Supporting Documentation

Tchemon Coulibaly
Sam Maruska

NOTE: Since there is a probability of keeping solutions in order to have a varied solution set. Upon each run, the user may get a mechanism smaller than the example, but not by a significant factor.

w	z	u	s	O_2x	O_2y	O_4x	O_4y	A1X	A1Y	B1X	B1Y	A2X	A2Y	B2X	B2Y	G1	V1	W + V1 + U
3.696365112	6.353104685	3.688964128	6.876323629	12.70991668	11.09053389	13.7712063	12.94191292	14.50195005	14.32344766	15.72605946	16.07033193	9.757868247	13.31506194	10.82506856	15.16198695	1.500890173	2.133084269	9.518413509
9.924008505	5.671754996	3.186565196	12.64728696	6.341304794	3.501904538	15.60874452	5.252610822	5.131872394	13.35194099	17.2973668	7.95497137	0.508118951	11.53059607	13.09769687	7.214456252	13.10613894	13.30888933	26.41946303
4.536124711	5.514020501	3.7025574	1.965870716	5.46821082	8.194409369	9.120450129	13.81944564	6.411324178	12.63140887	10.91548558	17.05777531	1.845500547	10.92431737	5.946738997	15.72640368	5.165046365	6.315076385	14.5537585
4.117594725	5.320577177	3.774784308	3.379294156	4.516689368	9.407048846	10.36107309	12.90115741	5.651652291	13.36513493	12.13322698	16.23409413	1.024771001	11.58904161	7.231635073	15.01199001	8.265206728	7.088140611	14.98051965
6.508526077	3.971897754	4.097305954	5.003296554	4.951284065	9.576992778	11.7094573	11.33127846	5.291914001	16.07659915	13.37598177	15.0743537	0.430081946	14.25883463	8.57073884	13.96497596	9.557500242	8.145958972	18.751791
4.06285966	3.427228499	4.572525977	7.360889288	6.068275959	10.63242757	14.43902078	11.88644376	7.391013681	14.47393685	16.22564902	16.09547611	2.660875141	12.84521953	11.32056557	15.23057755	11.83802086	8.982214157	17.61759979
4.050636418	1.364625677	4.492751714	12.19361327	6.208617068	13.25527721	15.4495669	3.886289519	7.726012178	17.01096189	16.83790353	8.159150313	2.773482566	15.40178748	12.62218663	7.37781337	13.06867658	12.70358738	21.24697551
3.646695374	10.54392163	8.027479849	3.601694735	5.327198058	3.792916546	11.83588049	8.815831381	6.271032272	7.315353789	12.53552146	16.81276425	2.169067224	5.616264233	7.581964275	15.62352038	9.204666968	11.37737361	23.05154883
5.449453127	3.612473776	6.046196435	3.710403897	5.282417431	10.03155074	6.344839014	8.437426231	6.040834722	15.42797017	6.871799756	14.46061506	1.232684538	13.67794662	2.144798052	12.78669597	1.502491012	1.275256359	12.77090592
4.511506553	6.443914875	10.33240858	0.986089914	4.724409337	7.606632787	8.868244779	6.460571123	5.585245371	12.03525026	8.327488296	16.77881949	1.074523866	10.2584298	3.392902429	15.22295054	5.860268282	5.479173782	20.32308891

