Using High Density Conductive Polyethylene Black Foam as a restive sensor to build spatial object awareness in robotic grippers

Magnus Sörensen, Daniel Stenekap

Märlardalens högskola

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Contents

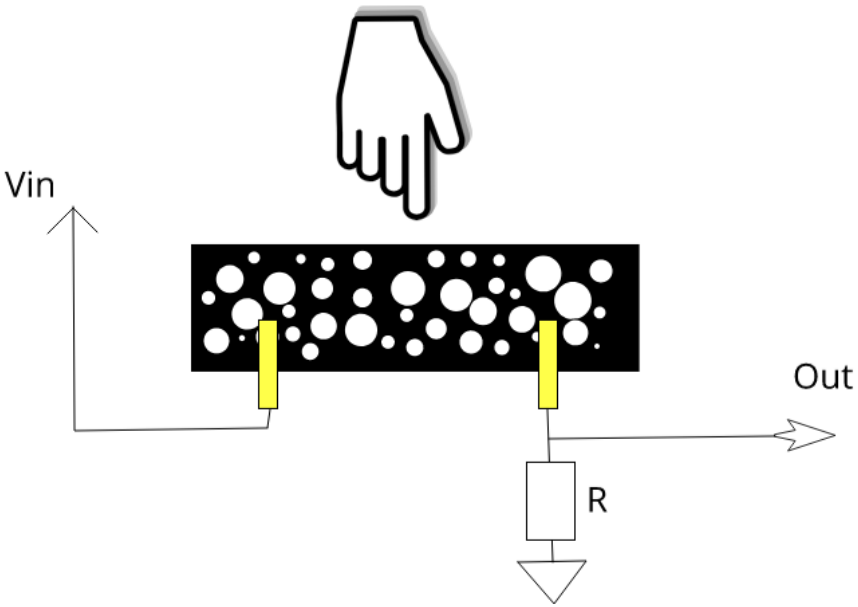
Introduction

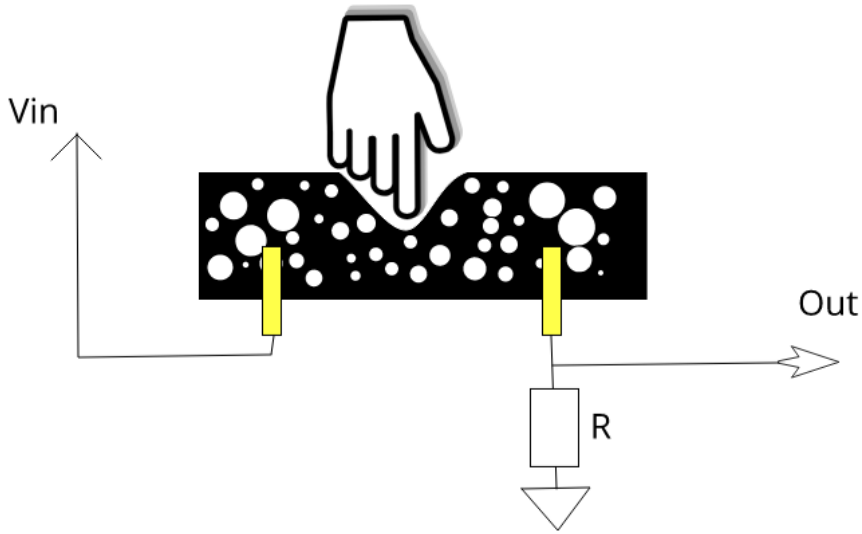
High Density Conductive Polyethylene Black Foam

What is High Density Conductive Polyethylene Black Foam?

