# ROC 2020
GROUP : 7

"We certify that this project was undertaken by us for the Roboanalyzer-based online competition (ROC)" conducted by Dr. Nayan M. Kakoty of Tezpur University in collaboration with Prof. S.K Saha of IIT Delhi and Mr. Rajeevlochan C.G. of Amrita Vishwa Vidyapeetham, Bengaluru Campus during October 12, 2020, to November 30, 2020"

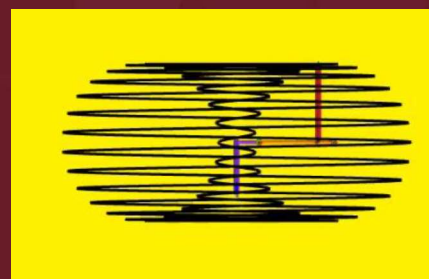Submitted by : Sourjya Mukherje, Tezpur University

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- ❖ **TASK : To write the names of team members using virtual robot**
- ❖ **METHOD :**
- • **Robot used : KukaKR5_IND**
- • **The lettering was first planned on a grid paper. Then cartesian control in relative mode was used to dictate the motion of the end effector. The final coordinates of the end effector were recorded at the end of each step and the increments for (X, Y , Z) were accordingly set for the next increment.**
- • **In case the calculations went amiss jogging was used.**
- • **The lettering and spacing is based on the proportions mentioned in "Engineering Drawing, N D Bhatt ".**

ROC_G7_Vid1.mp4
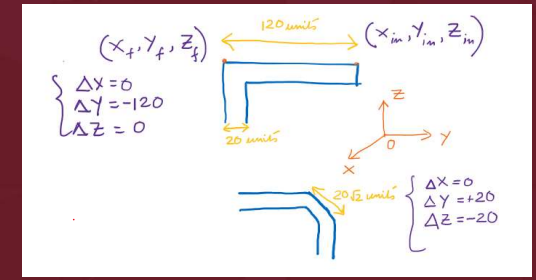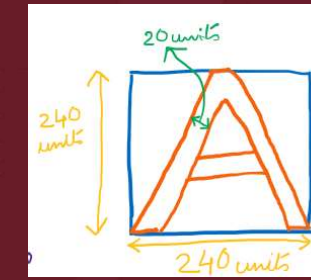
- ❖ **Rough sketch of cartesian planning :**
- • **Grid based planning of letter proportions.**
- • **Cartesian planning based on relative increment from initial position.**
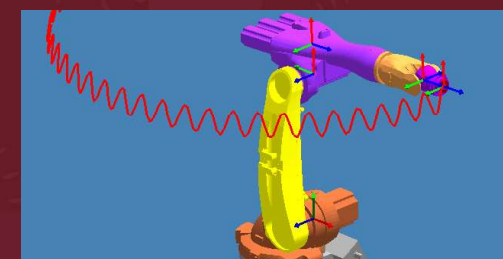- • **Cartesian planning of bends : Equal relative increments for Y and Z are used to obtain a 45 degree line.**

ROC G7 Vid2

- ❖ **TASK : To construct a Torus**
- ❖ **METHOD :**
- • **Roboanalyzer 3D model (Default robot 4, 4R) was used**
- • **Initial and final Dh parameters were set**
- • **Number of steps : 2000**
- • **Time : 8.00s**

- ❖ **TASK : To plot mathematical function using VRM in Matlab**
- ❖ **METHOD :**
- • **Code is shown in the image.**


```
trial2.m  ⊠  +
1 —   robotserver=actxserver('IITDelhi.VirtualRobotModuleCOM');
2 —   feature('COM_SafeArraySingleDim',1);
3 —   robotserver.ShowAvailableRobots;
4 —   robotserver.LoadRobot('kukakr5');
5 —   robotserver.DisplayRobot;
6 —   jointValues= [-90 90 0 0 0 0]';
7
8
9     for i= -90:90
10 —      jointValues(1)=i;
11 —      jointValues(3)=4*sin(i);
12 —      robotserver.UpdateRobot(jointValues);
13 —      pause(0.02);
```

ROC_G7_Vid4

THANK YOU