TANGIBLE AUDIBLE

SOUNDSCAPES

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M.F.A. Media Art and Design

Dystopic/Utopic Prototype Lab
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Conductive paint

Conductive paint is a paint that results in a printed object which conducts electricity. It is typically created by infusing graphite or other conductive materials into paint.

Conductivity of different materials

Table of Resistivity and Conductivity at 20°C

Material	ρ (Ω•m) at 20 °C Resistivity	σ (S/m) at 20 °C Conductivity
Silver	1.59×10^{-8}	6.30×10^{7}
Copper	1.68×10^{-8}	5.96×10^{7}
Annealed copper	1.72×10^{-8}	5.80×10^{7}
Gold	2.44×10^{-8}	4.10×10^{7}
Aluminum	2.82×10^{-8}	3.5×10^{7}
Calcium	3.36×10^{-8}	2.98×10^{7}
Tungsten	5.60×10^{-8}	1.79×10^{7}
Zinc	5.90×10^{-8}	1.69×10^{7}
Nickel	6.99×10^{-8}	1.43×10^{7}
Lithium	9.28×10^{-8}	1.08×10^{7}
Iron	1.0×10^{-7}	1.00×10^{7}
Platinum	1.06×10^{-7}	9.43×10^{6}
Tin	1.09×10^{-7}	9.17×10^{6}
Carbon steel	(10^{10})	1.43×10^{-7}
Lead	2.2×10^{-7}	4.55×10^{6}
Titanium	4.20×10^{-7}	2.38×10^{6}
Grain oriented electrical steel	4.60×10^{-7}	2.17×10^{6}
Manganin	4.82×10^{-7}	2.07×10^{6}
Constantan	4.9×10^{-7}	2.04×10^{6}
Stainless steel	6.9×10^{-7}	1.45×10^{6}
Mercury	9.8×10^{-7}	1.02×10^{6}
Nichrome	1.10×10^{-6}	9.09×10^{5}
GaAs	5×10^{-7} to 10×10^{-3}	5×10^{-8} to 10^{3}
Carbon (amorphous)	5×10^{-4} to 8×10^{-4}	1.25 to 2×10^{3}
Carbon (graphite)	2.5×10^{-6} to 5.0×10^{-6} //basal plane 3.0×10^{-3} ⊥basal plane	2 to 3×10^{5} //basal plane 3.3×10^{2} ⊥basal plane
Carbon (diamond)	1×10^{12}	$\sim10^{-13}$

source: thoughtco - Table of Electrical Resistivity and Conductivity
https://www.thoughtco.com/table-of-electrical-resistivity-conductivity-608499