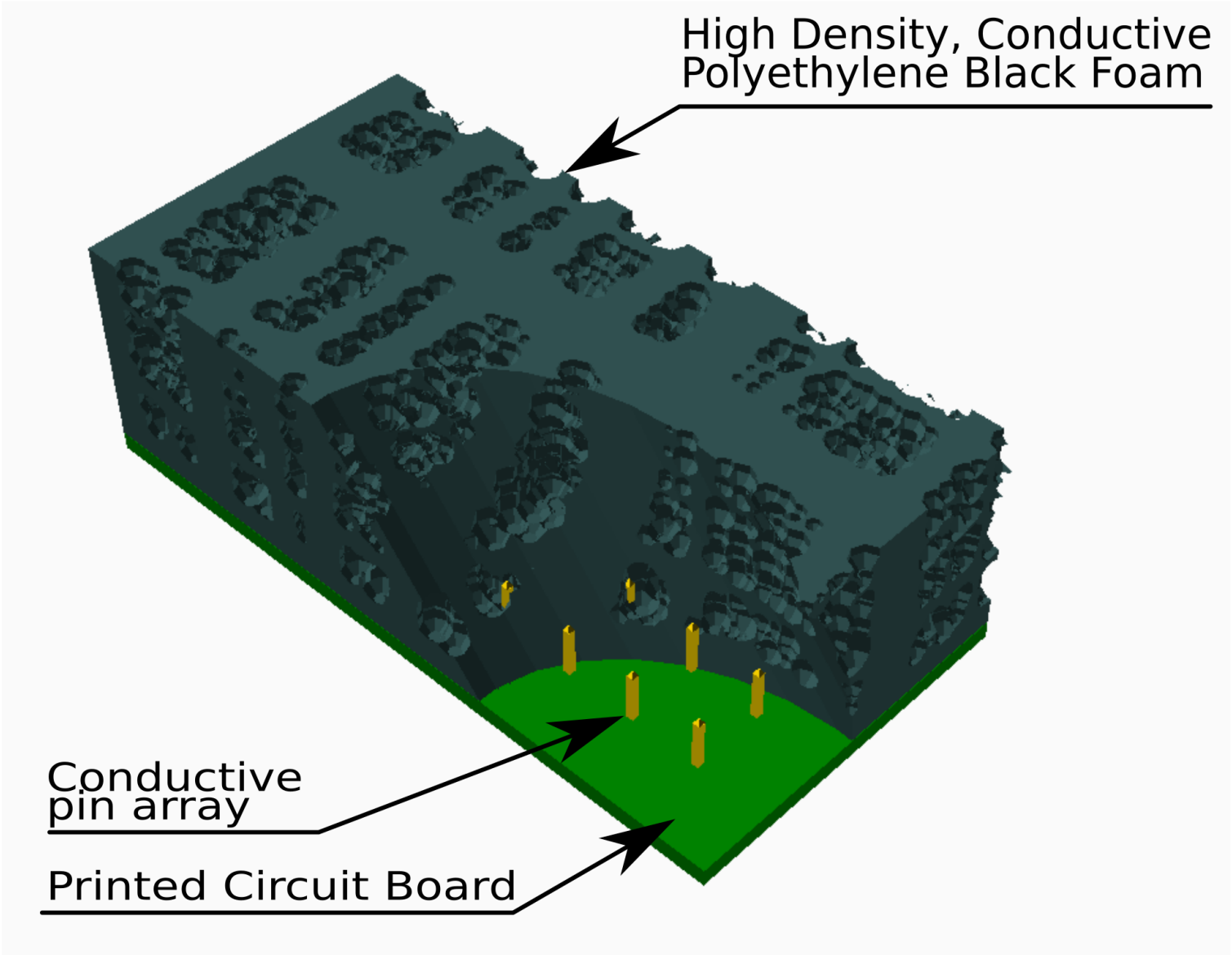
Contents

How is this used?

