Supporting Information

A novel information storage and visual expression device based on mechanoluminescence

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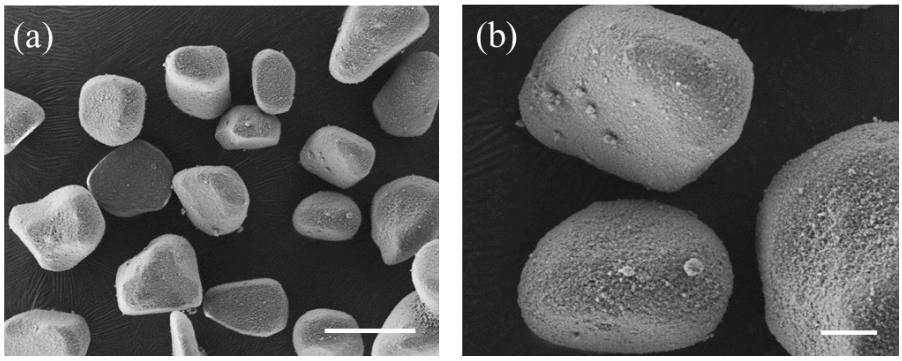

Fig. S1 SEM images of ZnS:Cu microparticles at low (a) and high (b) magnifications. Scale bars, 20 μm (a) and 5 μm (b).

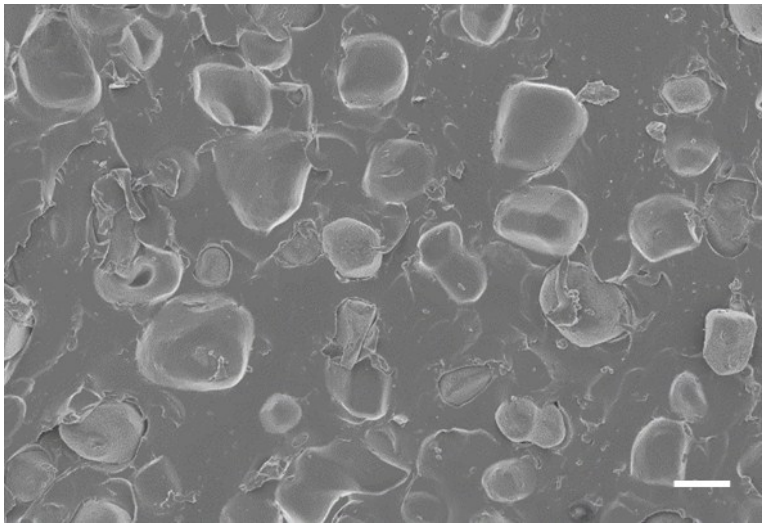

Fig. S2 Cross-sectional SEM image of the device. Scale bar, 20 μm.

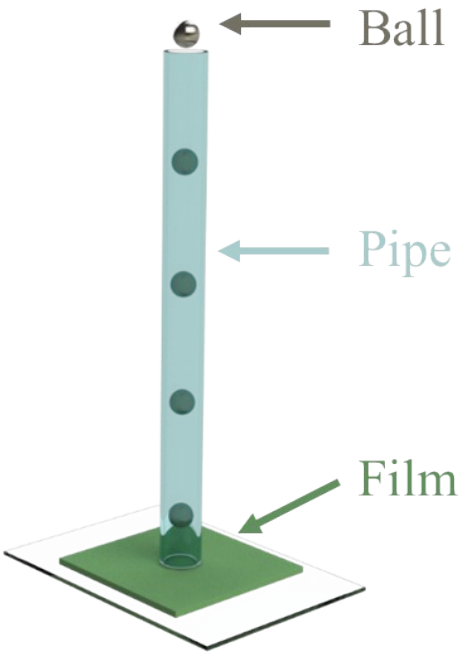

Fig. S3 Schematic of the drop tower used to quantify the pre-applied force.