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Silver

Aluminium

Graphite

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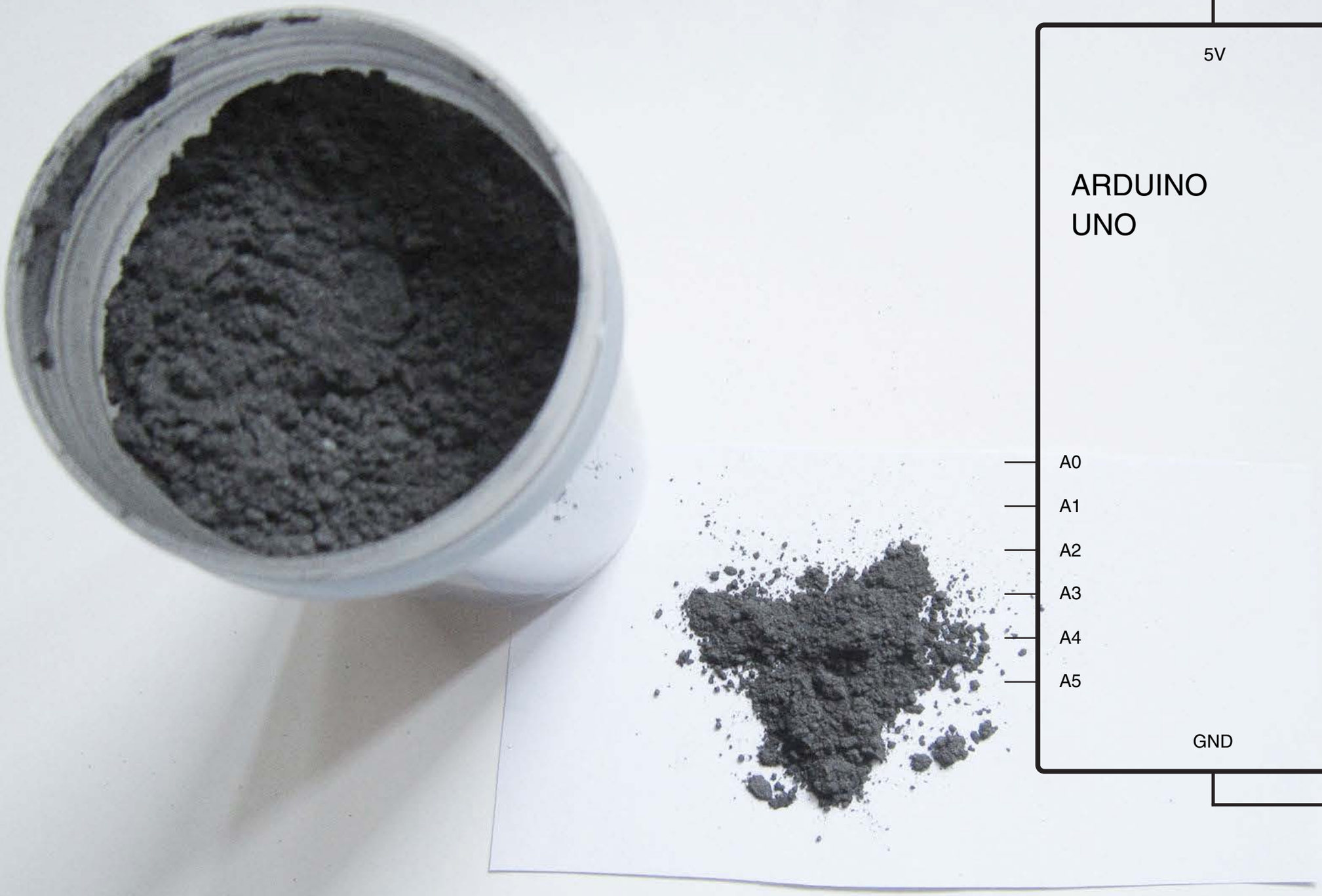
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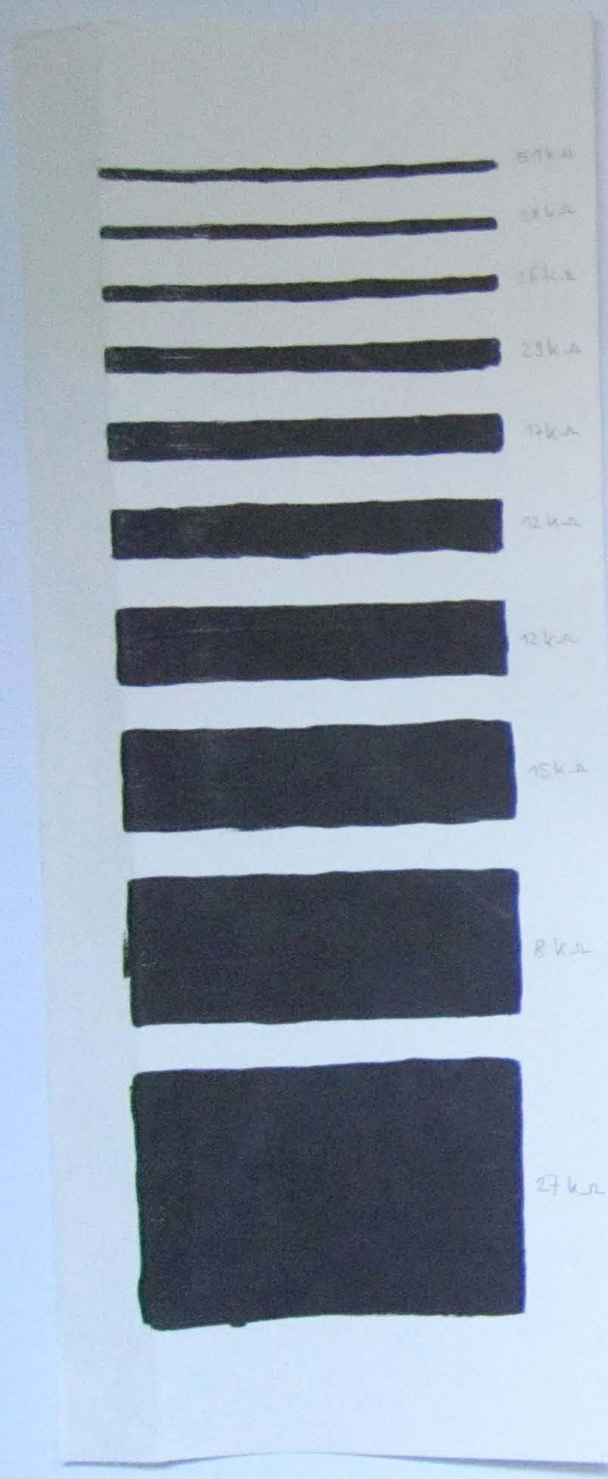
