

Electronic Supplementary Information:

**Low cost paper based flexible energy storage device using conducting polymer
nanocomposite**

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Table S1. Effect of polymerization time of pyrrole on Ni@PPy on electrical conductivity in as compared to bare PPy

Polymerization Time (min)	Electrical Conductivity (S cm ⁻¹)	Weight (mg)	Coating thickness (mm)
5	8.91	0.3	0.04
30	39.2	0.9	0.23
60	58.6	1.1	0.62
120	105	1.8	1.21

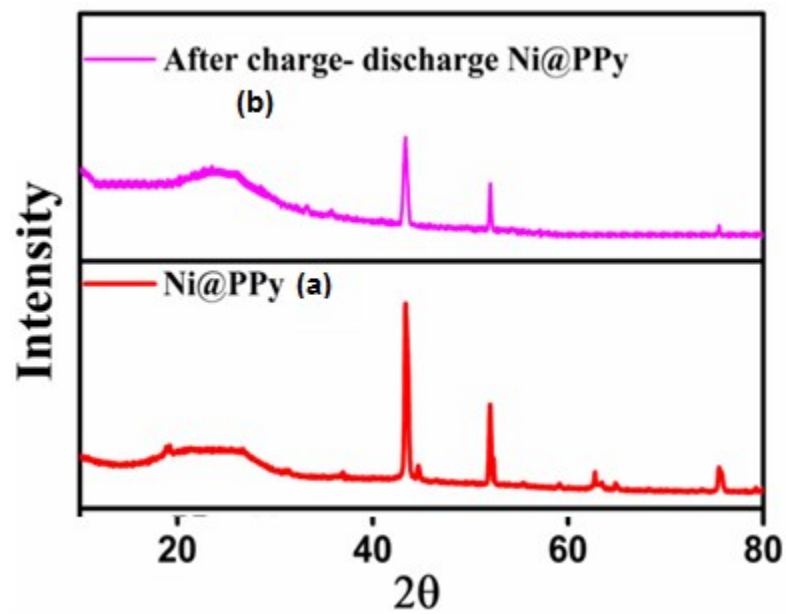


Fig. S1. XRD analysis of (a) Ni@PPy paper electrode and (b) Ni@PPy paper electrode after the 3000 charge and discharge cycles

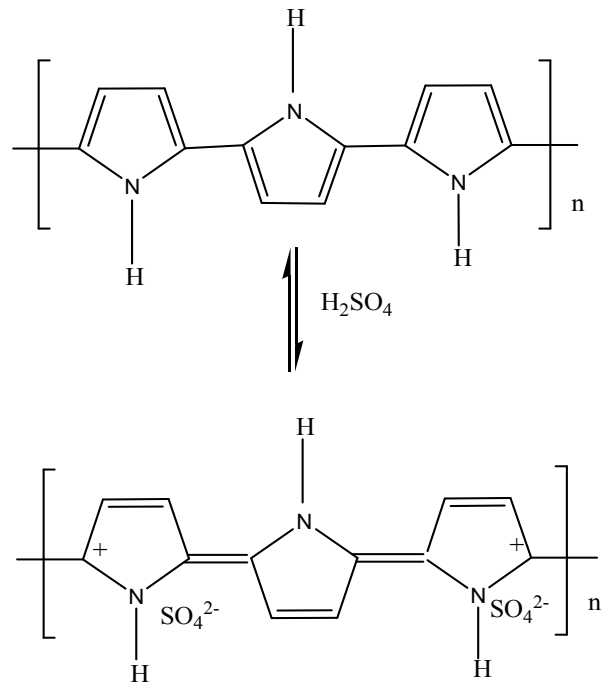


Fig. S2. Energy storage mechanism of PPy .