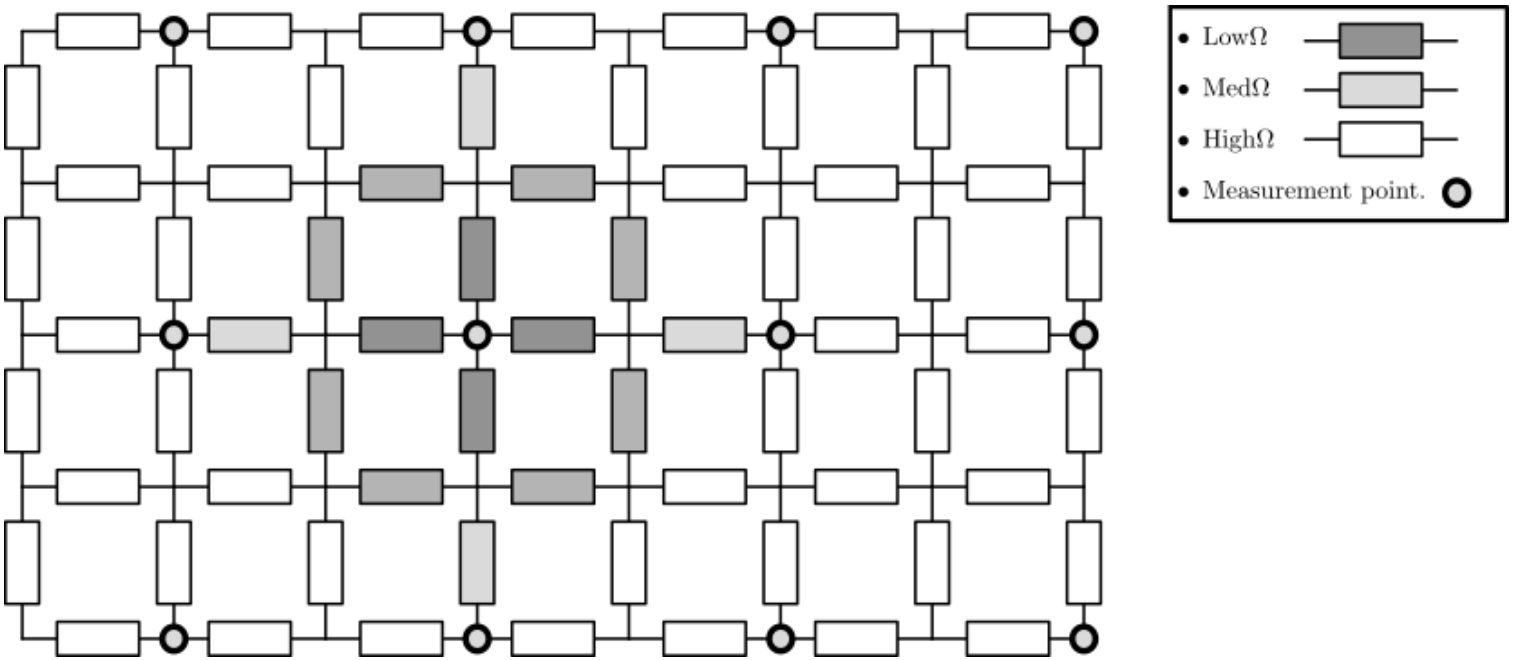




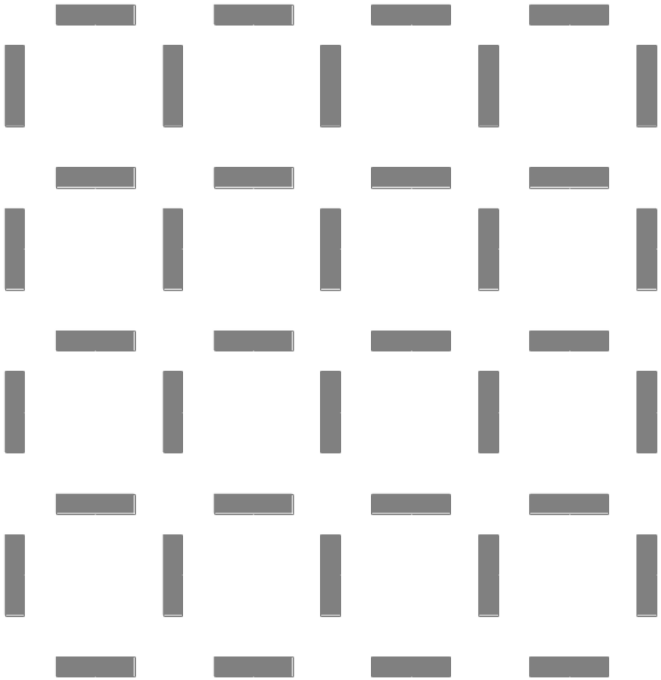
What was done

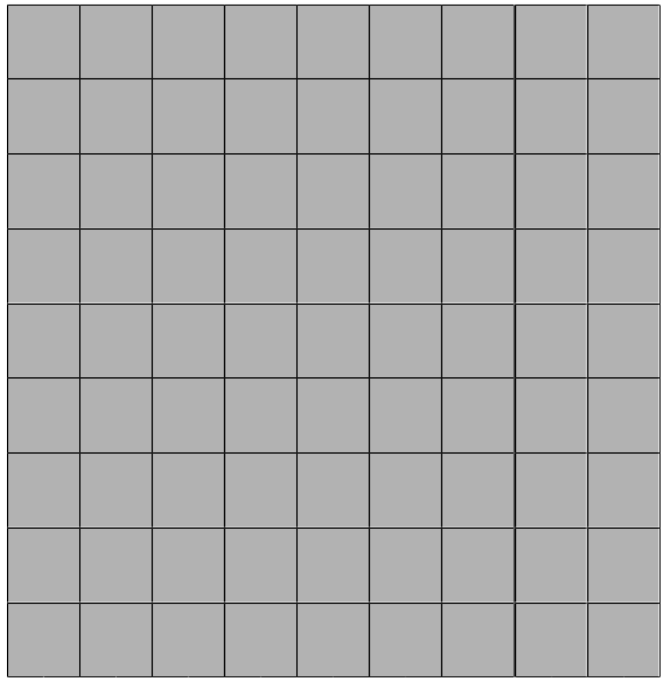


What was done

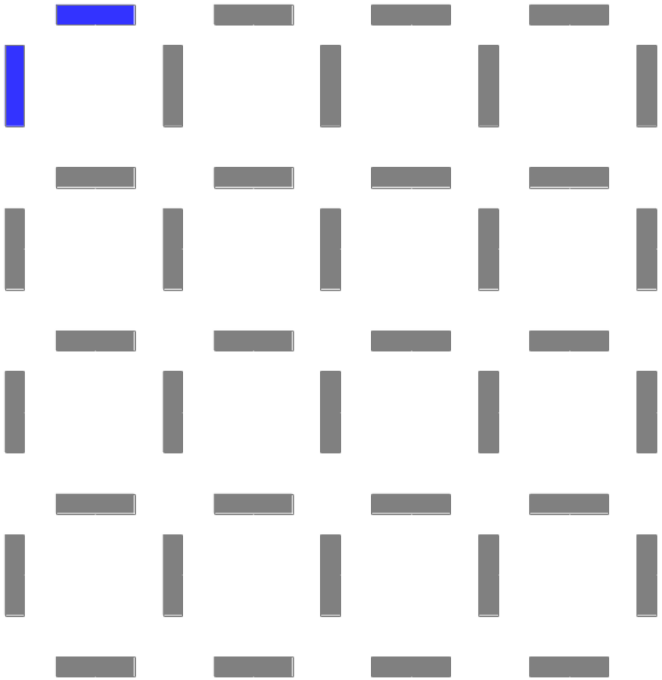