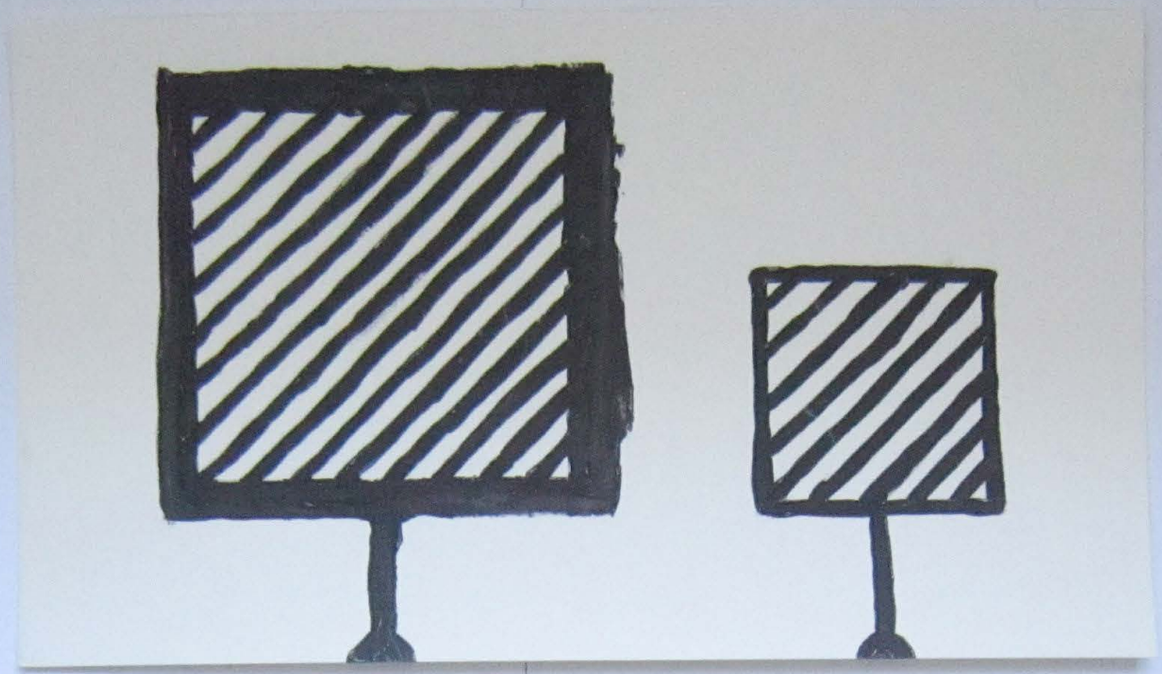
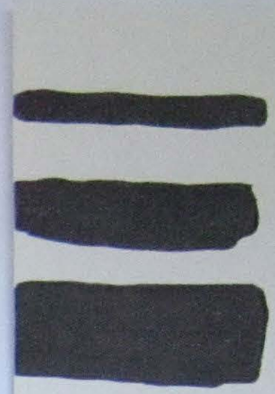
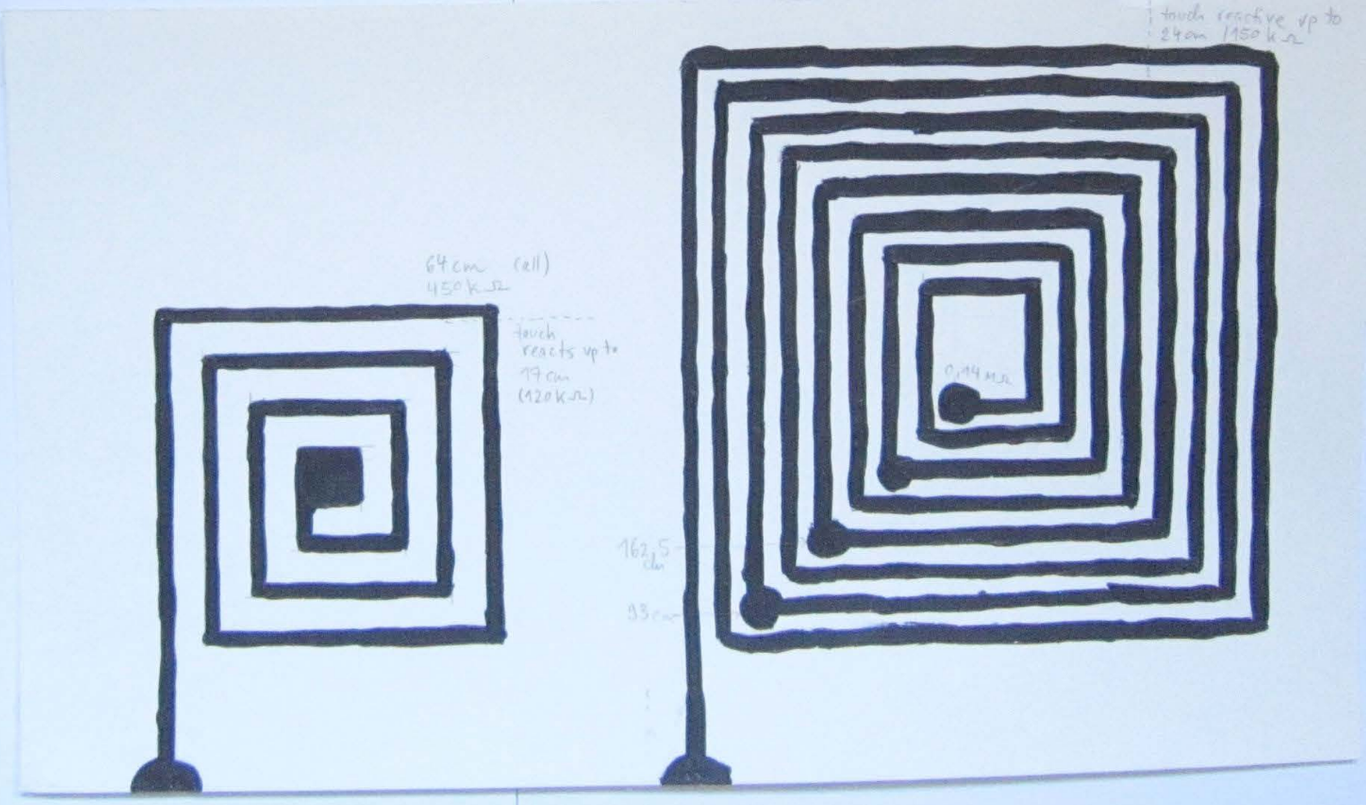
Paint experiments





