

## Infinity Optics Solutions readies groundbreaking embedded biometric iris imaging technology for launch

---



By Rawlson King

December 5, 2015 - Infinity Optics Solutions, a Singapore-based high-tech firm, continues to make headway on its groundbreaking biometric “depth-of-field” vision technology.

The firm has announced that its technology has emerged from early development and will be introduced into fast-growing biometrics markets, including India.

For embedded solutions, Infinity Optics’ technology can achieve a depth-of-field image capture distance between 150mm up to 600mm in a single shot using a single element lens. This eliminates the need to move the eye back and forth within a narrow focus zone, which is typical for iris recognition solutions using industry standard technology. The image capture solution combines custom optics and image processing capability, which is optimized to greatly increase the performance above systems consisting solely of traditional optics.

The optics imaging technology increases the depth-of-field of up to five times, thereby significantly enhancing the user experience. The image capture solution utilizes the firm’s InfinityLens+ product that can be embedded into iris devices, portable electronic devices and mobile phones. The embedded solution for portable applications comes in a form factor of less than 3mm thickness.

“A critical requirement of a robust iris recognition system is capturing and producing reliable iris images which must be routinely acquire both at the enrollment and authentication stages,” said Gilles Mathieu, Infinity Optics’ Chief Technology Officer. “To achieve this, the imaging system must possess a reasonably high biometric depth-of-field with noise reduction while optimizing light conditions to record images accurately over larger distances.”

A major difficulty in current iris recognition systems is a very shallow biometric depth-of-field that limits system usability and increases system complexity. Conventional iris biometric readers or scanners bring limitations due to the inability of the optics to deliver quality images over the biometric

depth-of-field. As a result, the application is limited by the operating distance and the lack of user experience.

For conventional iris solutions, “stopping down the aperture is not a viable option,” noted Mathieu. “While increasing the depth-of-field and reducing aberration, it reduces both the light flux and the native resolution of the images.” In contrast, the solutions from Infinity Optics optimizes these variables, especially for iris recognition applications.

Earlier this year, Infinity Optics released a white paper explaining how its single lens extended depth-of-field technology makes iris authentication more practical and convenient. The firm believes that the use of iris recognition will continue to expand as it is increasingly adopted by industry to provide authentication to Internet of Things services and mobile devices.

The rate of expansion in the category will drive improved user experience, along with lower market costs for iris recognition sensors and software. Infinity Optics is actively positioning itself to benefit from this predicted expansion. The firm plans to bring its iris image capture solution to the Indian market in early 2016 through its partners.

“India has the world’s largest human identification project,” noted Alfred Chan, Infinity Optics’ Chief Executive. “In a market where environments are unpredictable and defined by various conditions, iris capture, along with matching and authentication, has to be made more simple and convenient.”

Infinity Optics is evidently positioning its technology to assist Aadhaar, the world’s largest universal Civil ID program and biometric database, used by the Indian government to provide social services. To date, Aadhaar has issued 630 million Aadhaar numbers, and has enrolled approximately 850 million people, with a goal of enrolling one billion people. Recent BiometricUpdate.com news items noted that India’s biometrics database leverages Big Data architecture, along with vendor neutral technology; and that an Indian firm is planning to introduce an iris authentication payment solution.

With these emerging developments, it is not surprising that Infinity Optics is intent on rapidly introducing its groundbreaking product to the Indian subcontinent.

“What we have accomplished in a very short period of time is working closely with our partners to integrate our single lens biometric extended depth-of-field image capture solution into existing devices,” stated Chan. “In order to help keep costs down in a price sensitive market, we work with our partner’s existing hardware design and configuration to deliver constant and stable images over the biometric depth-of-field to enhance total solution performance and improve user experience. Our ultimate goal is to add a ton of value.”