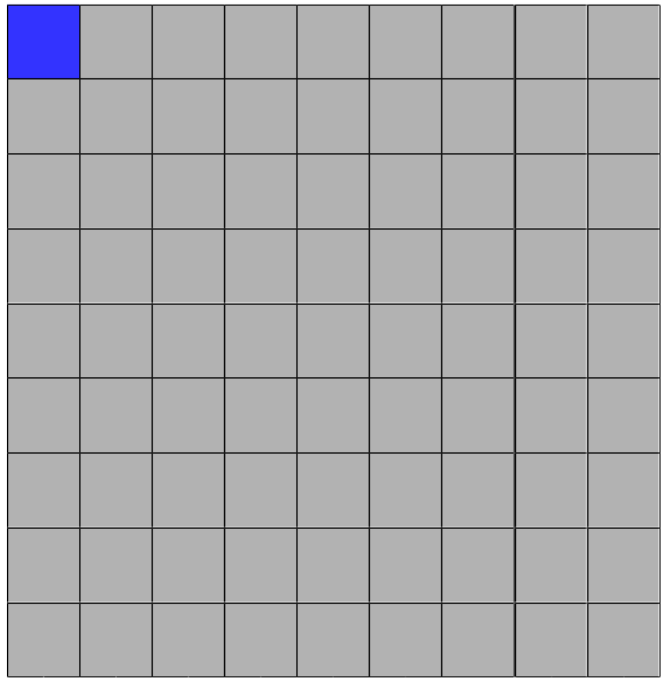
The algorithm





The algorithm





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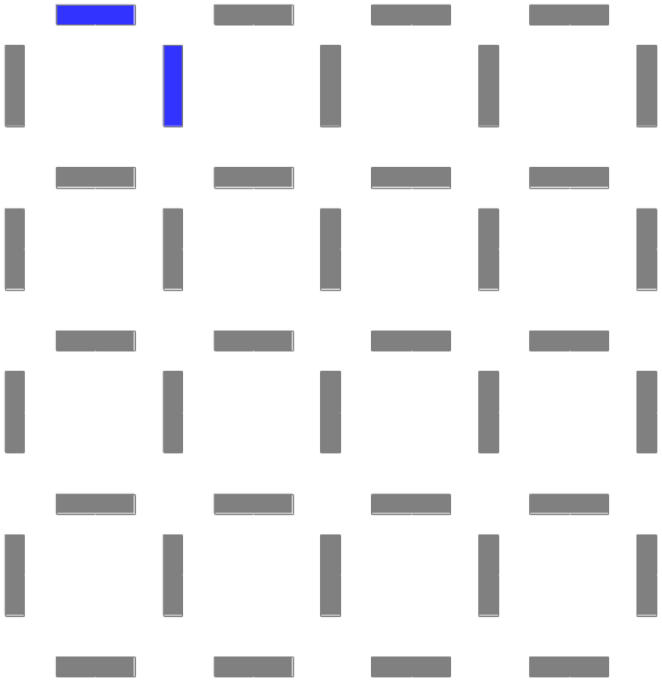