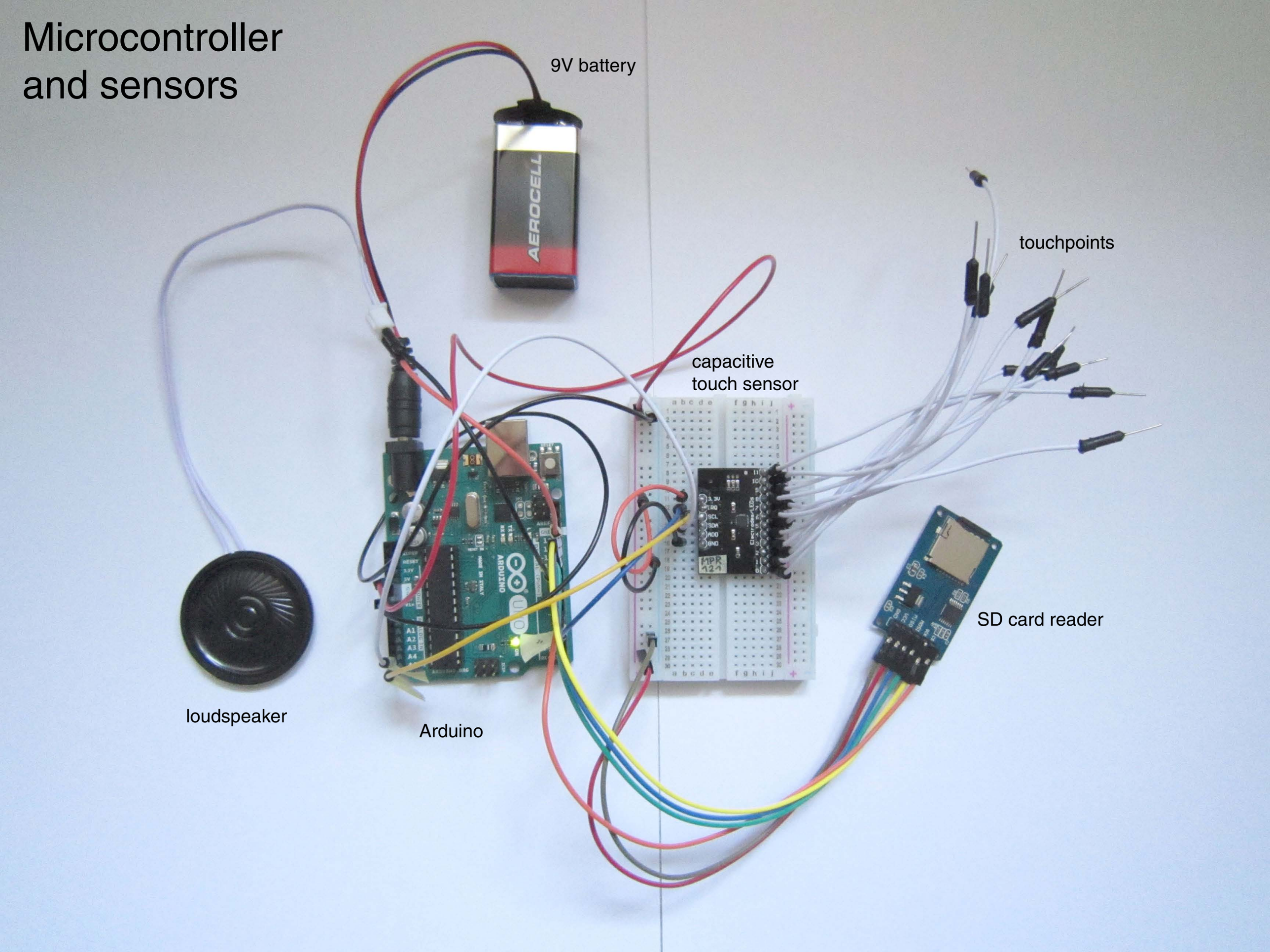




The plan

Create a poster, which is screenprinted with conductive paint.
The poster reacts to touch and generates sound. It will become a soundscape.
The technical implementation is pretty straightforward: sensors detect, whether the poster has been touched or not. An attached loudspeaker plays the sound.

