Electronic Supplementary Material (ESI) for Nanoscale Advances.
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Supporting Information

A high-performance wearable pressure sensor based on MXene/PVP composite nanofiber membrane for health monitoring

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1. Figure S1

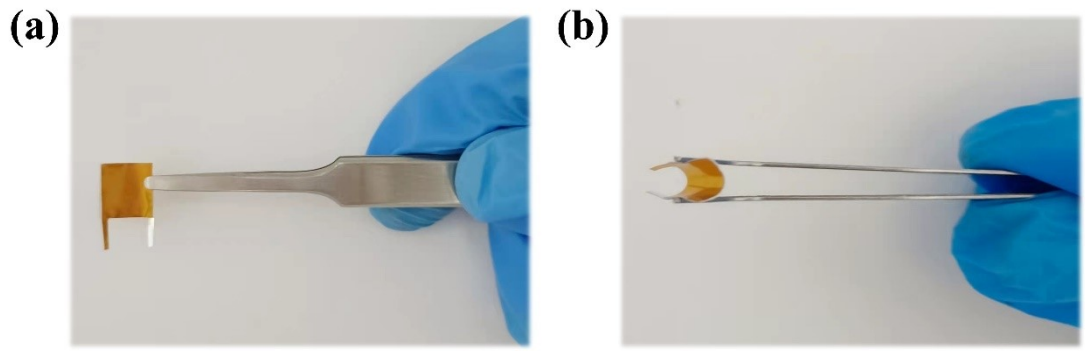

Fig. S1. The physical **(a)** and bending **(b)** diagrams of the 1 × 1 cm^2 capacitive pressure sensor based on MXene/PVP CNM, respectively.

2. Figure S2

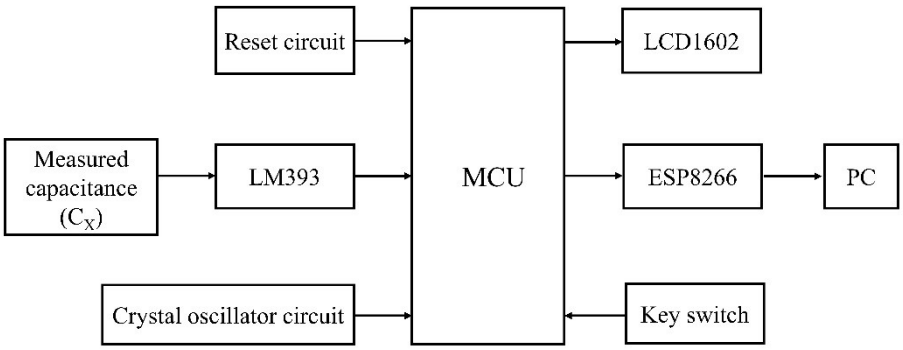

Fig. S2. Flow chart of the capacitance measurement of the sensor array.

2. Figure S3

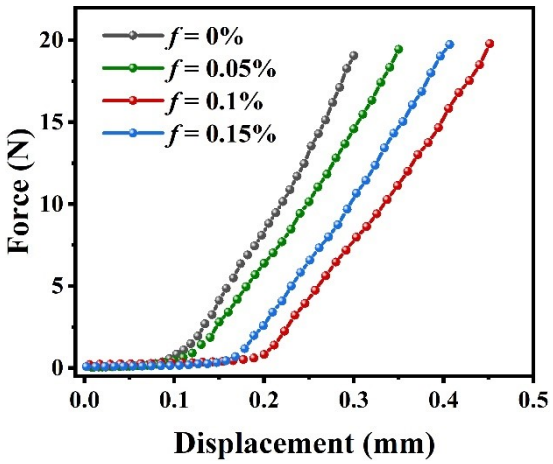

Fig. S3. Compressive force-displacement performance of the sensors.

3. Figure S4

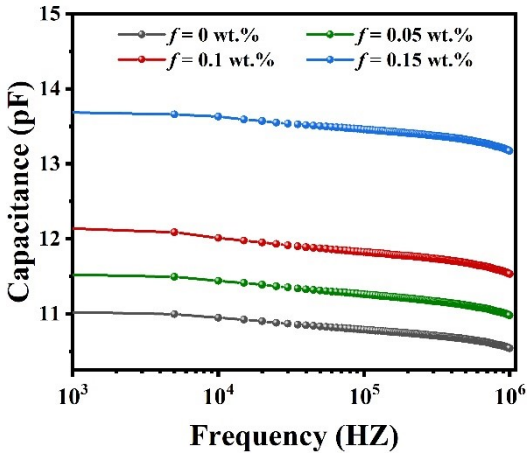

Fig. S4. Frequency dependence of the initial capacitance C_0 of the sensors.

