CLAIMS

1. A method of forming an ophthalmic lens, the method comprising:

placing an insert comprising a data processor and an energy source proximate to a first mold part;

depositing a reactive monomer mix into the first mold part;

positioning the insert comprising a data processor and an energy source in contact with the reactive monomer mix;

positioning the first mold part proximate to a second mold part thereby forming a lens cavity with the variable optic insert and at least some of reactive monomer mix in the lens cavity; and

exposing the reactive monomer mix to actinic radiation.

2. The method of claim 1 wherein the data processor comprises a data storage portion.

3. The method of claim 2 wherein the data processor comprises a microcontroller requiring about 0.1 micro amps or less of electrical energy for random access memory retention.

4. The method of claim 2 wherein the data processor comprises a microcontroller requiring about 0.8 micro amps or less of electrical energy for real-time clock mode operation.

5. The method of claim 1 wherein the data processor comprises a microcontroller requiring about 250 micro amps or less of electrical energy for per million instructions per second active operation.

6. The method of claim 2 wherein the data processor is mounted on a media insert and the method additionally comprises the step of fixing an energy source to the media insert.

7. The method of claim 6 wherein the insert comprises a thin film electrochemical cell capable of providing sufficient to change an optical characteristic on the variable optic insert.

8. The method of claim 7 wherein the electrochemical cell comprises a lithium ion battery.

9. The method of claim 7 wherein the electrochemical cell comprises a rechargeable material.

10. The method of claim 7 wherein the electrochemical cell comprises a cathode comprising nano-scaled crystals.

11. The method of claim 1 wherein the media insert comprises a formable substrate.

12. An apparatus for manufacturing an ophthalmic lens, the apparatus comprising:

automation for placing a media insert comprising a data processor in one or both of: proximate to, or in contact with, a first mold part;

a dispenser for depositing a reactive monomer mix into the first mold part; and

a source of actinic radiation for the reactive monomer mix.

13. The apparatus for manufacturing an ophthalmic lens of claim 12 additionally comprising:

automation operative for placing a second mold part proximate to the first mold thereby creating a lens forming cavity with the variable optic insert and at least some of the reactive monomer mix within the lens forming cavity.

14. The apparatus for manufacturing an ophthalmic lens of claim 13 additionally comprising:

a pallet for holding multiple first mold parts; and

automation for moving the pallet proximate to the source of actinic radiation.

15. The apparatus for manufacturing an ophthalmic lens of claim 12 additionally comprising:

a processor for controlling the automation;

a digital storage device comprising software, executable upon demand, said software operative with the processor to cause the apparatus to:

place the media insert comprising a data processor proximate to, or in contact with, the first mold part.

CLAIMS

1. A method of forming an ophthalmic lens, the method comprising:

forming a media insert by attaching a data processor, an energy source, and a liquid meniscus lens to a substrate;

positioning the media insert within a portion of a contact lens mold;

depositing a reactive monomer mix into the contact lens mold and encapsulating the media insert therein; and

exposing the reactive monomer mix to actinic radiation or heat to form the contact lens.

2. The method of Claim 1, wherein the data processor comprises a data storage portion.

3. The method of Claim 2, wherein the data processor comprises a microcontroller requiring about 0.1 micro amps or less of electrical energy for random access memory retention.

4. The method of Claim 2, wherein the data processor comprises a microcontroller requiring about 0.8 micro amps or less of electrical energy for real-time clock mode operation.

5. The method of Claim 1, wherein the data processor comprises a microcontroller requiring about 250 micro amps or less of electrical energy for per million instructions of active operation.

6. The method of Claim 1, wherein the insert comprises a thin film electrochemical cell capable of providing sufficient to change an optical characteristic on the variable optic insert.

7. The method of Claim 6, wherein the electrochemical cell comprises a lithium ion battery.

8. The method of Claim 6, wherein the electrochemical cell comprises a rechargeable material.

9. The method of Claim 6, wherein the electrochemical cell comprises a formable substrate.

10. An apparatus for manufacturing an ophthalmic lens, the apparatus comprising:

automation for placing a media insert comprising a data processor, energy source and a liquid meniscus variable optic in one or both of proximate to, or in contact with, a first mold part;

a dispenser for depositing a reactive monomer mix into the first mold party; and

a source of actinic radiation to cure the reactive monomer mix.

11. The apparatus of Claim 10, additionally comprising: automation operative for placing a second mold part proximate to the first mold part thereby creating a lens forming cavity with the media insert and at least some of the reactive monomer mix within the lens forming cavity.

12. The apparatus of Claim 11, additionally comprising:

a pallet for holding multiple first mold parts; and

automation for moving the pallet proximate to the source of actinic radiation.

13. The apparatus of Claim 10, additionally comprising:

a processor for controlling the automation;

a digital storage device comprising software, executable upon demand, said software operative with the processor to cause the apparatus to: place the media insert proximate to, or in contact with, the first mold part.

14. The method of Claim 1, wherein the conformal coating is a biocompatible material.

15. The method of Claim 14, wherein the biocompatible material is a silicon hydrogel matrix.

16. The method of Claim 1, wherein the media insert comprises a polyamide flexible circuit.

17. The method of Claim 3, wherein the microcontroller additionally comprises an analog to digital converter.

18. The method of Claim 17, additionally comprising the step of storing executable code within the microcontroller with is executable by the processor to change a state of the liquid meniscus variable optic.

19. The method of Claim 1, wherein the step of forming the media insert further comprises attaching an energy harvester to the substrate.

20. The method of Claim 19, wherein the energy harvester comprises a photoreceptor.

21. The method of Claim 1, wherein the data processor comprises an analog to digital converter in order to provide input to the data processor.

22. The method of Claim 1, wherein the data processor comprises a crystal oscillator.

23. The method of Claim 1, wherein the data processor comprises one or more timers.

24. The method of Claim 23, wherein the one or more timers comprises a watchdog timer.

25. The method of Claim 1, wherein the step of forming the media insert further comprises forming a conductive circuit path on the substrate between the data processor and the energy source.

26. The method of Claim 1, wherein the step of forming the media insert further comprises attaching a focus adjustment activator selected from the group consisting of a magnetically activated switch, a photo-optically activated switch, and an electrical sensor configured to sense a signal within an eye to the substrate in communication with the data processor.