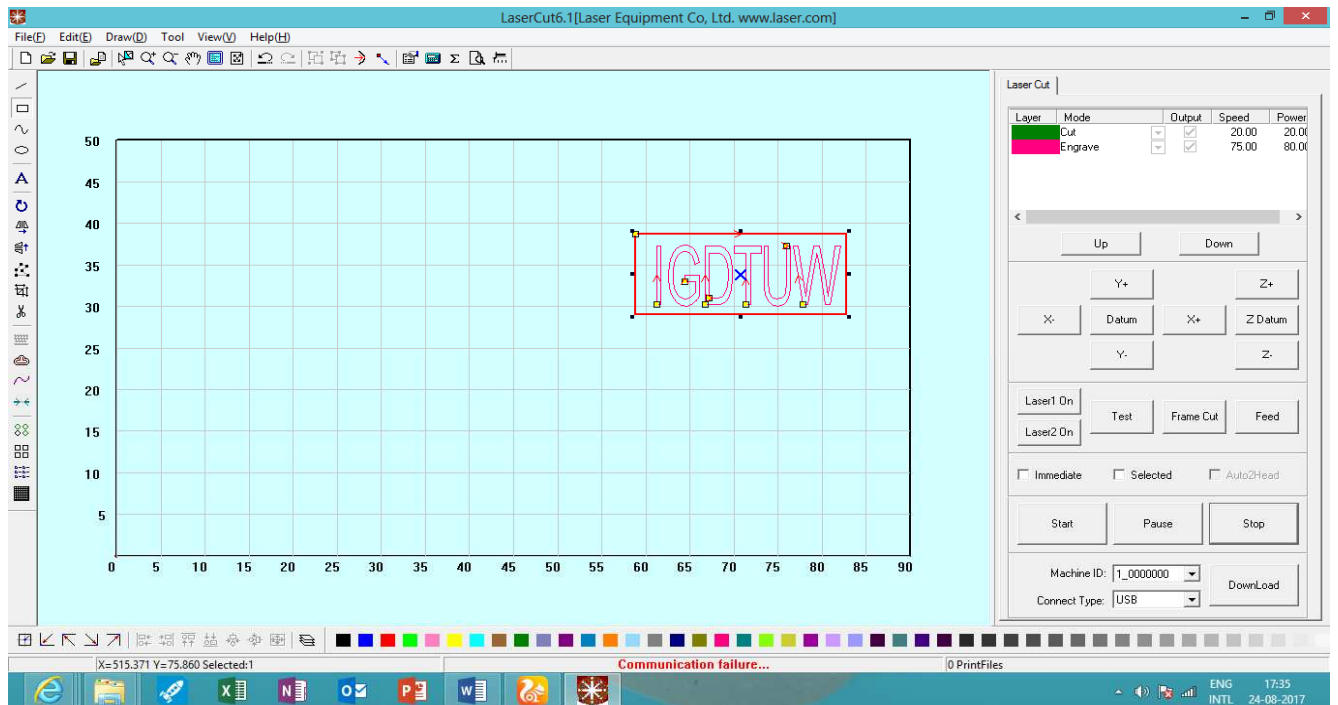
- VI. To select the color from given bottom color option for the object in The Right side of given laser **Engrave** option. shown below fig.



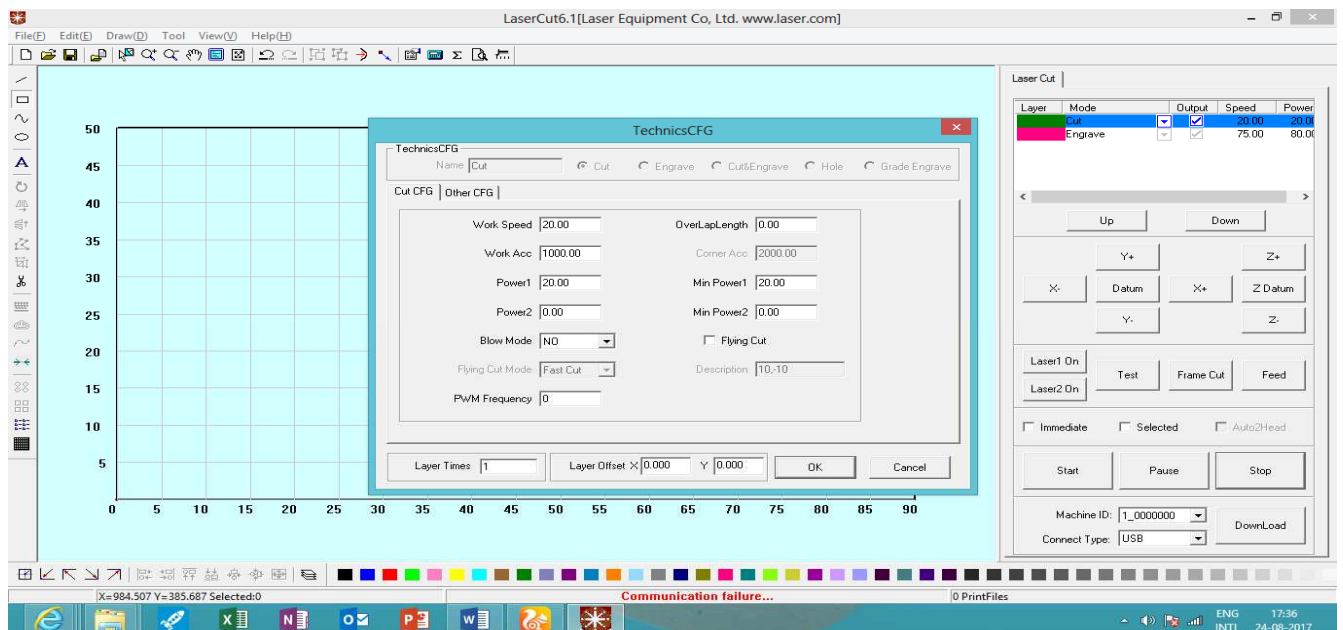
- VII. To click on the laser Cut option and set the parameter of the object to Engrave as shown below fig. and also set the parameter of the object as Work Speed. It's speed is very according to material.



- VIII. To draw the rectangle over text (Procedure Same as a Text) and select the rectangle by the given tool bar from left side of drawing platform and change the color of layer to identify the object. Shown in fig. below.