Microcontroller and sensors



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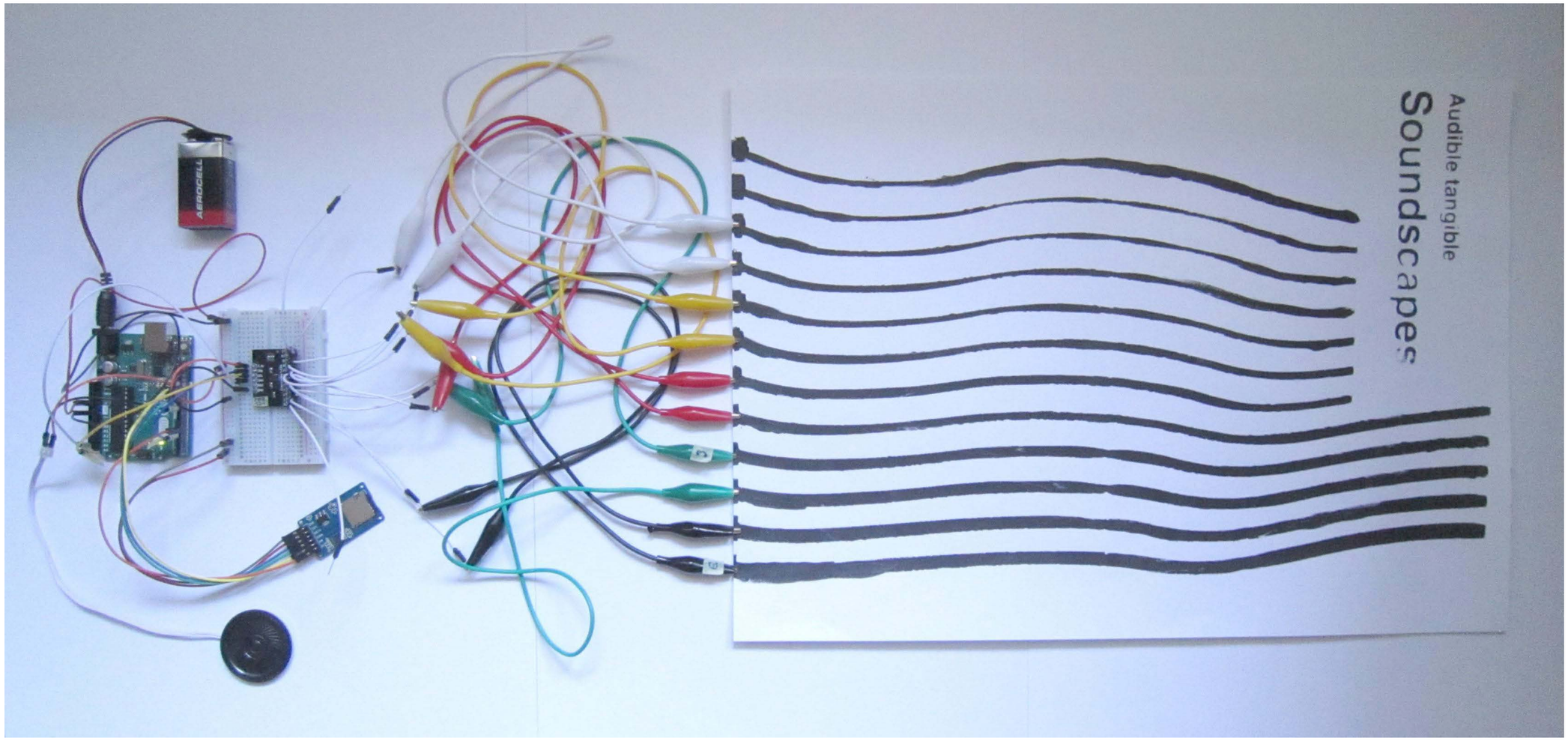
Screenprinting

A negative is created, which...

...transforms the screen with the help of photo-chemicals into an ink permeable screen.

The complete setup



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