

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

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Mälardalens högskola

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## 1 Introduction

## 2 Method

# Introduction

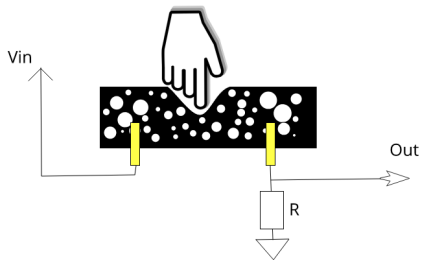
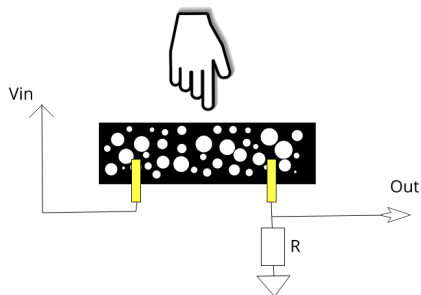


# High Density Conductive Polyethylene Black Foam

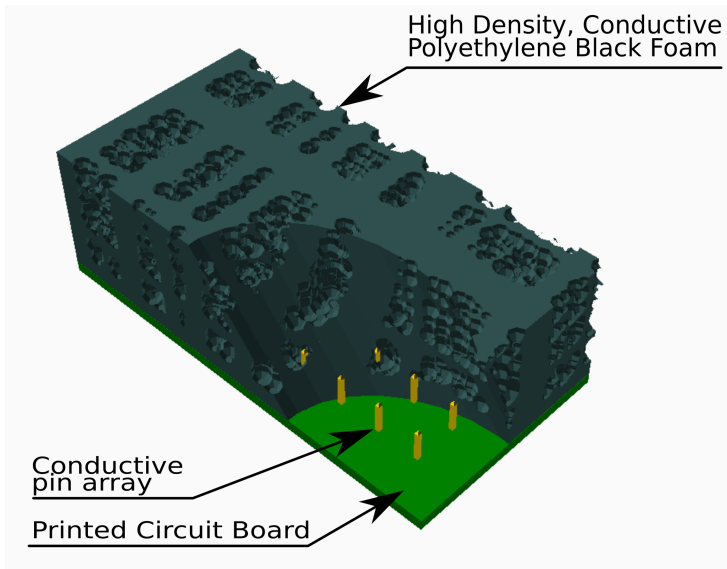
What is High Density Conductive Polyethylene Black Foam?



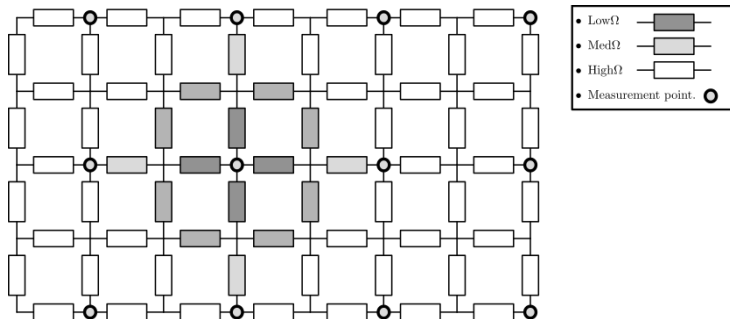
# How does it work?