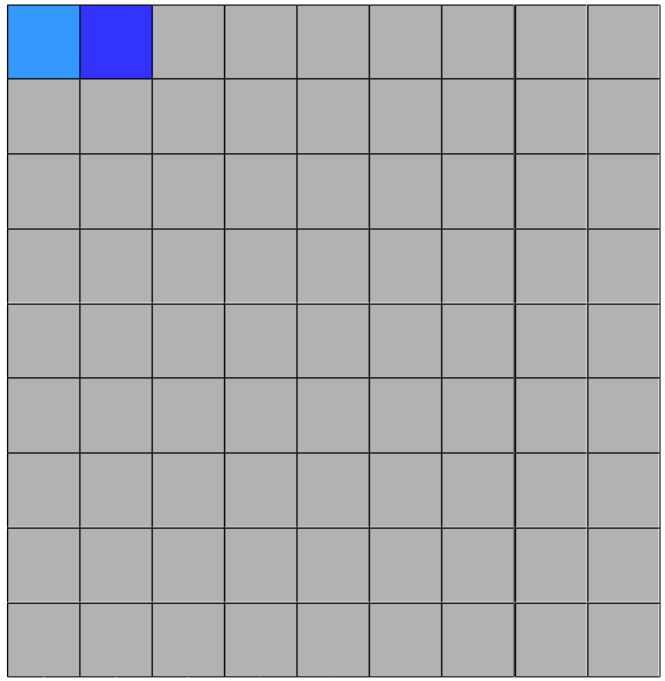

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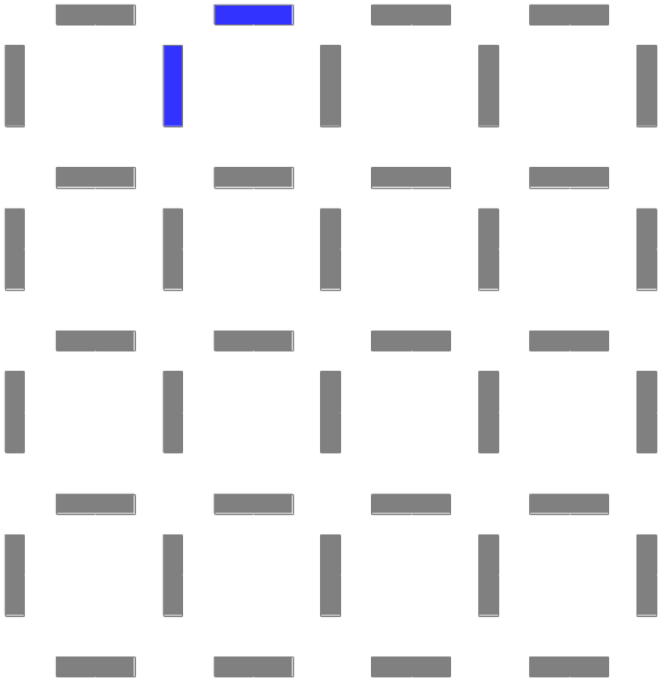

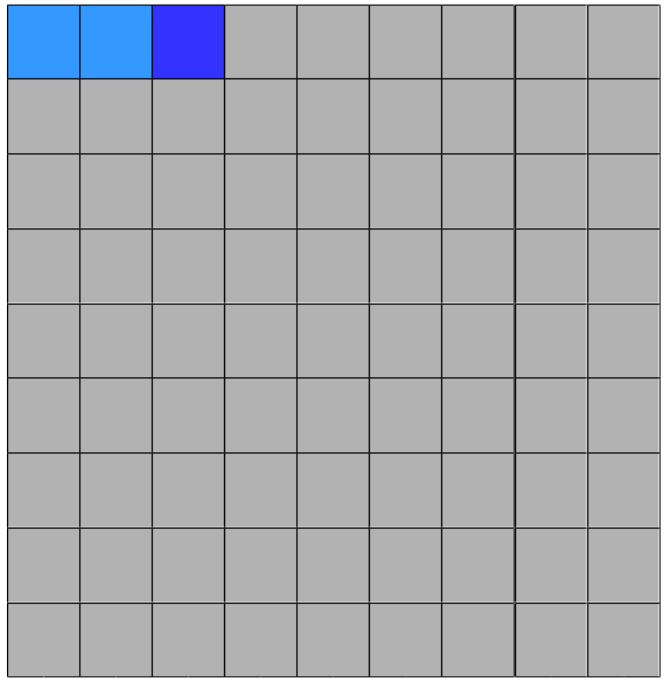

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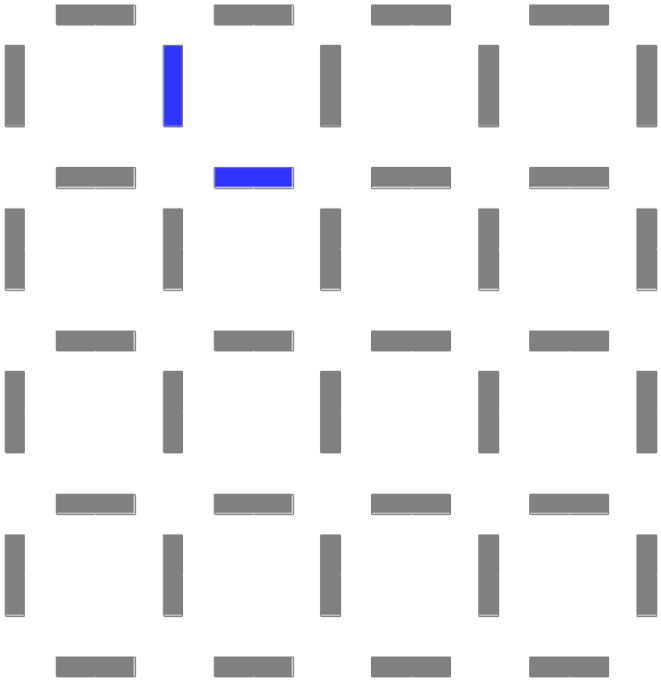