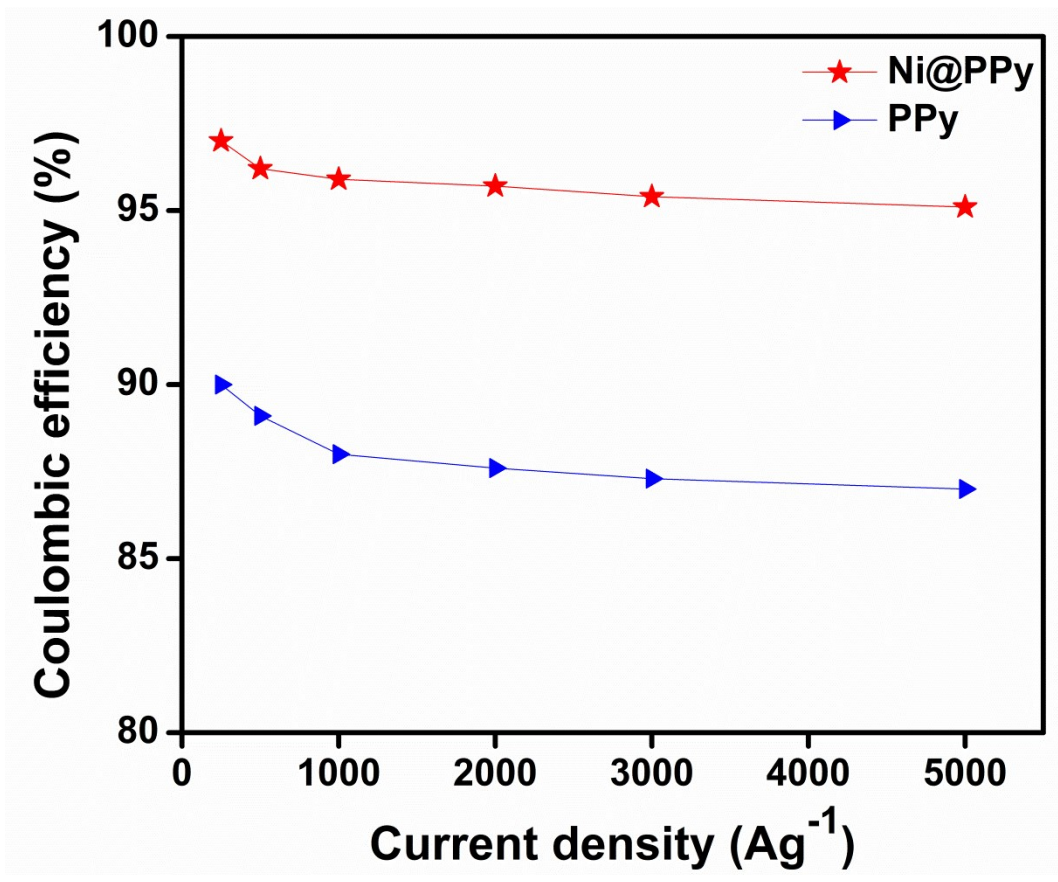


Fig. S3. The calculated coulombic efficiency of PPy and Ni@PPy nanocomposite at different current density.

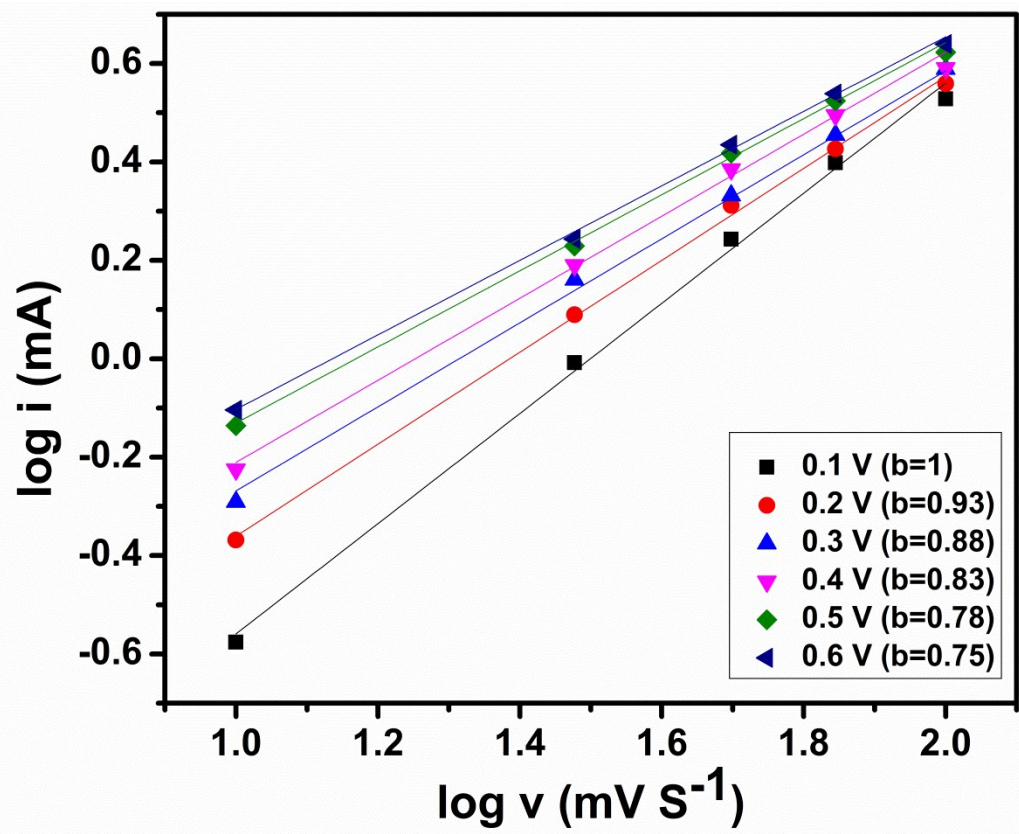


Fig. S4. $\log(i)$ vs $\log(v)$ plot of Ni@PPy nanocomposite.