- IX. To click on the laser Cut option and set the parameter of the object to CUT as shown below fig. and also set the parameter of the object as Work Speed. It's speed is very according to material

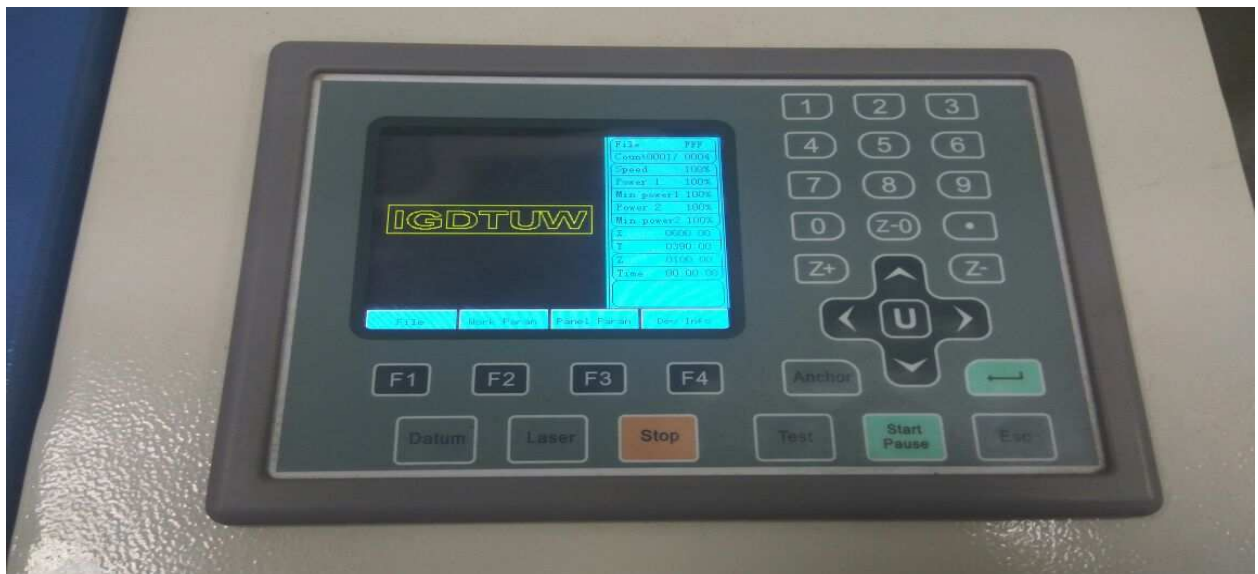


- Step7. Keep the rough material on the workspace for measuring the location of Cutting.

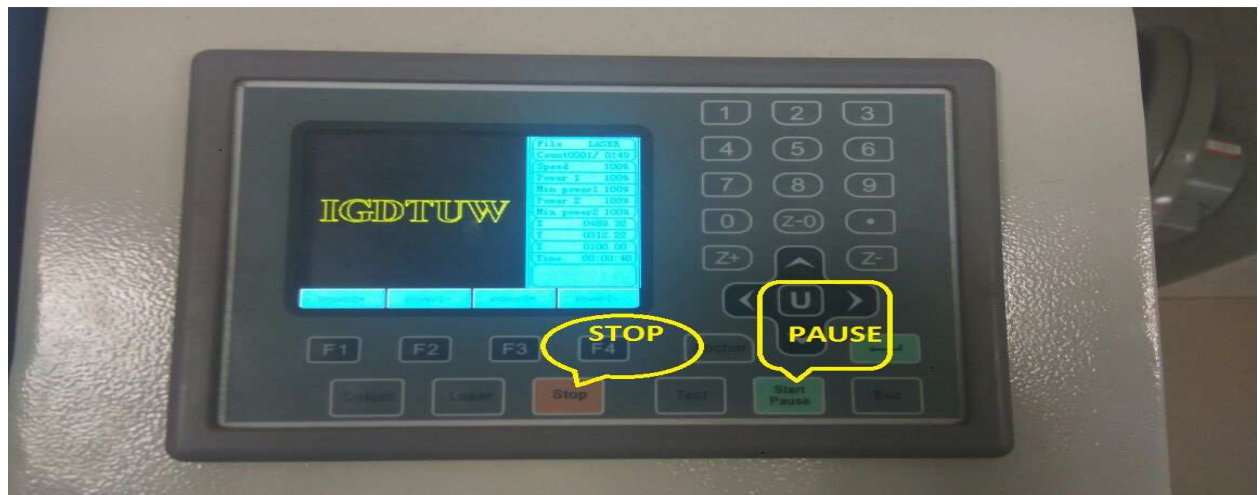




**Step 8.** Check on Screen of Machine the object Displayed/detected or not and wait while a Minute. Machine will start to cut the materials. Shown in the fig.



**Step10.** If you want to PAUSE the process then press the PAUSE Button on computer / on Machine key board and again want to start from there then press **START Button**.



**RESULT :-**



And same procedure for Text inside of Ellipse provide the result



### Turn Off

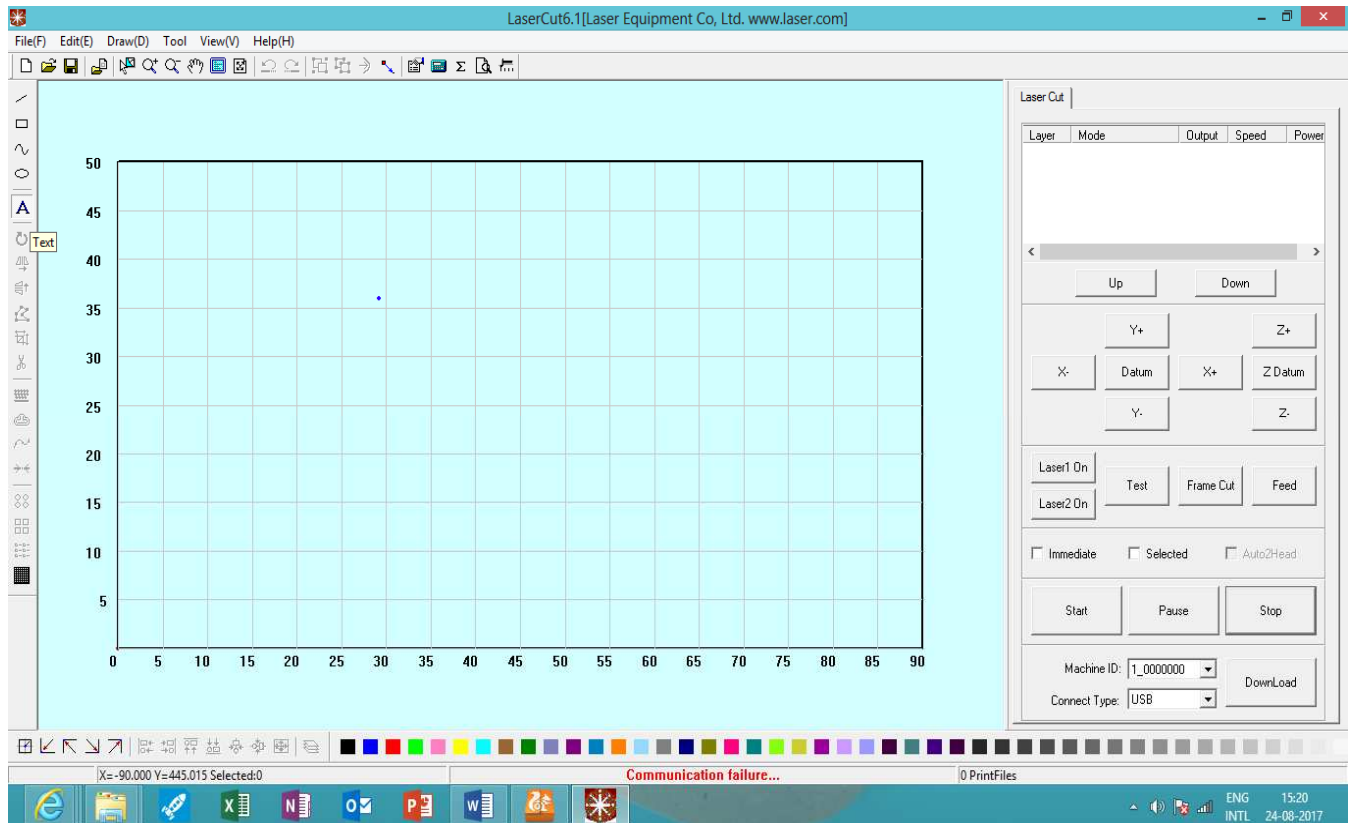
Turn off laser power, principal machine, blower fan, water pump and air pump in turn.