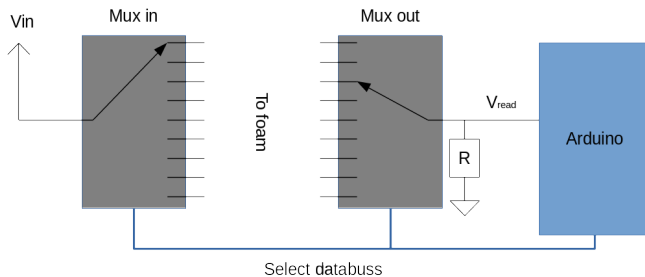
# What was done



# What was done

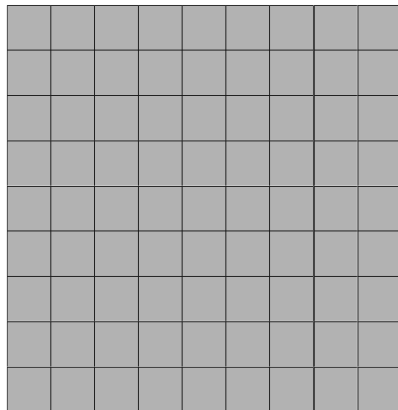
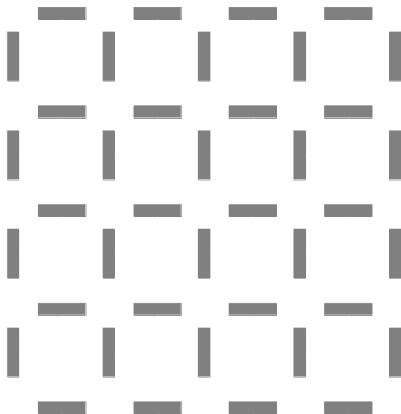


# How the measurements was done

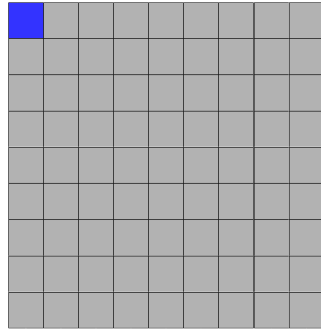
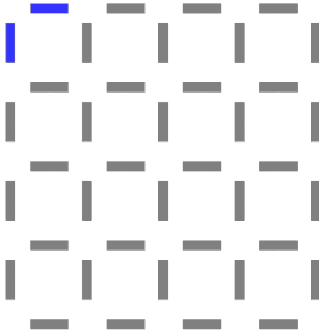




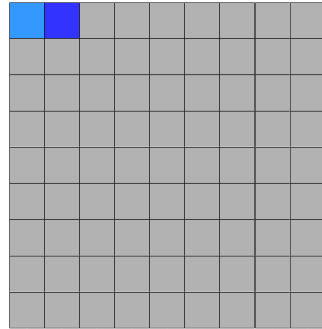
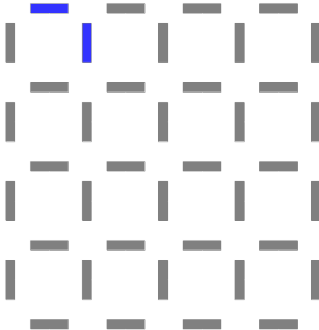
# The algorithm



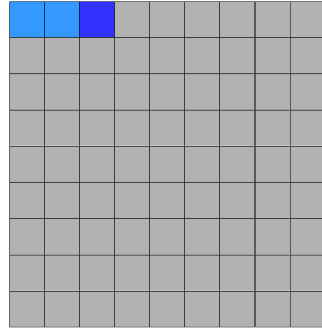
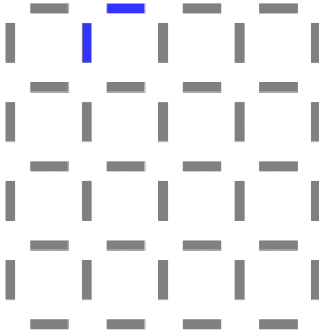
# The algorithm



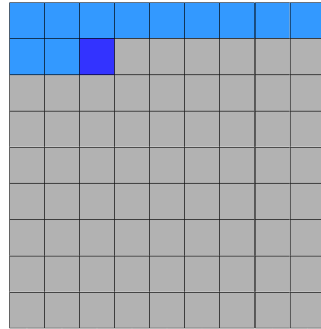
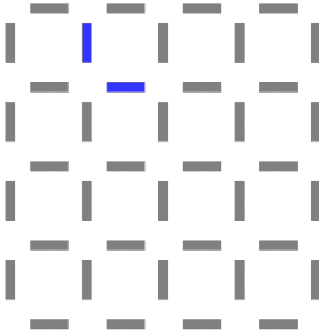
# The algorithm