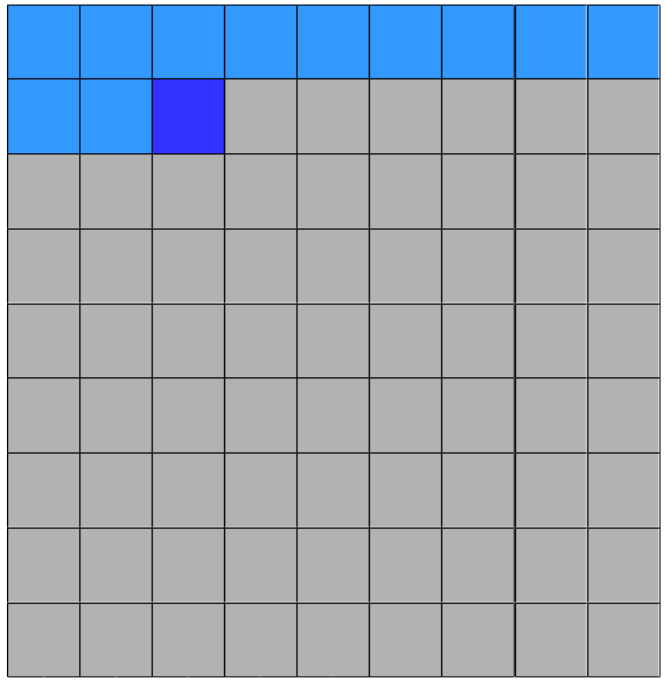

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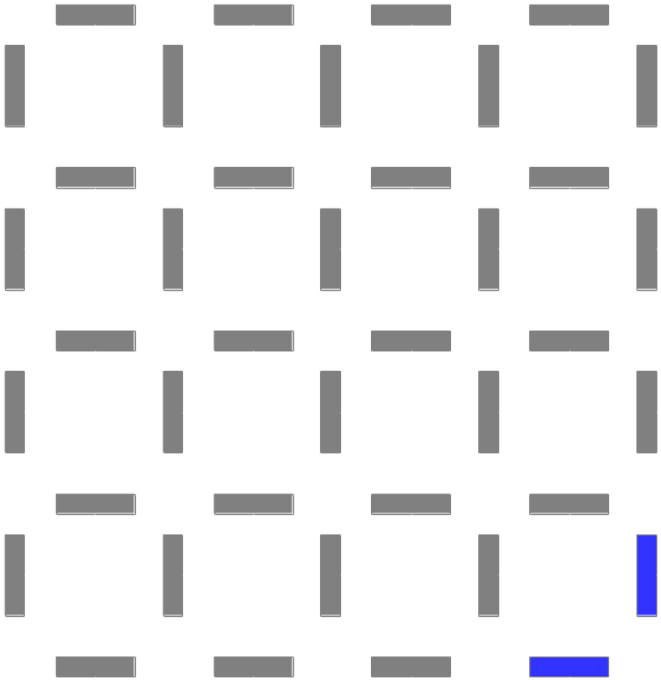
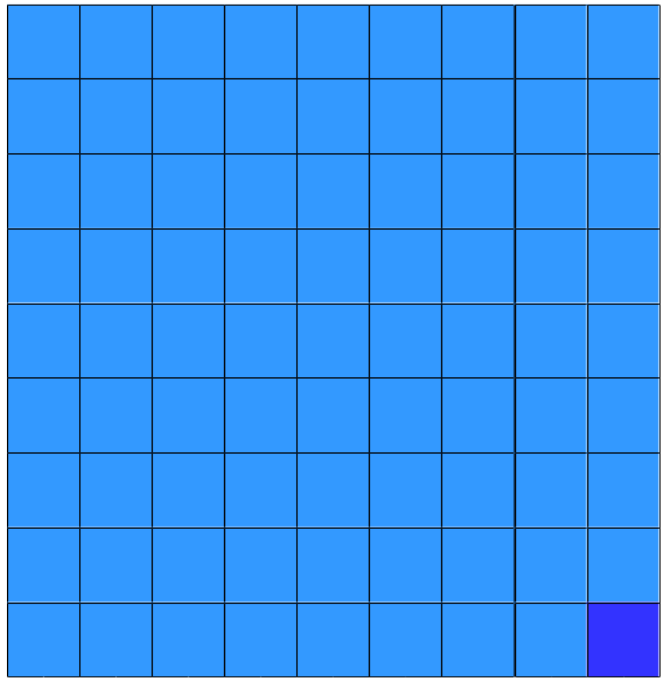
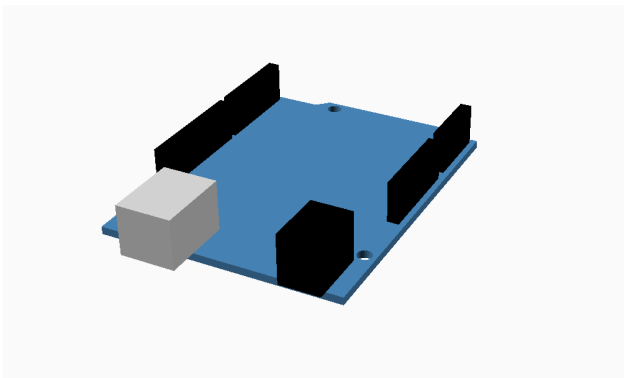
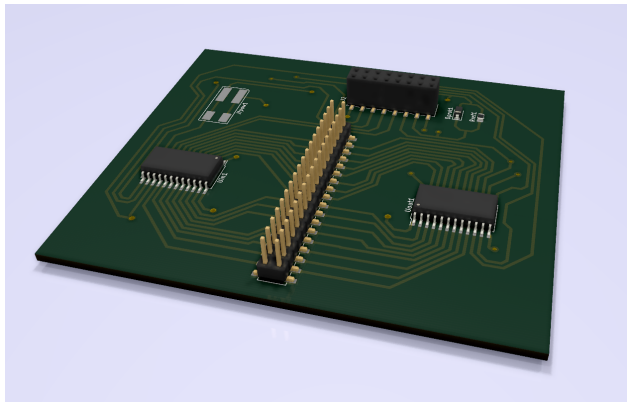
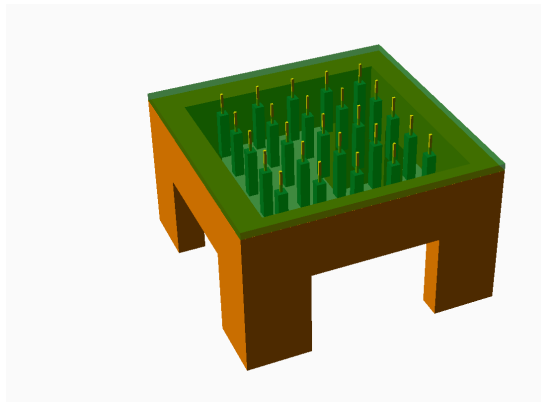