## EXPERIMENT -4

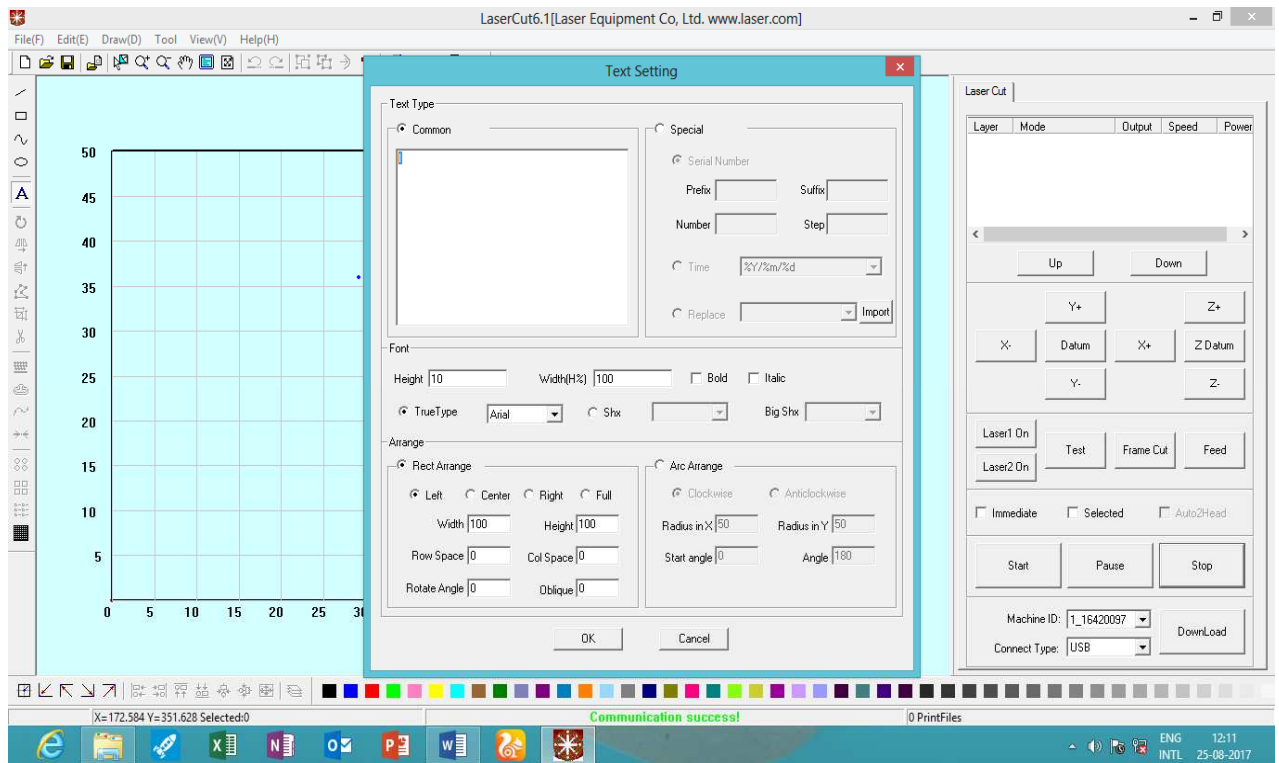
### Separate Text inside of Rectangular Box (Cut & Engrave)

- Step1.** Check all Electrical connections.
- Step2.** Before Start the 3D Machine First on the Chiller and wait for 5 minutes.
- Step3.** Start the Computer.
- Step4.** Pull the Emergency button of 3D machine to start, after 1 minute USB/Dongle connect to the Machine.
- Step5.** Open the Lasercut61 software successfully.  
(If error occur then check the connection of USB cable and change the setting from Computer Device Manager COM3. )
- Step 6.** Prepare your design for printing in machine using different design software (corel Draw etc.) Or Draw the circle / Rectangular or any Object on the space of Lasercut61 Software (40x60) Workspace and select the location/Area of your object as where you want.

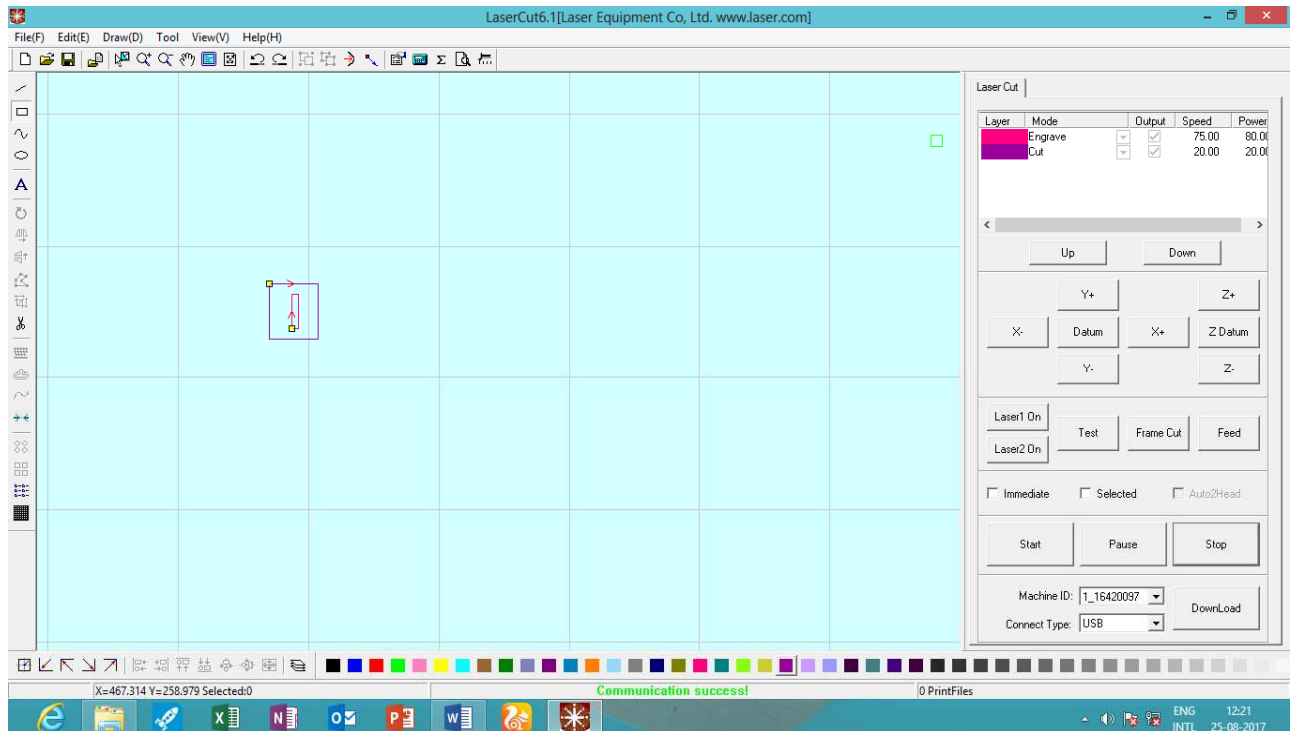
VIII. Select the object option as shown in below fig.



