```matlab
% Tutorial for Lines

% function VLFL_EXP72

PosesampleHook; PS=ans; fourBarposesyntheses(PS,[1 2 3],[16 3 3],[1 2 3],[1 3]);PS=ans;

fourBarposesortsolution(PS,'base-posy',[-inf -20],'ground-length','flip'); PSX=ans;

fourBarposelayering(PSX,1,[3 1.6 3],[0 0 -1 1],'wlim',[30 165]); CLLL=ans;

fourBarCLLL2SGdesign(CLLL,[3 1.6 3],'assembly','DIN7991');



fourBarCLLL2SGdesign(CLLL,[3 1.6 3 6],PS.RACK,'assembly','DIN7991','mirr',20);
```
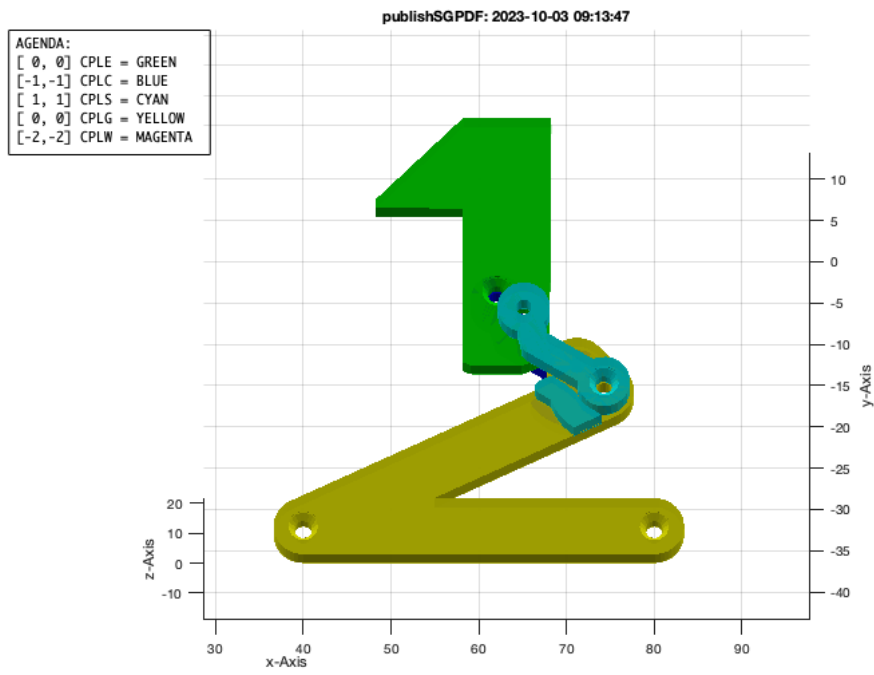
```
fourBarposesyntheses: Number of Gridpoints should be: 16
PoseaddGPL: CPLE 3.0 mm Buffer for 15 attachment points
fourBarposesyntheses: 3-Pose-Synthesis using poses: [1,2,3]
PoseaddGPL: CPLE 3.0 mm Buffer for 61 attachment points
checkfourbar3Poseattachpermutation: Original solution format "PS.GAL" (3Poses) converted into general pose solution format: "PS.solut"
fourBarposesyntheses: 272 solution were found using 3-Pose-Synthesis.
fourBarposesyntheses: 151 solution were left after forcing a pose order
fourBarposesyntheses: Now forcing an angle limit [1,3]
fourBarposesyntheses: 151 Solutions are angle limited to [1,3]
Poseplotsolution: Plot a limited selection of 10 of 151 solutions
ans =
    '[4.3; 4.3; 4.3; 3.4; 3.4; 3.4; 3.4; 2.1; 2.1; 2.1; 2.1; 1.5; 1.5; 1.5; 1.5; 1.5]'
Poseplotsolution: Plot a limited selection of 10 of 16 solutions
fourBarposelayering: We use solution #1 of 16 solutions
fourBarposelayering: The links have a radius of 3.0mm and a height of 3.0mm and we use 1.6M screws!
fourBarposelayering: We use Levels [0,0,-1,1,-2] for layering of "Ground", "Effector", "Crank", "Swing", "World"
fourBarposelayering: Crank and swing move on different sides of the ground rack
fourBarposelayering: Crank rotation angle of solution 1 is 2.60(rad) is 149º
CPLrack4PL: WARNING: SOME POINTS ARE NEARER THAN 2*b AND MAY OVERLAP!
CPLrackPLdelaunay: WARNING: SOME POINTS ARE NEARER THAN 2*b AND MAY OVERLAP!
fourBarposelayering: DESIGN THE EFFECTOR
fourBarposelayering: DESIGN THE CRANK
PLshortestpathinCPLcost: CONTOUR BUFFER IS 3.0mm AND SEARCH RESOLUTION IS 0.3mm
fourBarposelayering: DESIGN THE SWING
PLshortestpathinCPLcost: CONTOUR BUFFER IS 3.0mm AND SEARCH RESOLUTION IS 0.3mm
Elapsed time is 1.180872 seconds.
fourBarCLLL2SGdesign: Assembly Method is "DIN7991" using M1.6 x 6mm
Warning: Screw length and solid height may cause boolean trouble
fourBarCLLL2SGdesign: LAYERS USED FOR ASSEMBLY: [   0,   0,  -1,   1,  -2]
fourBarCLLL2SGdesign: Desing assembly method between solids
fourBarCLLL2SGdesign: Implement assembly method at all solids
fourBarCLLL2SGdesign: Implement assembly method for rack points
SGwriteMultipleSTL: Writing 4 STL files in <a href = "matlab: openbydoubleclick ('/Users/timlueth/Desktop/STLmult SGofCLLL 2023-10-03-0913')">/Users/ti
fourBarCLLL2SGdesign: ASSEMBLY of 4 parts:
% [2023-Oct-03 09:13:25 by timlueth]
% Required for production (ANYCUBIC-PREDATOR Printer) are the following SG-Lib functions and standard parts:
   4 * DIN965 or DIN7991 M1.6 x 6mm (screw)


fourBarCLLL2SGdesign: Assembly Method is "DIN7991" using M1.6 x 6mm
Warning: Screw length and solid height may cause boolean trouble
fourBarCLLL2SGdesign: LAYERS USED FOR ASSEMBLY: [   0,   0,  -1,   1,  -2]
fourBarCLLL2SGdesign: Desing assembly method between solids
fourBarCLLL2SGdesign: Implement assembly method at all solids
fourBarCLLL2SGdesign: Implement assembly method for rack points
SGwriteMultipleSTL: Writing 4 STL files in <a href = "matlab: openbydoubleclick ('/Users/timlueth/Desktop/STLmult SGofCLLL 2023-10-03-0913')">/Users/ti
fourBarCLLL2SGdesign: ASSEMBLY of 4 parts:
% [2023-Oct-03 09:13:42 by timlueth]
% Required for production (ANYCUBIC-PREDATOR Printer) are the following SG-Lib functions and standard parts:
   4 * DIN965 or DIN7991 M1.6 x 6mm (screw)
```

publishSGPDF: 2023-10-03 09:13:47

AGENDA:
[0, 0] CPLE = GREEN
[-1,-1] CPLC = BLUE
[1, 1] CPLS = CYAN
[0, 0] CPLG = YELLOW
[-2,-2] CPLW = MAGENTA

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