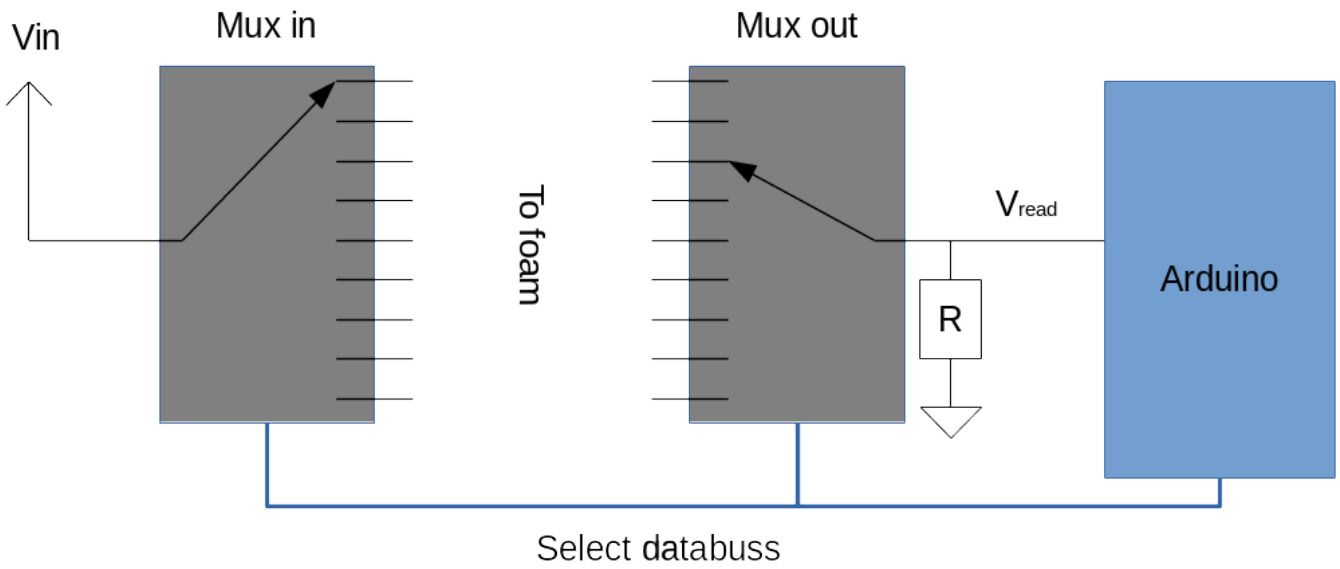
Hardware implementation



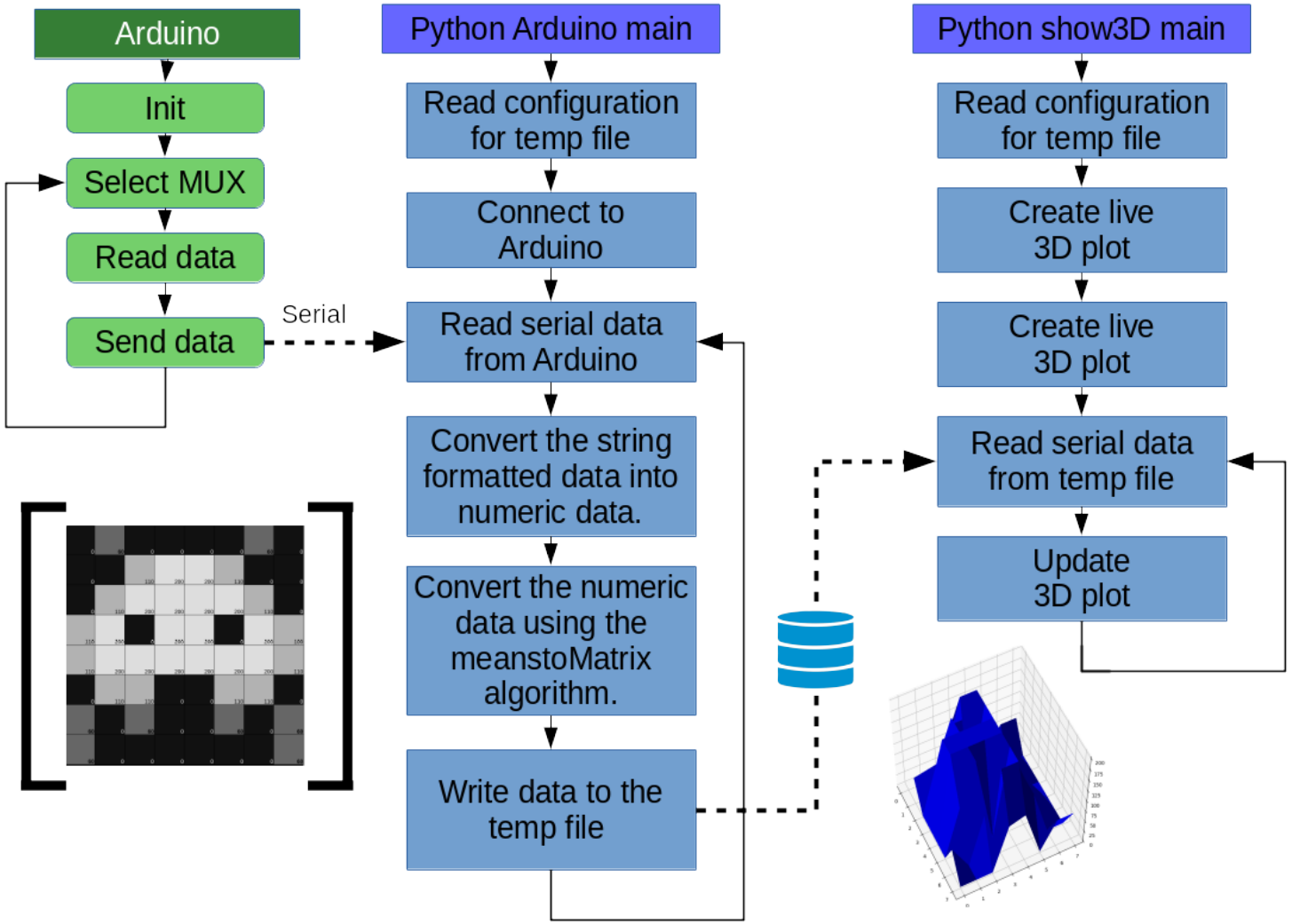




How the measurements was done



Software design



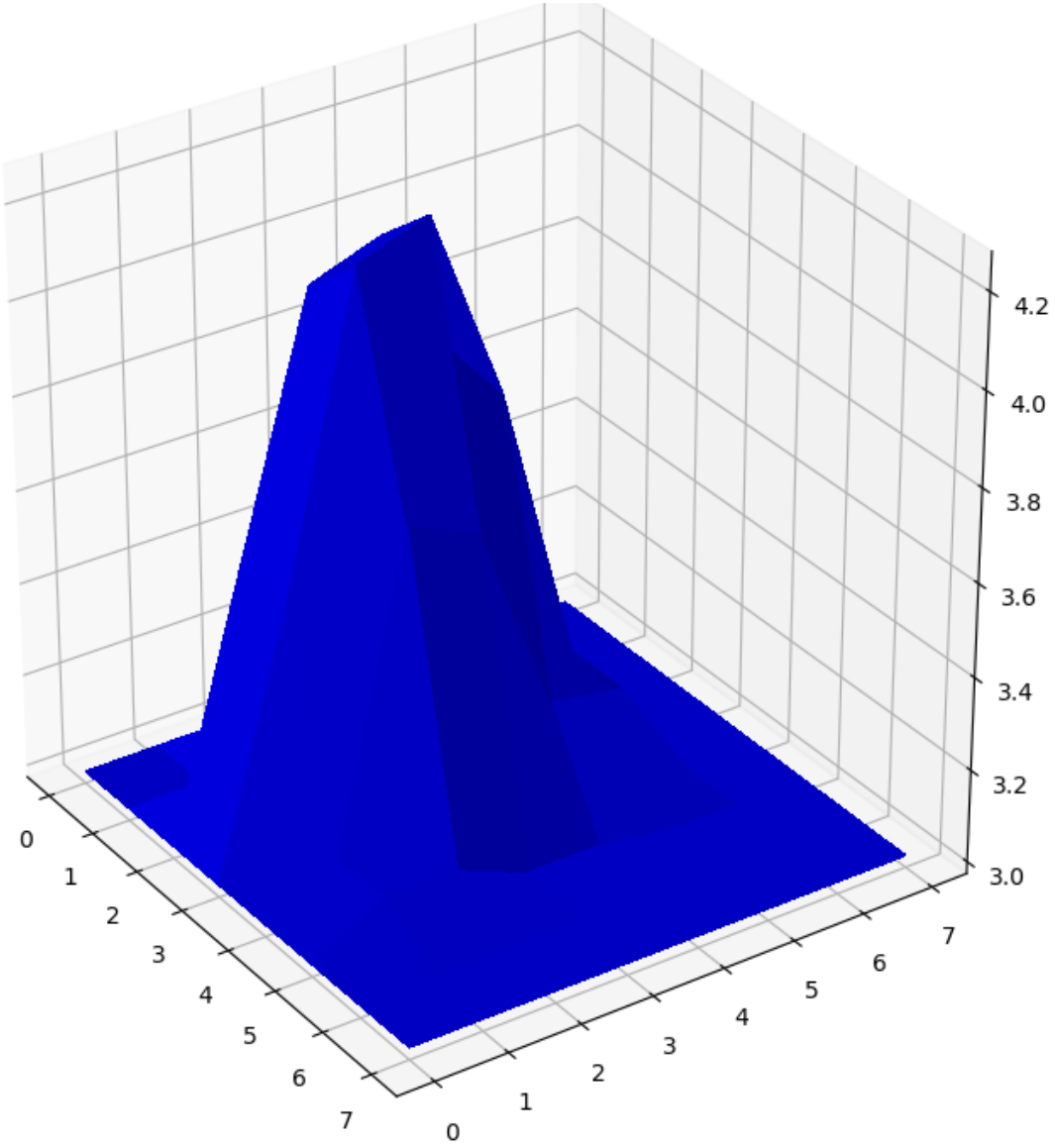
Contents

Results

Due to project complexity, the electronics of the project could not be completed within time scope.

- Proof of concept measurements of the foam resistance drop when exposed to pressure.
- Result from program with dummy text string as input is shown on the next slide. This corresponds somewhat to Proof of concept measurements.