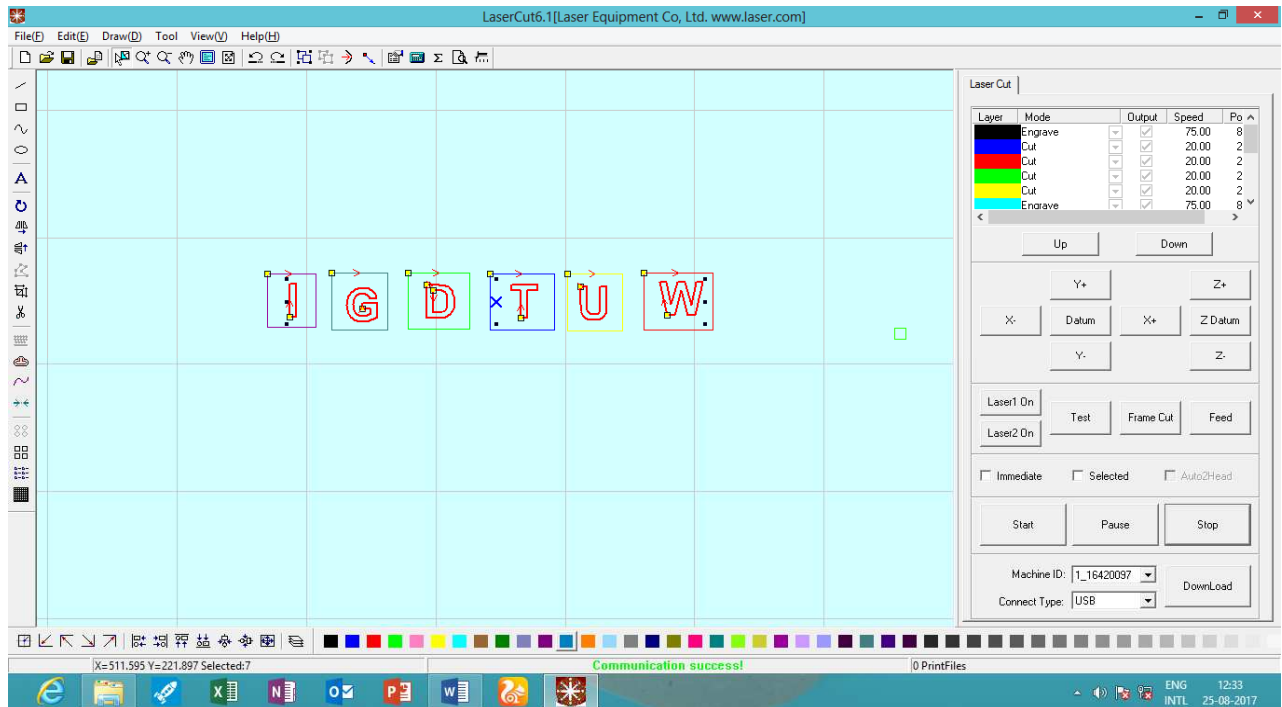
- IX. and press the right side of mouse to text on the software platform and click on OK as shown in below fig.



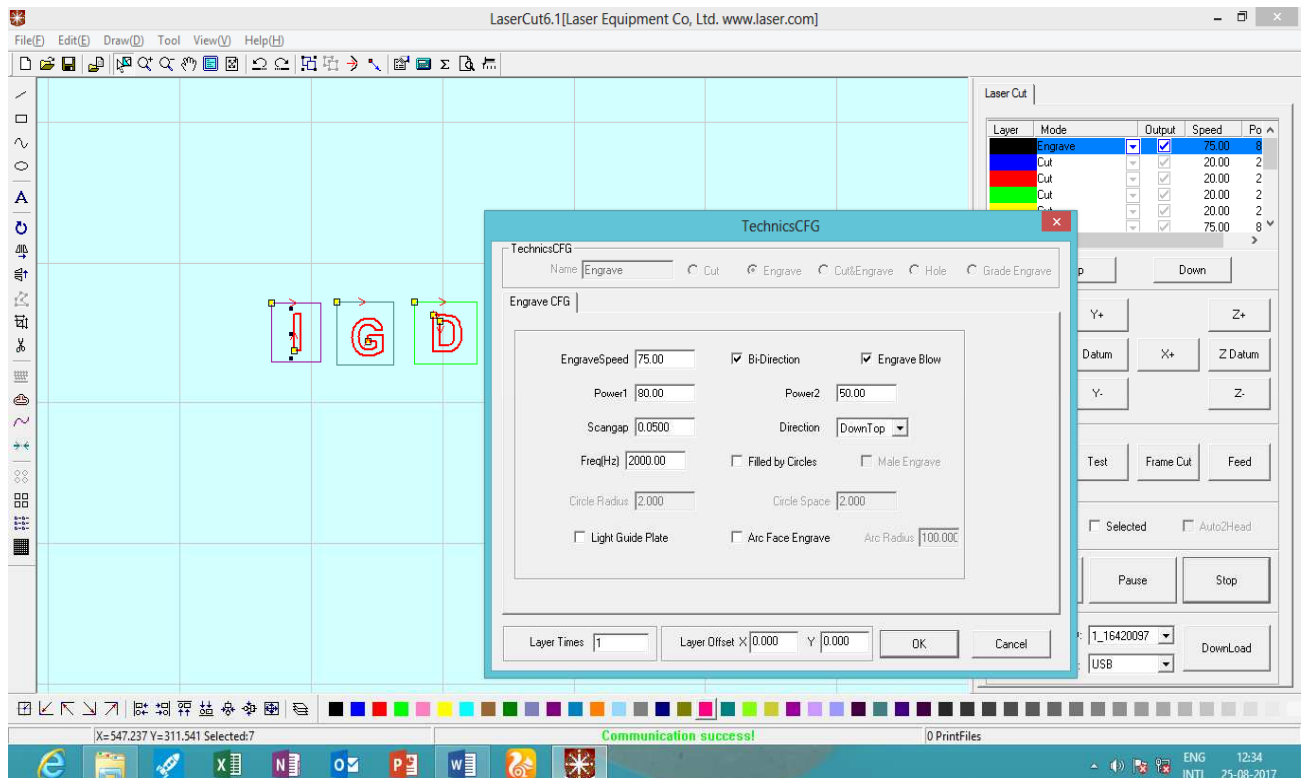
- I. After clicking the OK, the object size showing small and click right side of mouse to resize the small text and click on the **convert text to curve**. See in the below fig.