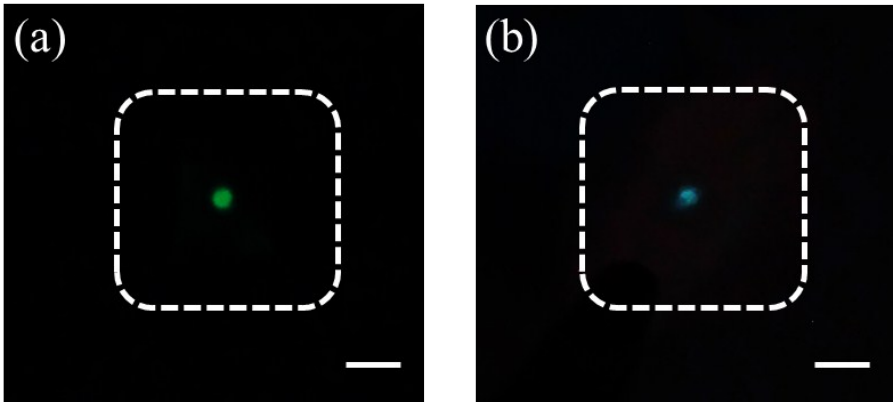

Fig. S4 Photographs of the obtained device excited by stretching (a) and wind blowing (b) in the dark. Scale bars, 0.5 mm.

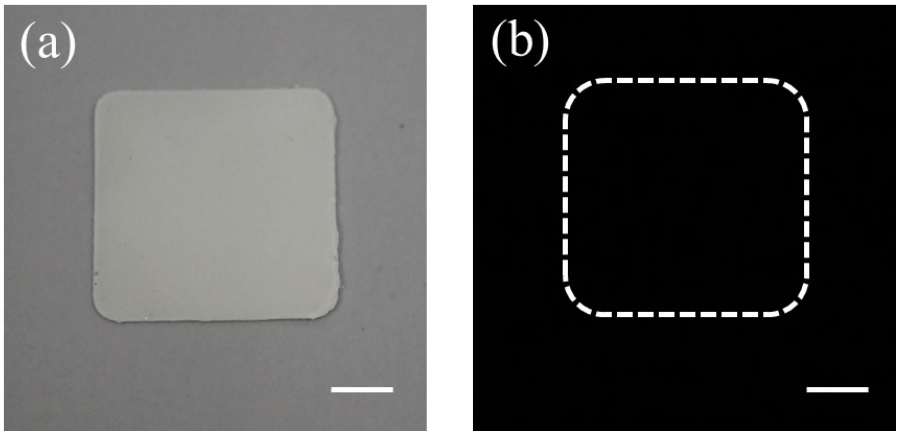

Fig. S5 Photographs of the film without pre-applied force before (a) and after (b) exposing to the ultrasonic. Scale bars, 0.5 mm.

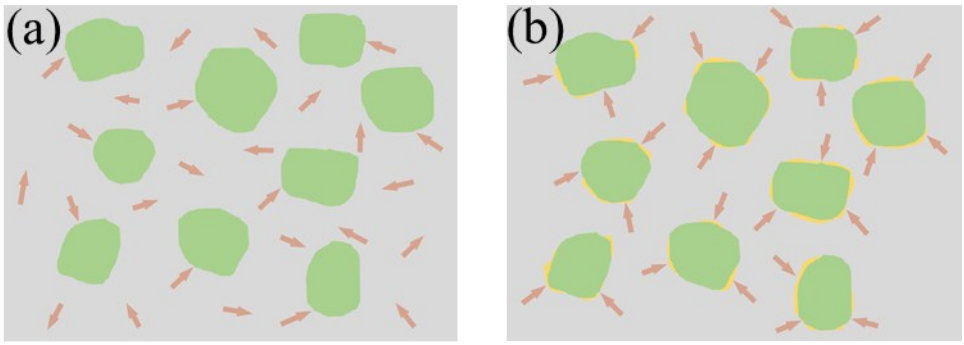

Fig. S6 Schematic illustration of the stress distribution of the device without (a) and with (b) pre-applied force.