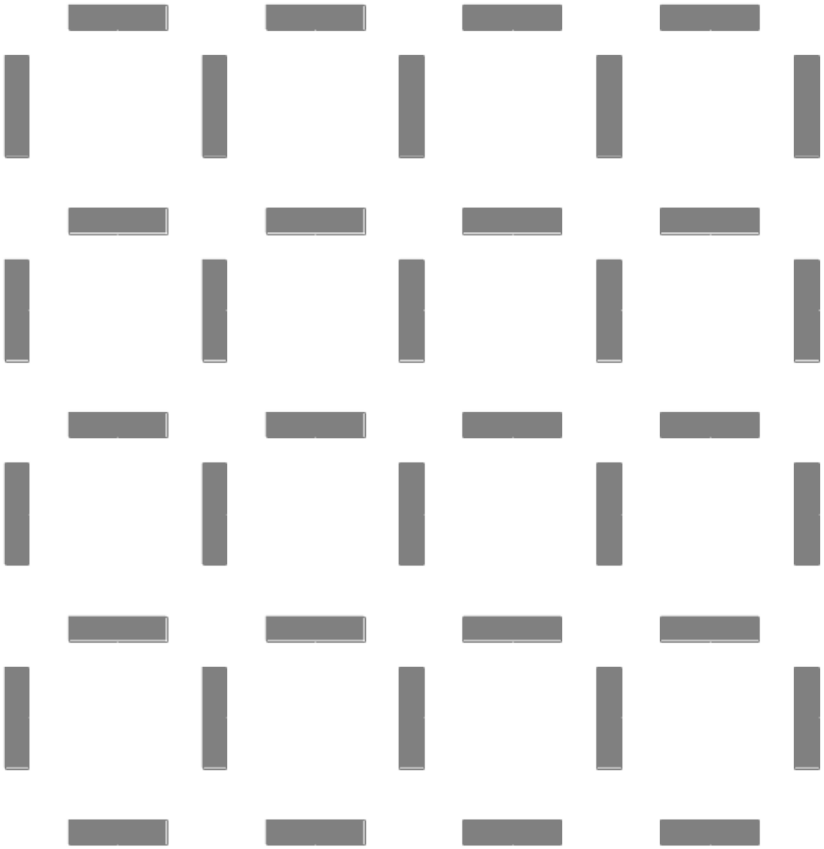
Results

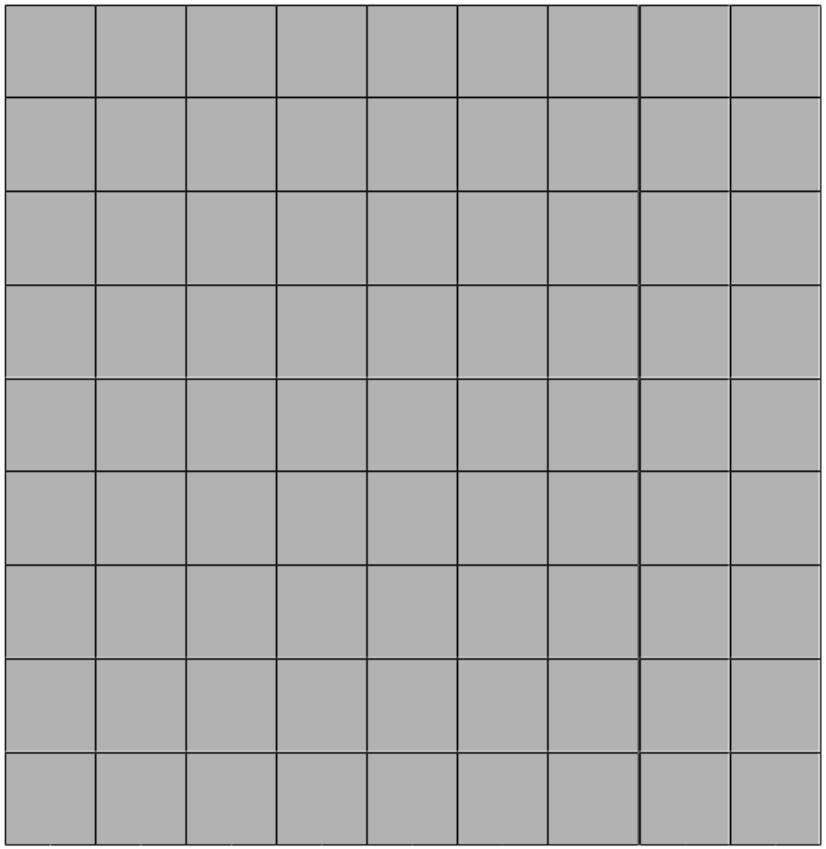


Results

	A	B	C	D	E	F	G	H	I
1	Array2Matrix	+	GND	Values	Shifted V_INDX Map		ARRAY INDX	V_INDX1	V_INDX2
2	3	1	1	3	2	8	0	0	6
3	3	1	2	3	2	4	1	0	2
4	3	1	4	3	3	4	2	1	2
5	3	2	2	3	3	11	3	1	9
6	3	2	3	3	5	11	4	3	9
7	3	2	5	3	5	7	5	3	5
8	3	3	1	3	6	7	6	4	5
9	3	3	4	3	6	15	7	4	13
10	3	3	6	3	8	9	8	6	7
11	3	4	2	3	4	9	9	2	7
12	3.55	4	4	4.1	4	12	10	2	10
13	3.55	4	5	3.18	11	12	11	9	10
14	3.09	4	7	4.3	11	13	12	9	11
15	3.09	5	3	3	7	13	13	5	11
16	3	5	5	3	6	16	14	4	14
17	3	5	8	3	15	16	15	13	14
18	3	6	4	4.08	9	10	16	7	8
19	3.54	6	6	3	9	18	17	7	16
20	4.09	6	7	4.21	12	18	18	10	16
21	4.2	6	9	3.5	12	14	19	10	12
22	3.74	7	5	3	13	14	20	11	12
23	3.09	7	7	3.05	13	22	21	11	20
24	3	7	8	3	16	22	22	14	20
25	3	7	10	3	16	17	23	14	15
26	3	8	6	3	10	19	24	8	17
27	3.54	8	9	3	18	19	25	16	17
28	4.145	8	11	3	18	20	26	16	18

The algorithm





Contents

The end

Questions?