

# Supporting Information

## One-Piece Triboelectric Nanosensor for Self-Triggered Alarm System and Latent Fingerprint Detection

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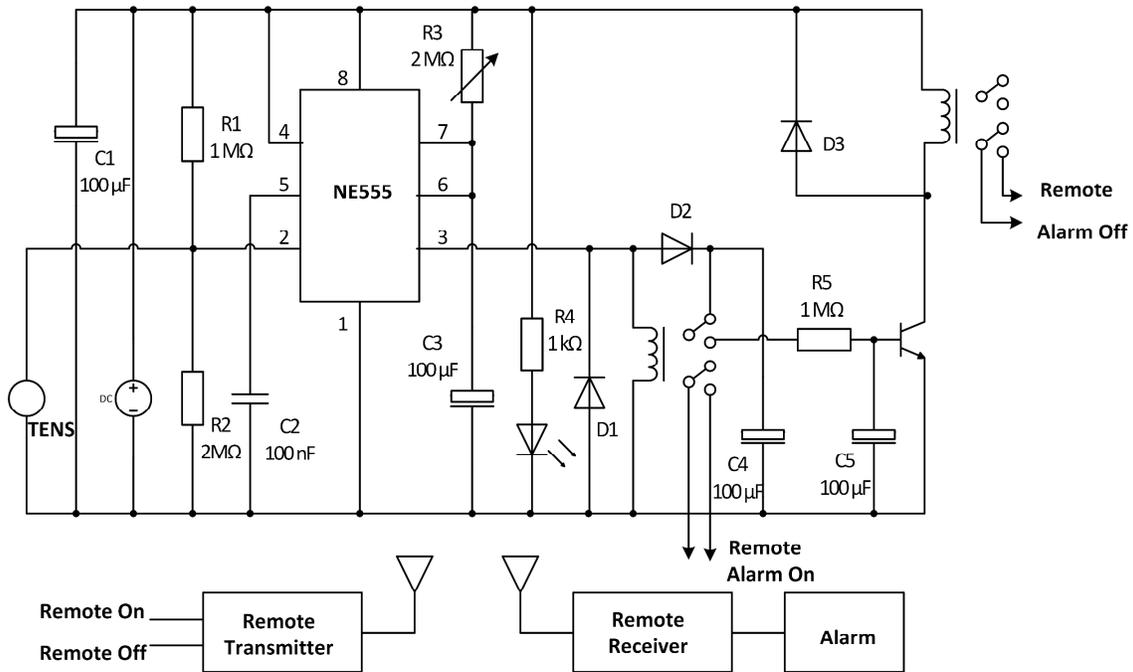
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**Table 1** Triboelectric Series

Insulator name	Charge affinity (nC/J)	Notes
PTFE (Teflon)	-190	Surface is fluorine atoms- -very electronegative.
EDPM rubber, filled	-140	Slightly conductive. (40 T ohm cm).
Butyl rubber, filled	-135	Conductive. (900 M ohm cm). Test was done fast.
Hypalon rubber, filled	-130	Slightly conductive. (30 T ohm cm).
Santoprene rubber	-120	
Epichlorohydrin rubber, filled	-118	Slightly conductive. (250 G ohm cm).
Viton, filled	-117	Slightly conductive. (40 T ohm cm).
Latex (natural) rubber	-105	
PVC (rigid vinyl)	-100	
Neoprene (polychloroprene, not SBR)	-98	Slightly conductive if filled (1.5 T ohm cm).
Office tape backing	-95	
UHMWPE	-95	
Cellulose nitrate	-93	
Olefins (alkenes): LDPE, HDPE, PP	-90	UHMWPE is below.
Carton-sealing tape (BOPP)	-85	Raw surface is very +, but close to PP when sanded.
Vinyl: flexible (clear tubing)	-75	
Silicones (air harden & thermoset, but not GE)	-72	
Polystyrene	-70	
Polyimide	-70	
Hot melt glue	-62	
Gum rubber	-60	Barely conductive. (500 T ohm cm).
EVA rubber for gaskets, filled	-55	Filled rubber will usually conduct.
PET (mylar) cloth	-40	
PET (mylar) solid	-40	
Solvent-based spray paints	-38	May vary.
Styrene-butadiene rubber (SBR, Buna S)	-35	Sometimes inaccurately called "neoprene" (see below).
Epoxy (circuit board)	-32	
Acrylic (polymethyl methacrylate)	-10	
Polycarbonate	-5	
ABS	-5	
Wool	0	
Nitrile rubber	3	
Cotton	5	Slightly conductive. (Depends on humidity).

GE brand Silicone II (hardens in air)	6	More positive than the other silicone chemistry.
Wood (pine)	7	
Paper (uncoated copy)	10	Slightly conductive.
Glass (soda)	25	Slightly conductive. (Depends on humidity).
Nylatron (nylon filled with MoS <sub>2</sub> )	28	
Machine oil	29	
Nylon, dry skin	30	Skin is conductive. Cannot be charged by metal rubbing.
Magnesium fluoride (MgF <sub>2</sub> )	35	Anti-reflective optical coating.
Solid polyurethane, filled	40	Slightly conductive. (8 T ohm cm).
Hair, oily skin	45	Skin is conductive. Cannot be charged by metal rubbing.
Box sealing tape (BOPP)	55	More negative if sanded down to the BOPP film.
Sorbothane	58	Slightly conductive. (120G ohm cm).
Polyurethane foam	60	

\*Tests were performed by Bill Lee (Ph.D., physics) ©2009 by AlphaLab, Inc. (TriField.com), which also manufactured the test equipment used.



**Figure S1.** Circuit diagram of the self-triggered alarm system.