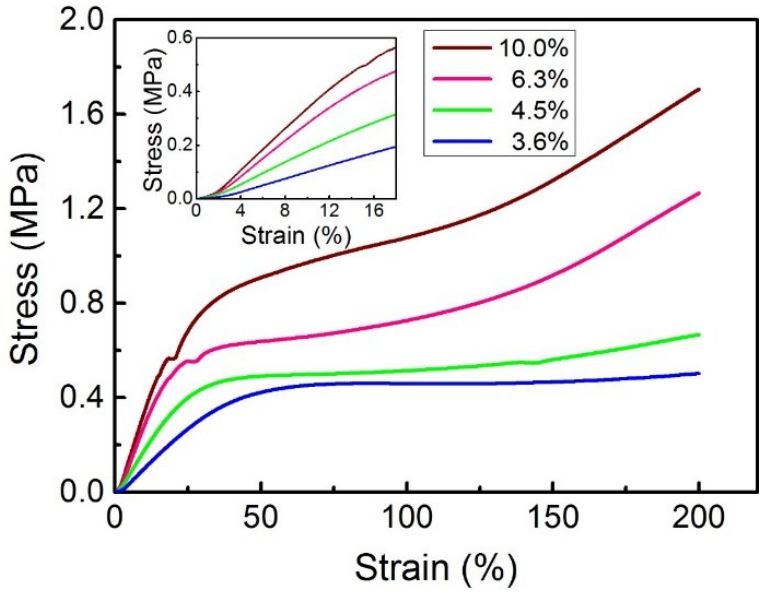

Fig. S7 Stress-strain curves of devices with different weight ratios of the crosslinker and the prepolymer of PDMS.

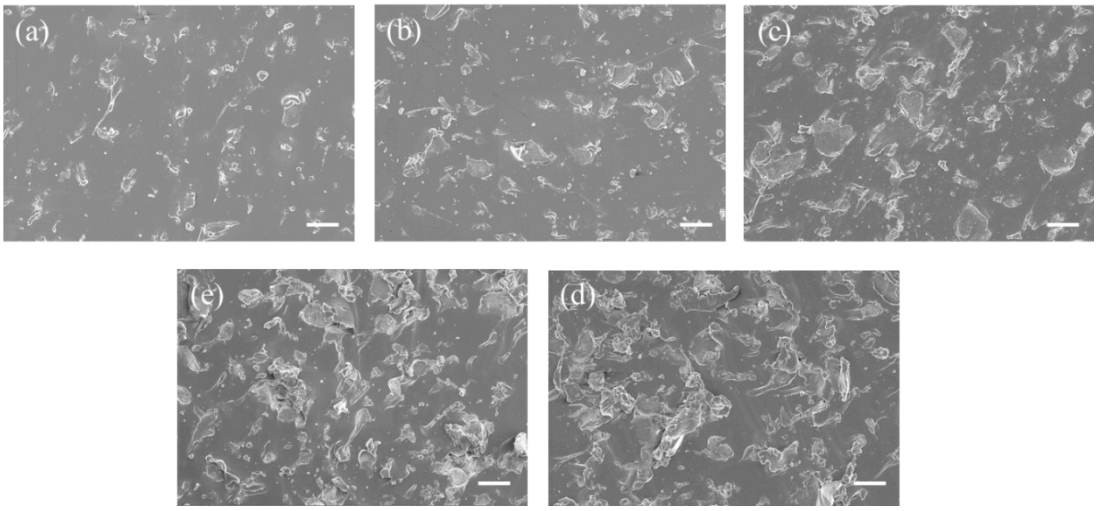

Fig. S8 Surface morphologies of the device applied with different forces of 10 N (a), 18 N (b), 30 N (c), 45 N (d) and 55 N (e). Scale bars, 20 μm.

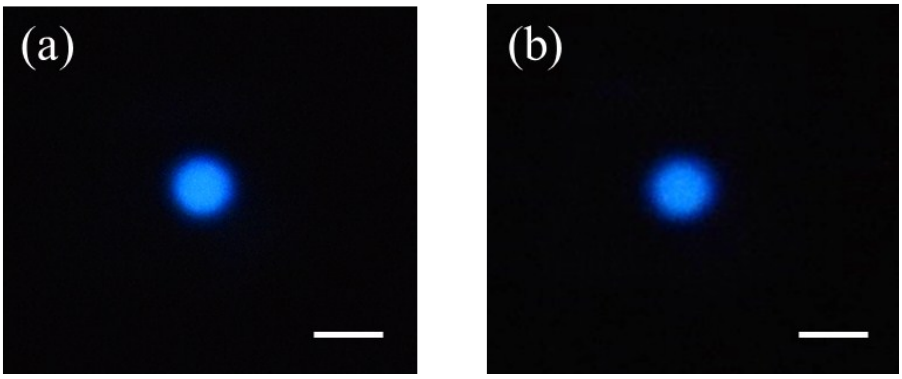

Fig. S9 Photographs of the device driven by ultrasonic initially (a), and after half a month (b), Scale bars, 2 mm.

