Flexible e-textile has growing curiosity in the NEMS and MEMS of science and technology. This work has been done fabrication of electrochromic device based on wool textile substrates. Indium tin oxide (ITO) or platinum (Pt) and tungsten oxide WO3 film layers were used as conductive and the electrochromic material, respectively. All active layers were coated onto the wool textile surface by using Radio Frequency (RF) magnetron sputtering technique. The surface morphologies of all samples were investigated by using Scanning Electron Microscopy/Energydispersive X-ray spectroscopy (SEM/EDX) analysis. Characteristic properties of electrochromic electrodes were compared for two type electrolyte systems including Li+ cation source effect lithium perchlorate/Propylene Carbonate (LiClO4/PC) and lithium trifluoromethane sulfonate/ Propylene Carbonate (LiTRIF/PC). Promising experimental results were obtained.