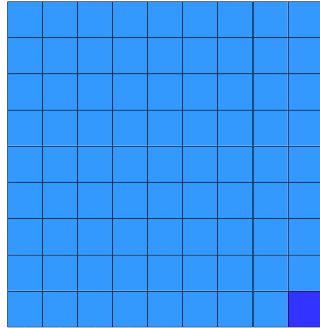
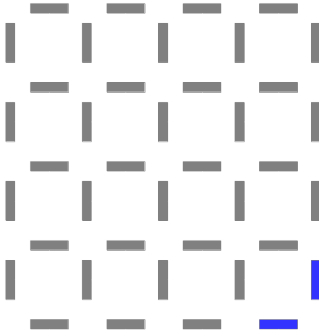
# The algorithm



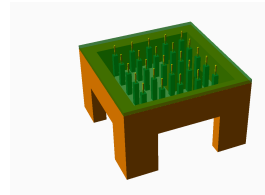
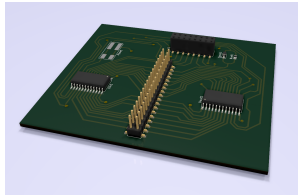
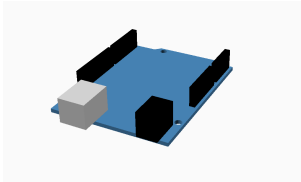
# The algorithm



# The algorithm



# Hardware implementation



# Results

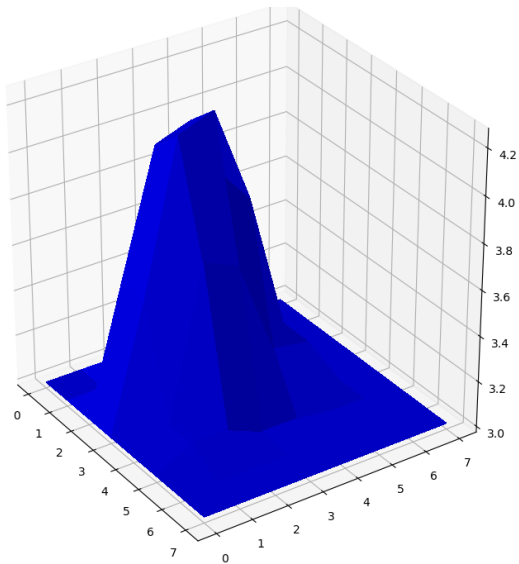
Due to project complexity, the electronics of the project could not be completed within time scope.

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

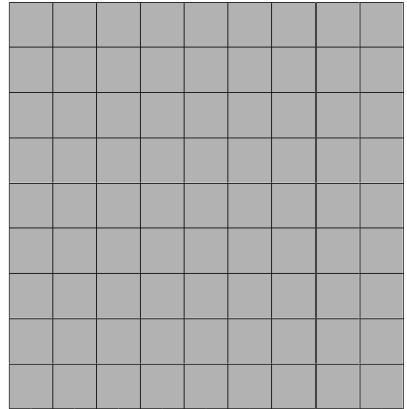
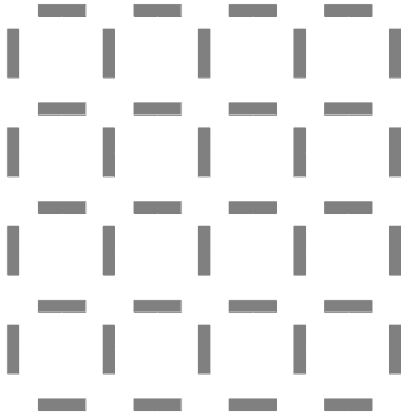


# Results

	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



**The end**  
Questions?