- II. To select the color from given bottom color option for the object in The Right side of given laser **Engrave** option. shown below fig.

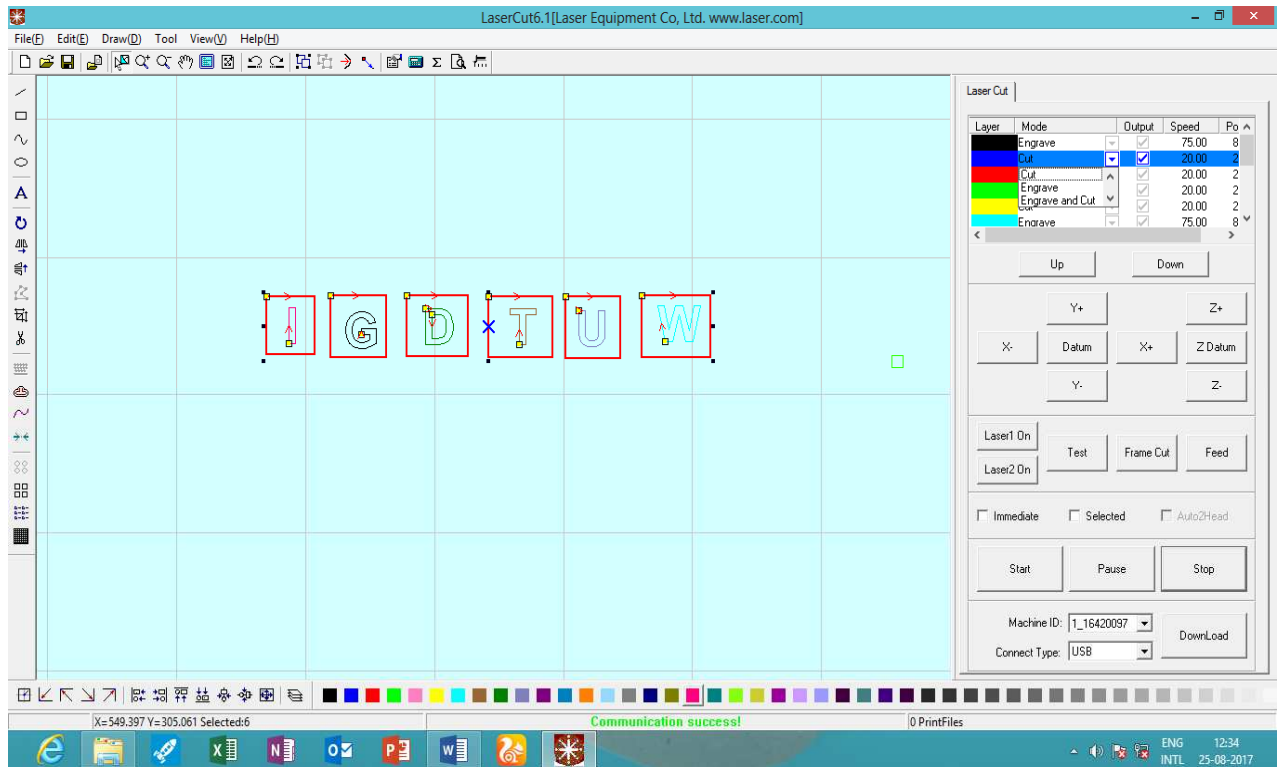


- III. To click on the laser Cut option and set the parameter of the object to Engrave as shown below fig. and also set the parameter of the object as Work Speed. It's speed is very according to material.

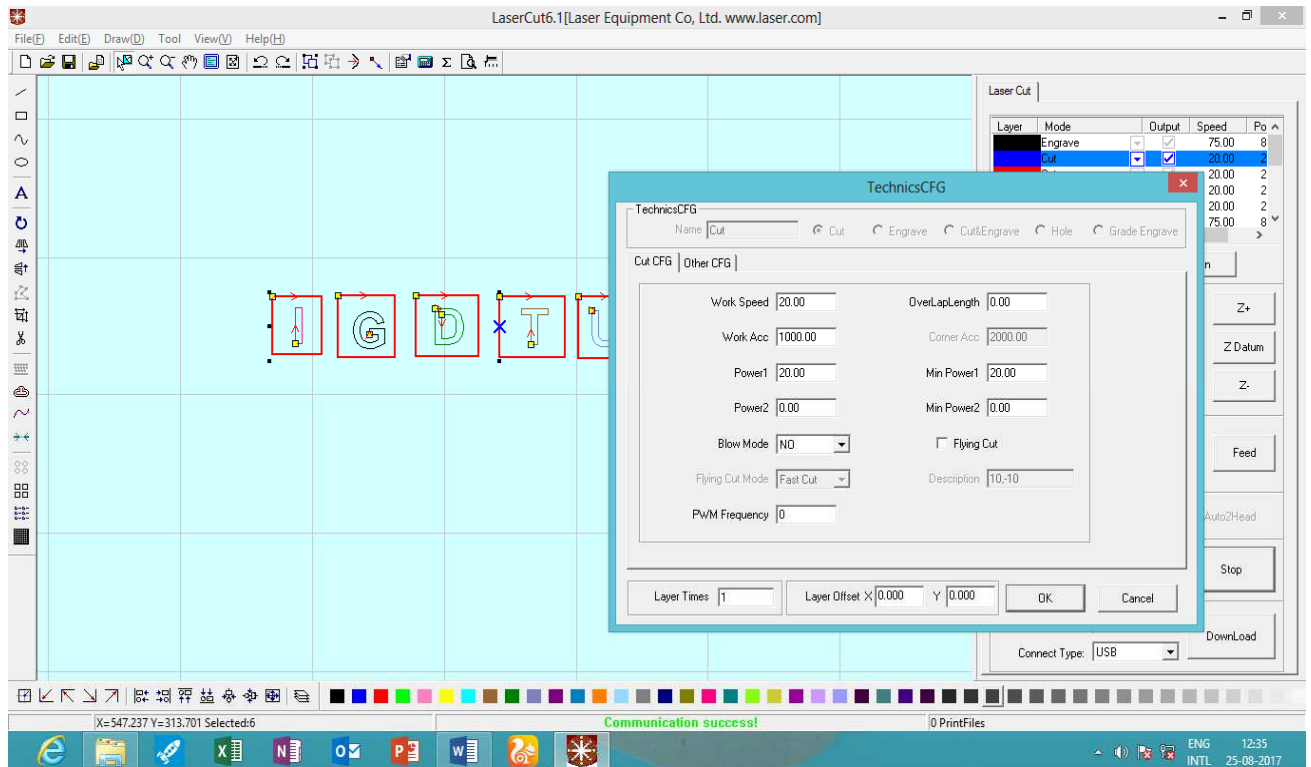




- IV. To select the color from given bottom color option for the object in The Right side of given laser cut option. shown below fig.