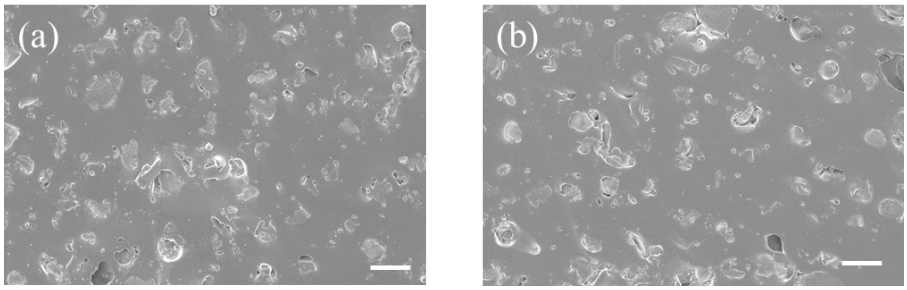

Fig. S10 Surface morphologies of the device before (a), and after half a month (b), Scale bars, 20 μm.

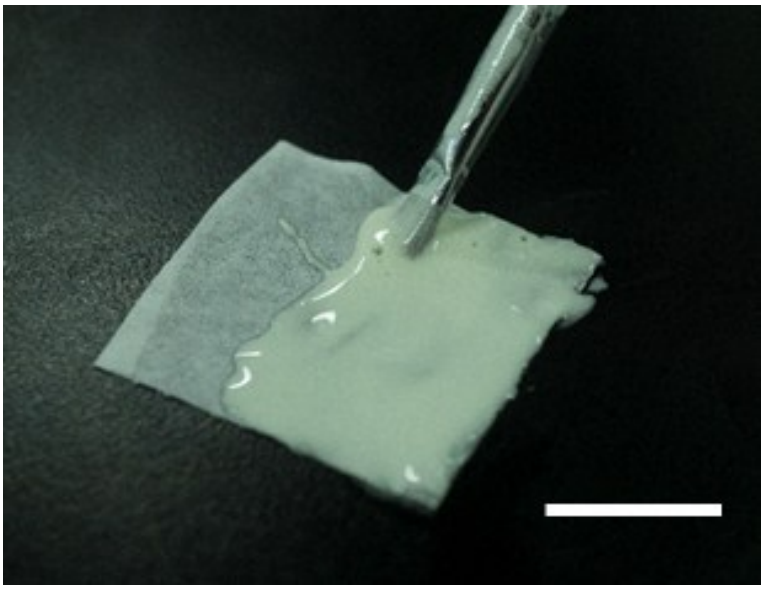

Fig. S11 Photograph of the device fabricated by brush coating, Scale bar, 2 cm.

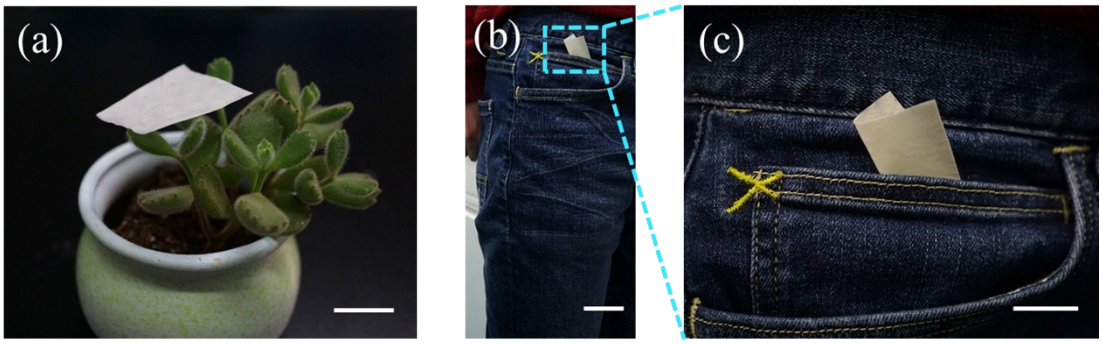

Fig. S12 Photographs of the paper-based ISVED placed on the potted plant (a) and in the pocket (b and c). Scale bars, 2 cm (a), 4 cm (b) and 2 cm (c).

