WHAT IS CLAIMED IS:

1. A powered ophthalmic lens, the powered ophthalmic lens comprising:

a contact lens including an optic zone and a peripheral zone; and

a pupil position and convergence detection system incorporated into the peripheral zone of the contact lens, the pupil position and convergence detection system including a sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function.

2. The powered ophthalmic lens according to Claim 1, wherein the sensor comprises at least one photodetector positioned to capture an image of the eye.

3. The powered ophthalmic lens according to Claim 2, wherein the at least one photodetector comprises a rear-facing camera configured to detect changes in images, patterns, or contrast to track eye movement.

4. The powered ophthalmic lens according to Claim 1, wherein the sensor comprises at least one accelerometer to track movement of at least one of the eye or the contact lens.

5. The powered ophthalmic lens according to Claim 1, wherein the sensor comprises at least one neuromuscular sensor configured to detect neuromuscular activity associated with eye movement.

6. The powered ophthalmic lens according to Claim 1, wherein the pupil position and convergence detection system further comprises a signal processor configured to receive signals from the sensor, perform digital signal processing, and output one or more to the system controller.

7. The powered ophthalmic lens according to Claim 6, wherein signal processor comprises associated memory.

8. The powered ophthalmic lens according to Claim 1, wherein pupil position and convergence detection system further comprises a power supply.

9. A powered ophthalmic lens, the powered ophthalmic lens comprising:

a contact lens; and

a pupil position and convergence detection system incorporated into the the contact lens, the pupil position and convergence detection system including a sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function.

10. The powered ophthalmic lens according to Claim 9, wherein the sensor comprises at least one photodetector positioned to capture an image of the eye.

11. The powered ophthalmic lens according to Claim 10, wherein the at least one photodetector comprises a rear-facing camera configured to detect changes in images, patterns, or contrast to track eye movement.

12. The powered ophthalmic lens according to Claim 9, wherein the sensor comprises at least one accelerometer to track movement of at least one of the eye or the contact lens.

13. The powered ophthalmic lens according to Claim 9, wherein the sensor comprises at least one neuromuscular sensor configured to detect neuromuscular activity associated with eye movement.

14. The powered ophthalmic lens according to Claim 9, wherein the pupil position and convergence detection system further comprises a signal processor configured to receive signals from the sensor, perform digital signal processing, and output one or more to the system controller.

15. The powered ophthalmic lens according to Claim 14, wherein signal processor comprises associated memory.

16. The powered ophthalmic lens according to Claim 9, wherein pupil position and convergence detection system further comprises a power supply.

17. A powered ophthalmic lens, the powered ophthalmic lens comprising:

an intraocular lens; and

a pupil position and convergence detection system incorporated into the intraocular lens, the pupil position and convergence detection system including a sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and

the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function.

WHAT IS CLAIMED IS:

1. A powered ophthalmic lens, the powered ophthalmic lens comprising: a contact lens including an optic zone and a peripheral zone; and

a pupil position and convergence detection system incorporated into the peripheral zone of the contact lens, the pupil position and convergence detection system including a sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function,

wherein the sensor comprises a rear-facing camera configured to detect changes in images, pattern, or contrast to track eye movement.

2. The powered ophthalmic lens according to Claim 1, wherein the pupil position and convergence detection system further comprises a signal processorconfigured to receive signals from the sensor, perform digital signal processing, and output one or more to the system controller.

3. The powered ophthalmic lens according to Claim 2, wherein signal processor comprises associated memory.

4. The powered ophthalmic lens according to Claim 1, wherein pupil position and convergence detection system further comprises a power supply.

5. A powered ophthalmic lens, the powered ophthalmic lens comprising: a contact lens; and

a pupil position and convergence detection system incorporated into the contact lens, the pupil position and convergence detection system including a sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function,

wherein the sensor comprises a rear-facing camera configured to detect changes in images, pattern, or contrast to track eye movement.

6. The powered ophthalmic lens according to Claim 5, wherein the pupil position and convergence detection system further comprises a signal processor configured to receive signals from the sensor, perform digital signal processing, and output one or more to the system controller.

7. The powered ophthalmic lens according to Claim 6, wherein signal processor comprises associated memory.

8. The powered ophthalmic lens according to Claim 5, wherein pupil position and convergence detection system further comprises a power supply.

9. A powered ophthalmic lens, the powered ophthalmic lens comprising: an intraocular lens; and

a pupil position and convergence detection system incorporated into the intraocular lens, the pupil position and convergence detection system including a

sensor to determine pupil position, a communication device configured to send and receive information to/from at least a second pupil position and convergence detection system incorporated into a peripheral zone of a second contact lens, a system controller cooperatively associated with the sensor and the communication device and configured to determine pupil position and convergence based on information from the sensor and the second pupil position and convergence detection system and output a control signal, and at least one actuator configured to receive the output control signal and implement a predetermined function

wherein the sensor comprises a rear-facing camera configured to detect changes in images, pattern, or contrast to track eye movement.