- V. To click on the speed option of the laser cut and set the parameter of the object to cut. shown below fig.



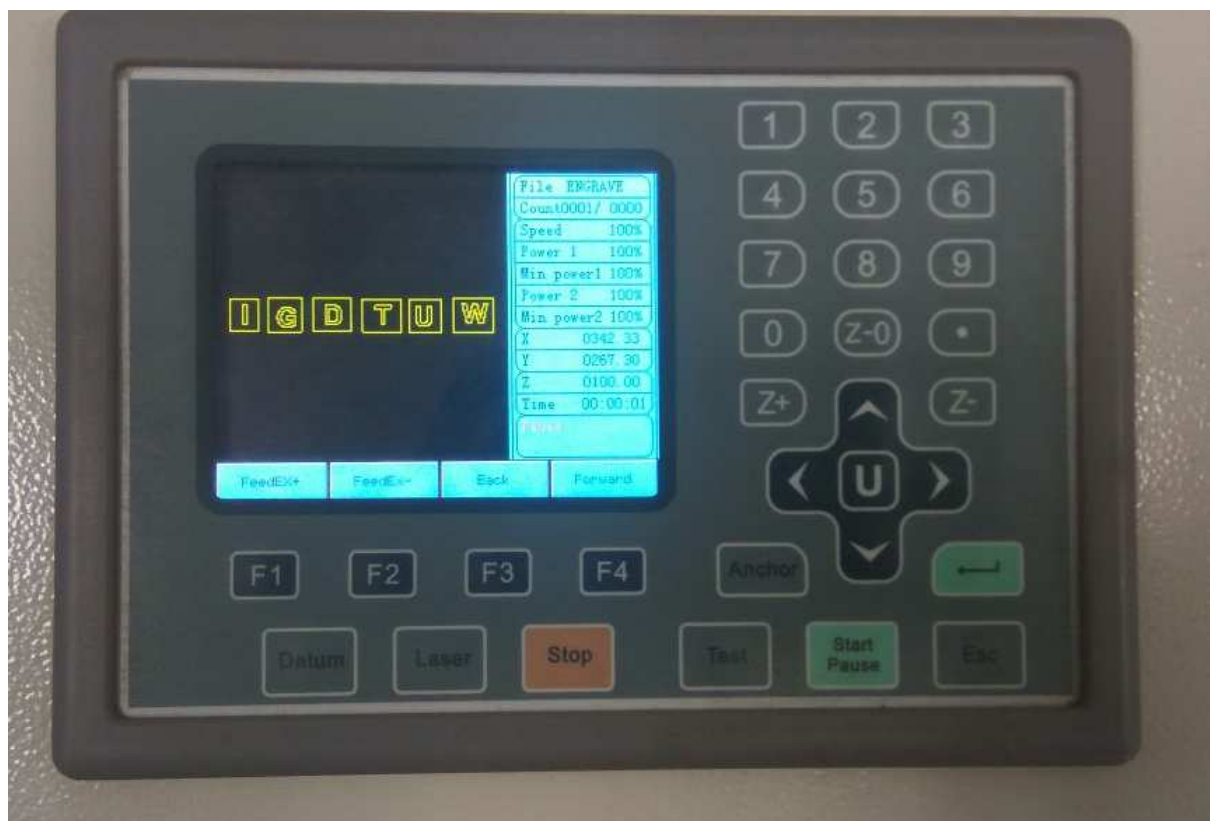


**Step7.** Keep the rough material on the workspace for measuring the location of Cutting.



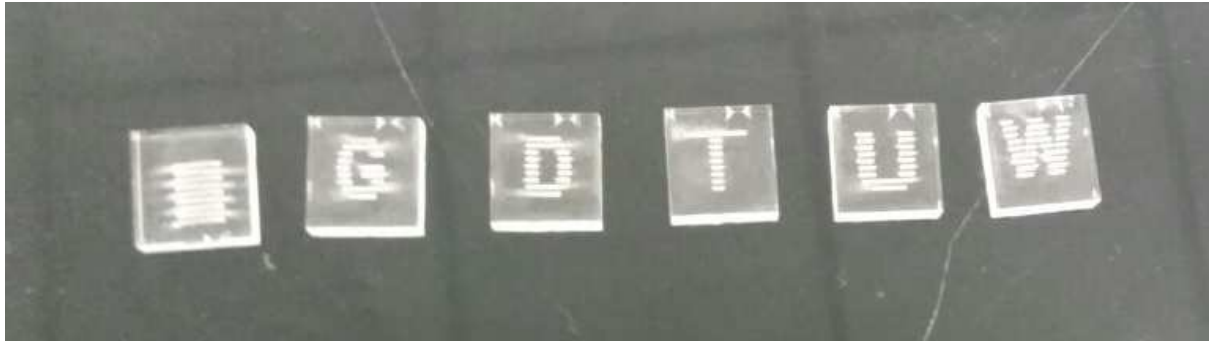
**Step8.** Click on **START** after select the object.

**Step 9.** Check on Screen of Machine the object Displayed/detected or not and wait while a Minute. Machine will start to cut the materials. Shown in the fig.



**Step10.** If you want to PAUSE the process then press the PAUSE Button on computer / on Machine key board and again want to start from there then press **START Button**. If you want to stop the process then press **STOP** Button and create New object and Press **START** button.