Selected Solutions of MATLAB code output. Each row is an individual solution.
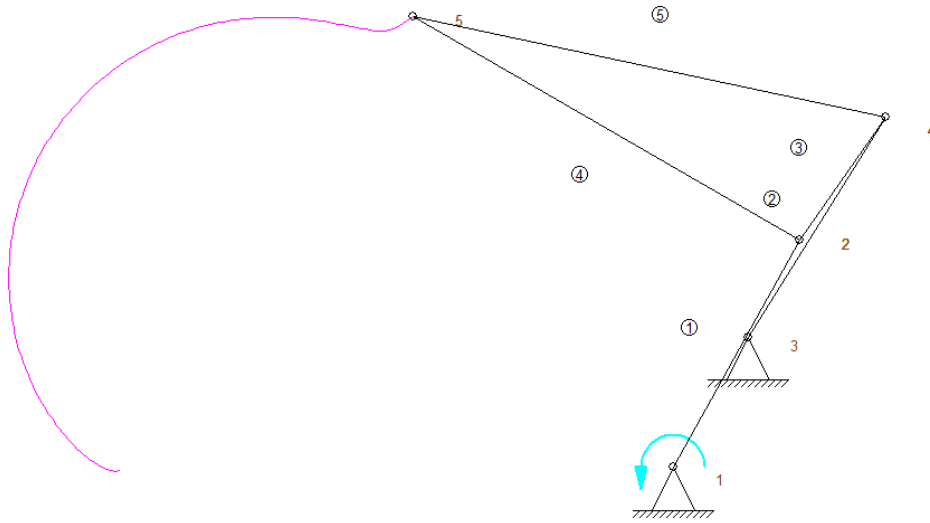
The Example solution that follows is from the first row.
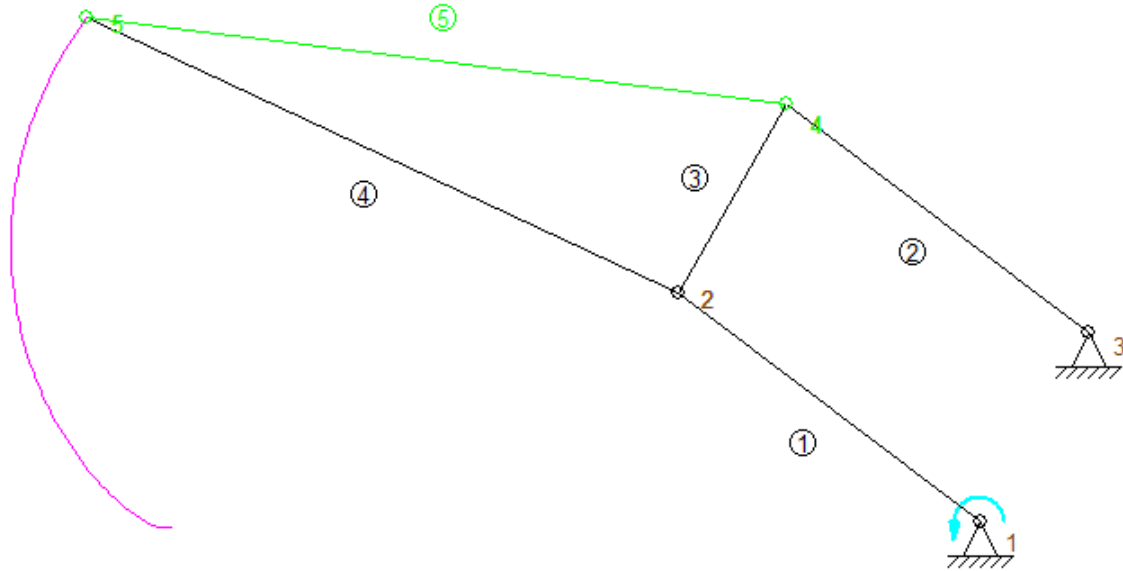
Page 2: P1 position of SAM mechanism
         P2 position of SAM mechanism
Page 3: Position as a function of Theta from P1 to P2

SAM Mechanism at P1:

SAM Mechanism at P2:

XY Data as a function of theta for point P.

Theta [deg]	P_x [in]	P_y [in]
61	9	17.5
62	8.868	17.396
63	8.763	17.338
64	8.676	17.309
65	8.597	17.297
66	8.524	17.295
67	8.454	17.299
68	8.387	17.307
69	8.32	17.318
70	8.255	17.329
71	8.189	17.342
72	8.125	17.355
73	8.06	17.369
74	7.996	17.381
75	7.931	17.394
76	7.867	17.406
77	7.803	17.418
78	7.738	17.428
79	7.674	17.438
80	7.609	17.448
81	7.544	17.456
82	7.479	17.463
83	7.415	17.47
84	7.35	17.475
85	7.285	17.48
86	7.22	17.484
87	7.155	17.486
88	7.09	17.488
89	7.025	17.488
90	6.96	17.488
91	6.895	17.486
92	6.83	17.484
93	6.765	17.48
94	6.7	17.475
95	6.635	17.469
96	6.571	17.462
97	6.506	17.454
98	6.442	17.445
99	6.378	17.435
100	6.314	17.424

Theta [deg]	P_x [in]	P_y [in]
100	6.314	17.424
101	6.25	17.412
102	6.187	17.398
103	6.124	17.384
104	6.061	17.368
105	5.998	17.352
106	5.936	17.334
107	5.874	17.316
108	5.812	17.296
109	5.751	17.275
110	5.69	17.253
111	5.629	17.23
112	5.569	17.206
113	5.509	17.181
114	5.45	17.155
115	5.391	17.128
116	5.333	17.1
117	5.275	17.071
118	5.218	17.041
119	5.161	17.01
120	5.105	16.978
121	5.049	16.946
122	4.994	16.912
123	4.939	16.877
124	4.886	16.841
125	4.832	16.804
126	4.78	16.767
127	4.728	16.728
128	4.677	16.689
129	4.626	16.649
130	4.576	16.608
131	4.527	16.566
132	4.479	16.523
133	4.431	16.479
134	4.384	16.435
135	4.338	16.389
136	4.293	16.343
137	4.249	16.296
138	4.205	16.249
139	4.162	16.201
140	4.12	16.151
141	4.079	16.102
142	4.039	16.051
143	4	16