# CLAIMS

What is claimed is:

1. A device having a layered structure, comprising:

a) a protective layer;

b) a first ferroelectric polymer layer;

c) a first graphene layer;

d) a second ferroelectric polymer layer;

e) a second graphene layer;

f) a third ferroelectric polymer layer; and

g) a substrate layer;

wherein the first ferroelectric polymer layer is between the protective layer and the first graphene layer,

wherein the second ferroelectric polymer layer is between the first graphene layer and the second graphene layer,

wherein the second graphene layer is between the second ferroelectric polymer layer and the third ferroelectric polymer layer, and

wherein the third ferroelectric polymer layer is between the second graphene layer and the substrate layer.

2. The device of claim 1, wherein the device further comprises:

a) a fourth ferroelectric polymer layer; and

b) a third graphene layer,

wherein the third graphene layer is between the third ferroelectric polymer layer and the fourth ferroelectric polymer layer, and

wherein the fourth ferroelectric polymer layer is between the third graphene layer and the substrate layer.

3. The device of claim 1, wherein the first graphene layer is single layer graphene or multi-layer graphene and the second graphene layer is single layer graphene or multi-layer graphene.

4. The device of claim 3, wherein the multi-layer graphene is made by chemical vapor deposition.

5. The device of claim 4, wherein the sheet resistance of the layered structure is maintained below about 300 ohms per square.

6. The device of claim 1, wherein:

the first ferroelectric polymer layer is fully polarized, partially polarized, or unpolarized;

the second ferroelectric polymer layer is fully polarized, partially polarized, or unpolarized; and

the third ferroelectric polymer layer is fully polarized, partially polarized, or unpolarized.

7. The device of claim 1, wherein the second ferroelectric polymer layer is polarized.

8. The device of claim 1, wherein:

the first ferroelectric polymer is a polymer or copolymer comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof, or a blend of two or more polymers or copolymers comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof;

the second ferroelectric polymer is a polymer or copolymer comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof, or a blend of two or more polymers or copolymers

comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof; and

the third ferroelectric polymer is a polymer or copolymer comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof, or a blend of two or more polymers or copolymers comprising vinylidene fluoride, trifluoroethylene, chlorotrifluoroethylene, tetrafluoroethylene, hexafluoropropylene, 1,1-chlorofluoroethylene, poly(methyl methacrylate), 11-aminoundecanoic acid, thiourea, or a combination thereof;

9. The device of claim 1, wherein:

the first ferroelectric polymer is a ferroelectric polymer thin film having a thickness between about 10 nm and about 100 μm;

the second ferroelectric polymer is a ferroelectric polymer thin film having a thickness between about 10 nm and about 100 μm; and

the third ferroelectric polymer is a ferroelectric polymer thin film having a thickness between about 10 nm and about 100 μm.

10. The device of claim 1, wherein the first graphene layer and second graphene layer are patterned to create an interlocking diamond structure, or a grid bar structure.

11. The device structure of claim 1, wherein the first graphene layer and second graphene layer are patterned into a repeating rectangle pattern.

12. The device of claim 1, wherein the device has a transparency greater than about 80%.

13. The device of claim 1, wherein the device further comprises a feedback circuit that senses increases in sheet resistance and triggers the application of an electric field to the second ferroelectric polymer layer.

14. A touch screen, comprising:

a) a protective layer;

b) a first ferroelectric polymer layer;

c) a first graphene layer;

d) a second ferroelectric polymer layer;

e) a second graphene layer;

f) a third ferroelectric polymer layer; and

g) a substrate layer;

wherein the first ferroelectric polymer layer is between the protective layer and the first graphene layer,

wherein the second ferroelectric polymer layer is between the first graphene layer and the second graphene layer,

wherein the second graphene layer is between the second ferroelectric polymer layer and the third ferroelectric polymer layer, and

wherein the third ferroelectric polymer layer is between the second graphene layer and the substrate layer.

15. A resistive touch screen, comprising:

a) a protective layer;

b) a first ferroelectric polymer layer;

c) a first graphene layer;

d) a spacer layer;

e) a second graphene layer;

f) a second ferroelectric polymer layer; and

g) a substrate layer;

wherein the first ferroelectric polymer layer is between the protective layer and the first graphene layer,

wherein the spacer layer is between the first graphene layer and the second graphene layer,

wherein the second graphene layer is between the spacer layer and the second ferroelectric polymer layer, and

wherein the second ferroelectric polymer layer is between the second graphene layer and the substrate layer.

16. A self-capacitance touch screen, comprising:

a) a protective layer;

b) a first ferroelectric polymer layer;

c) a first graphene layer;

d) a second ferroelectric polymer layer; and

e) a substrate layer;

wherein the first ferroelectric polymer layer is between the protective layer and the first graphene layer,

wherein the second ferroelectric layer is between the first graphene layer and the substrate layer.

17. A touch screen, comprising:

a) a protective layer;

b) a first ferroelectric polymer layer;

c) a first graphene layer;

d) a second graphene layer;

e) a second ferroelectric polymer layer; and

f) a substrate layer;

wherein the first ferroelectric polymer layer is between the protective layer and the first graphene layer,

wherein the second graphene layer is between the first graphene layer and the second ferroelectric polymer layer, and

wherein the second ferroelectric polymer layer is between the second graphene layer and the substrate layer.