**RESULT :-**



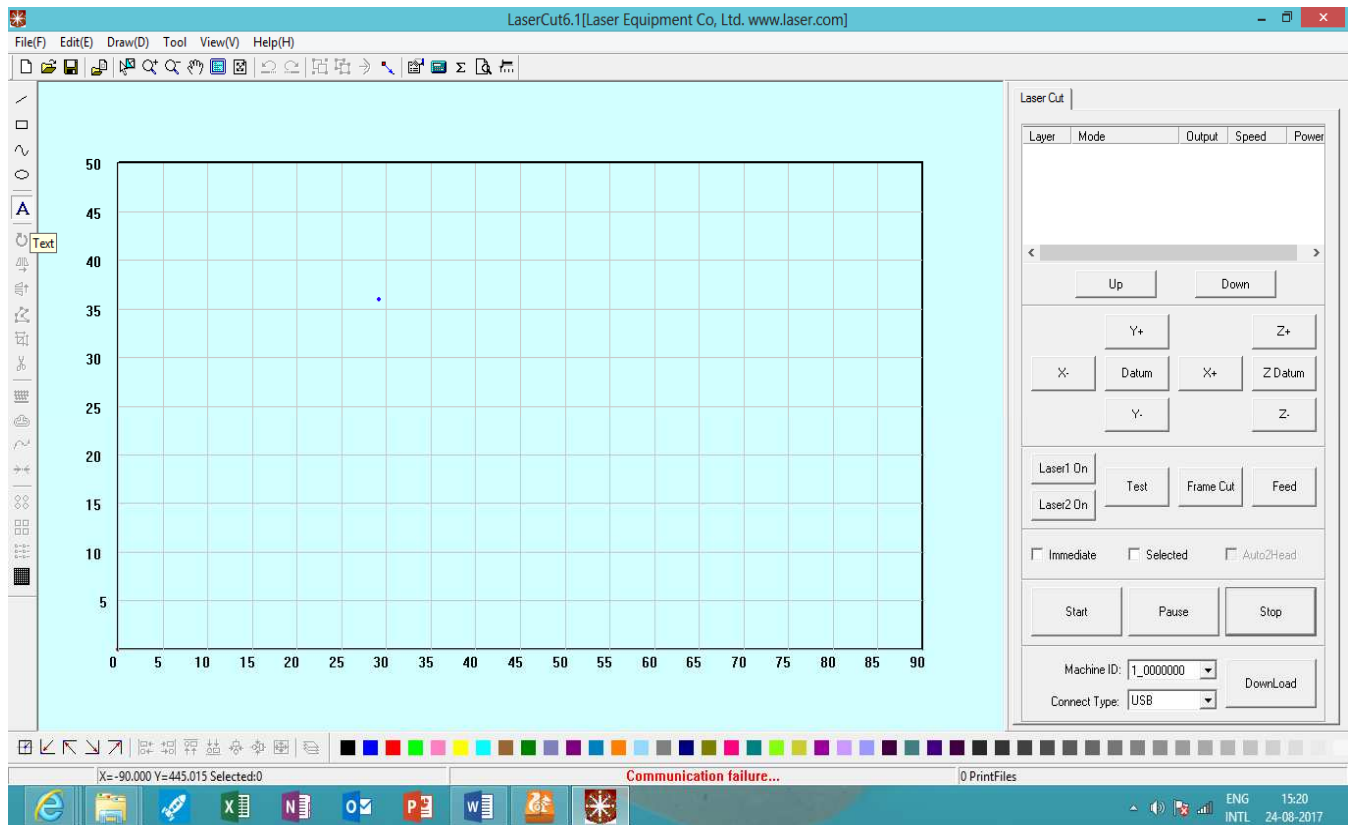
### Turn Off

Turn off laser power, principal machine, blower fan, water pump and air pump in turn.

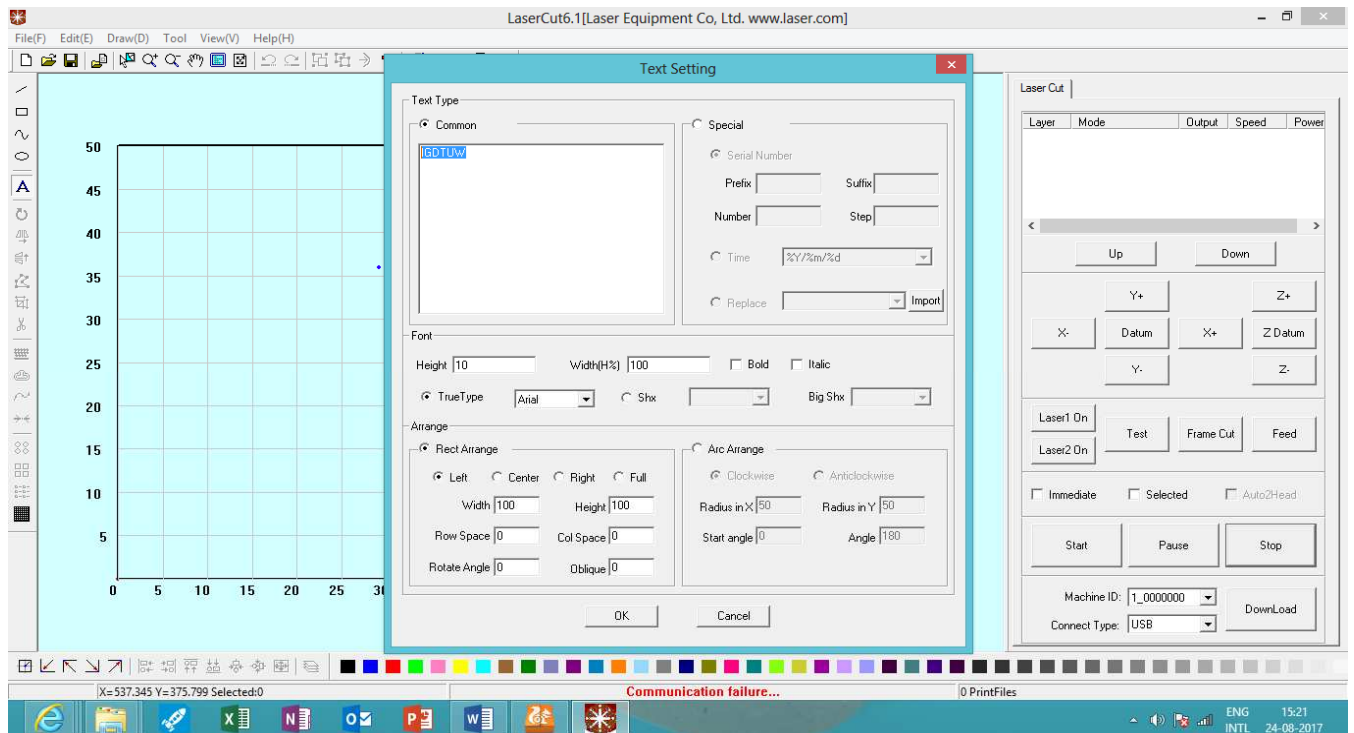
## EXPERIMENT -5

### Cutting ,Engrave, Flying cut of Various Design

- Step1.** Check all Electrical connections.
- Step2.** Before Start the 3D Machine First on the Chiller and wait for 5 minutes.
- Step3.** Start the Computer.
- Step4.** Pull the Emergency button of 3D machine to start, after 1 minute USB/Dongle connect to the Machine.
- Step5.** Open the Lasercut61 software successfully.  
(If error occur then check the connection of USB cable and change the setting from Computer Device Manager COM3. )
- Step 6.** Prepare your design for printing in machine using different design software(corel Draw etc.) Or Draw the circle / Rectangular or any Object on the space of Lasercut61 Software (40x60) Workspace and select the location/Area of your object as where you want.
- X. Select the object option all left side of software screen (line, circle, hole ,rectangle)as shown in below fig.