4. Figure S5

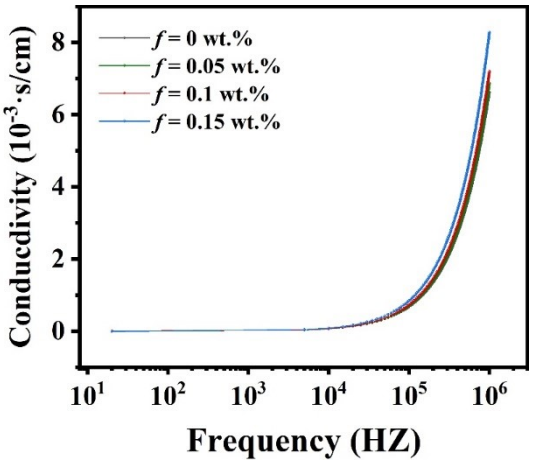

Fig. S5. The conductivity of MXene/PVP CNM varies with the frequency.

5. Details of the sensor array

The 4 × 4 sensor array designed in this work has a total of 16 pixels, and each pixel is numbered as shown in Fig. S6. The letters T, L, O and P are placed on the 4 × 4 array, respectively. The relative capacitance changes at each position can be viewed from Table S1-S4.

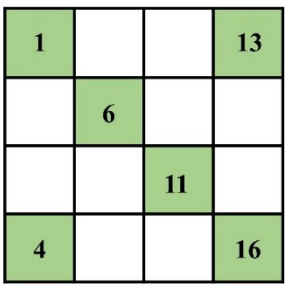

Fig. S6. The 4 × 4 position sequence of the sensor array.

Table S1. Relative capacitance change at each pixel in the 4 × 4 microarray by placing the letter "T".

Position	Initial capacitance (pF)	Loading capacitance (pF)	$\Delta C/C_0$
1	7.6703	8.2373	0.0739
2	7.5768	7.5768	0
3	6.5653	6.5653	0
4	7.0830	7.0830	0
5	8.1048	8.7192	0.0758
6	7.2224	7.8620	0.0885
7	7.2532	7.7930	0.0744
8	7.9840	8.3580	0.0468
9	7.2134	7.7433	0.0734
10	7.5645	7.5645	0
11	7.9935	7.9935	0
12	6.9388	6.9388	0
13	7.5485	7.5485	0
14	7.9100	7.9100	0
15	8.1150	8.1150	0
16	7.0423	7.0423	0

Table S2. Relative capacitance change at each pixel in the 4×4 microarray by placing the letter "L".

Position	Initial capacitance (pF)	Loading capacitance (pF)	$\Delta C/C_0$
1	7.6703	8.1075	0.0569
2	7.5768	8.1617	0.0771
3	6.5653	7.0394	0.0722
4	7.0830	7.7698	0.0868
5	8.1048	8.1048	0
6	7.2224	7.2224	0
7	7.2532	7.2532	0
8	7.9840	8.6886	0.0882
9	7.2134	7.2134	0
10	7.5645	7.5645	0
11	7.9935	7.9935	0
12	6.9388	7.5347	0.08582
13	7.5485	7.5485	0
14	7.9100	7.9100	0
15	8.1150	8.1150	0
16	7.0423	7.0423	0

Table S3. Relative Capacitance change at each pixel in the 4×4 microarray by placing the letter "O".

Position	Initial capacitance (pF)	Loading capacitance (pF)	$\Delta C/C_0$
1	7.6703	8.0273	0.0465
2	7.5768	8.1887	0.0807
3	6.5653	7.1082	0.0826
4	7.0830	7.3301	0.0348
5	8.1048	8.6990	0.0733
6	7.2224	7.2224	0
7	7.2532	7.2532	0
8	7.9840	8.6526	0.0837
9	7.2134	7.4504	0.0328
10	7.5645	8.1699	0.0800
11	7.9935	8.6194	0.0783
12	6.9388	7.1919	0.0364
13	7.5485	7.5485	0
14	7.9100	7.9100	0
15	8.1150	8.1150	0
16	7.0423	7.0423	0

Table S4. Relative capacitance change at each pixel in the 4×4 microarray by placing the letter "P".

Position	Initial capacitance (pF)	Loading capacitance (pF)	$\Delta C/C_0$
1	7.6703	8.2373	0.0739
2	7.5768	8.1564	0.0764
3	6.5653	7.0927	0.0803
4	7.0830	7.6913	0.0858
5	8.1048	8.6099	0.0623
6	7.2224	7.2288	0.0008
7	7.2532	7.7370	0.0666
8	7.9840	7.9840	0
9	7.2134	7.6869	0.0656
10	7.5645	8.1572	0.0783
11	7.9935	8.4194	0.0532
12	6.9388	6.9388	0
13	7.5485	7.5485	0
14	7.9100	7.9100	0
15	8.1150	8.1150	0
16	7.0423	7.0423	0