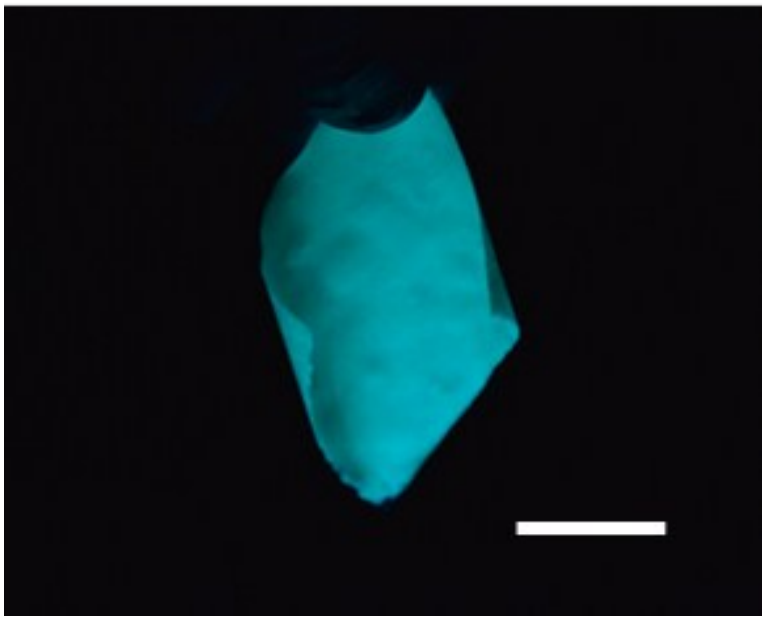

Fig. S13 Photograph of the device written with "ZnS" word under UV irradiation, Scale bar, 2 cm.

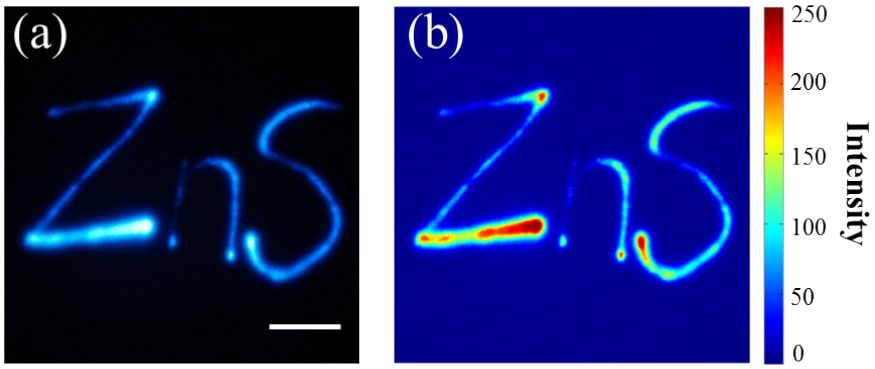

Fig. S14 (a) Photograph of the device excited by ultrasonic in the dark. (b) The corresponding distribution of luminescent intensity of (a). Scale bar, 5 mm.

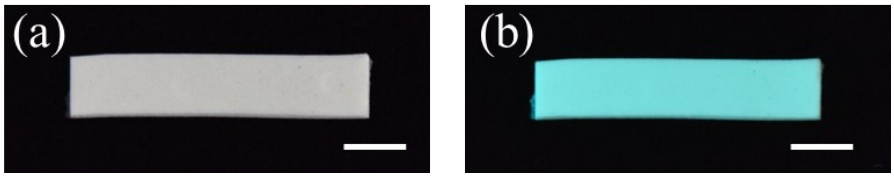

Fig. S15 Photographs of a binary coding chip based on the ISVED under the daylight (a) and UV light (b). Scale bars, 4 mm.