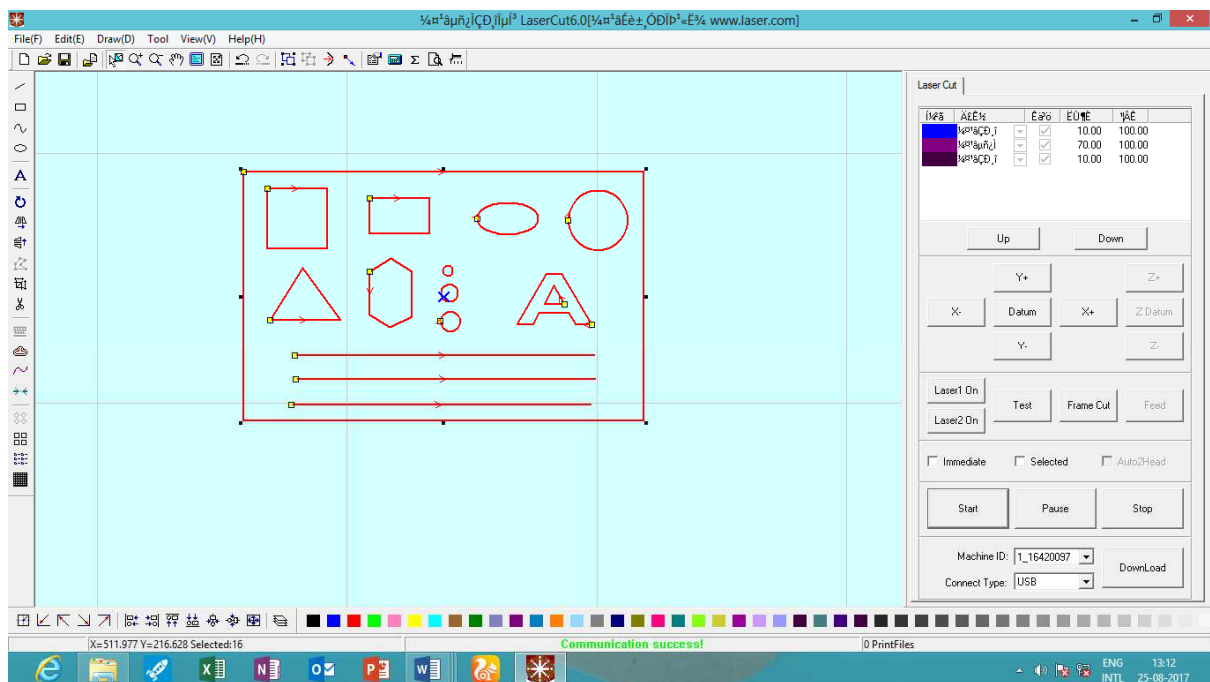


- XI. and press the right side of mouse to text on the software platform and click on OK as shown in below fig.

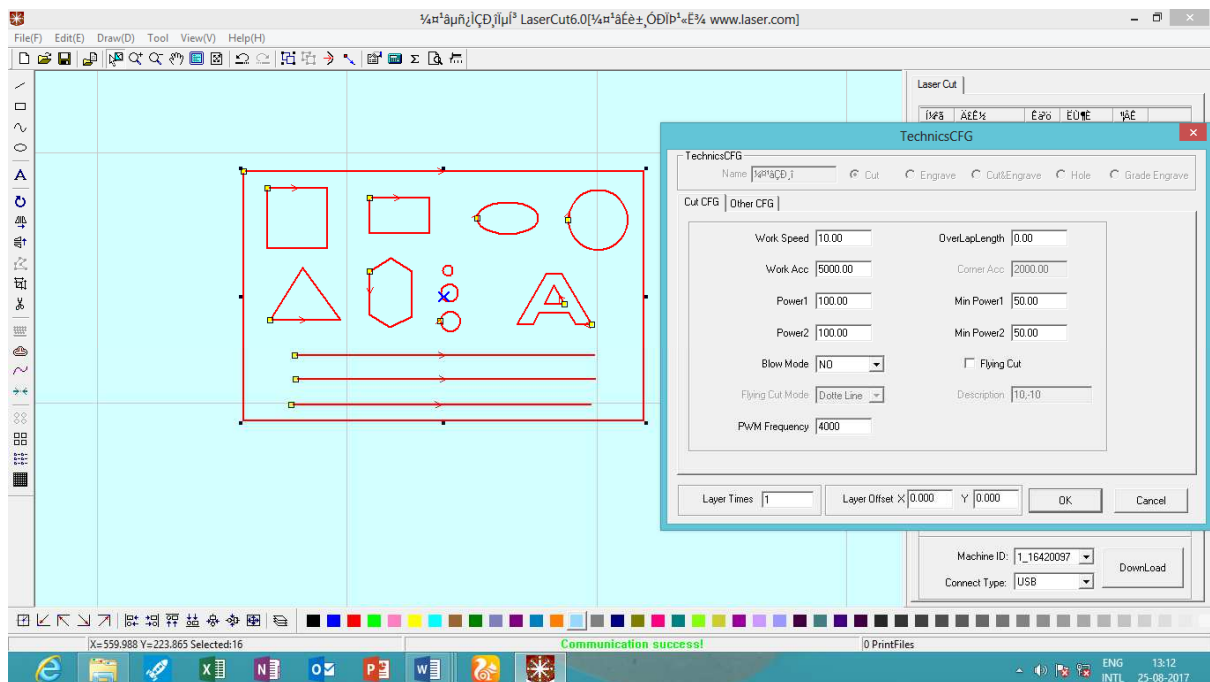


- I. After clicking the OK, the object size showing small size in the below fig. and click right side of mouse to resize the small Design and click on the **convert text to curve** and select the middle point of object and draw as your desirable size.

I.



- II. To select the color from given bottom color option for the object in The Right side of given laser cut option. Shown below fig. and click on the speed option of the laser cut and set the parameter of the object to **CUT,ENGRAVE,FLYING CUT,ENGRAVE CUT**



- Step7.** Keep the rough material on the workspace for measuring the location of Cutting.





**Step8.** Click on START after selecting the object and Check on Screen of Machine the object Displayed/detected or not and wait while a Minute. Machine will start to cut the materials. Shown in the fig.



- a). If you want to PAUSE the process then press the PAUSE Button on computer /on Machine key board and again want to start from there then press **START Button**.
- b). If you want to stop the process then press **STOP** Button and create New object and Press **START** button.

**RESULT :-**



### Turn Off

Turn off laser power, principal machine, blower fan, water pump and air pump in turn.