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IO Solutions CEO details single lens solution with biometric extended depth-of-field

By Justin Lee

December 21, 2015 - Singapore-based optics technology firm Infinity Optics Solutions (IO Solutions) has developed proprietary biometric optics solutions that provide a massive depth-of-field vision of up to five times.

This is a particularly crucial benefit when it comes to achieving accurate and reliable biometrics results, such as iris recognition.

Traditional technology uses an auto-focus mechanism and multiple element lens construction which is not cost effective. Alternatively, IO Solutions' InfinityLens+ proprietary technology is able to control the optical aberrations more effectively than traditional lens designs.

BiometricUpdate.com had the opportunity to interview IO Solutions CEO Alfred Chan, who provided insights on how its single lens solution outperforms auto-focus lens technology, how a massive depth-of-field vision can help improve biometric technologies, and IO Solutions' upcoming partnerships with iris recognition firms to deliver these capabilities.

What advantages does single lens technology have over an auto-focus lens technology when it comes to iris recognition?

Alfred Chan: Basically, auto-focus solution doesn't bring reliability for better user experience. In most auto-focus solutions, the device frequently focus on the wrong parts of the face such as nose, eyelashes and presents frequent delays to enable correct and fast iris image acquisition.

The other weaknesses of autofocus solutions are on the cost and size that can make integration into embedded or wearable devices challenging.The single element lens with biometric depth-of-field (BDoF) offers a more reliable alternative solution, it's easy to integrate and is very cost effective. It is the first lens specifically designed for iris image acquisition and now comes in a form factor of less than 3mm which fits into more than 90% of devices.

For more information, please contact enquiry@infinityoptics.com.sg

How can IO Solutions' massive depth-of-field vision help improve biometric technologies like iris recognition?

Our technology delivers dynamic user experience and by doing so helps grow the biometric iris recognition market. It brings convenience and practical use making iris recognition the primary biometric of choice in single biometric application or multimodal biometric applications. We know that the biometric industry especially in the consumer electronics category is expected to grow at the highest rate during the forecasted period due to the commercialization of various biometric-based electronic devices such as smartphones, smart watches, tablets, notebooks, and so on and our technology is well positioned to enable iris recognition technologies in this category and to bring about a new user experience and better security to current existing embedded biometric solutions.

Seeing as how there are several applications for optical lenses, how serious is IO Solutions invested in the area of biometrics, specifically?

We started off with working on various solutions including developing TOF applications for a specific camera for retail predictive technologies, and industrial vision application but was very quickly drawn into the biometric space due to the immediate need to improve the user experience in iris biometric applications. In the past year, you see biometric specifically iris recognition going into mainstream consumer devices, portable electronics, smartphones…etc. and will continue to accelerate. When you touch consumers, the user experience becomes the primary focus. You see a lot of 'first to market' in biometrics iris recognition technologies for consumers, but lacks the user experience, better off last to market but pack a lot of user experience.

Infinity Optics is looking at fully exploiting the biometric depth-of-field image capture solution for all contactless biometrics requiring image capture and our image processing software can adapt to various applications and is easy to integrate with our partners iris algorithm. We introduced the first optical lens system designed specifically for biometric iris recognition and will continue to invest in further extending the limits of depth-of-field imaging, and also working on enhancing our software capabilities to enable embedded solutions for our partners.

Is Infinity Optics Solutions currently working to integrate its single lens technology with any biometric software vendors? If so, can you name some of these companies?

We are now working alongside our iris partners to integrate our single lens and our image processing software with our partner's iris algorithms in the required platform. These will be brought to market in 2016. Our technology shall be introduced in a wide range of applications from traditional access controls to consumer portable electronic devices and we will be participating in the largest human identity project in the Indian market in 2016.

What is Infinity Optics Solutions currently working on for 2016 in terms of product development and releases?

Our single lens solution is a very versatile technology and exists today in the various form factors and brings about more dynamic user experience in iris applications for access control devices, border control devices, banking and financial trading terminals, ATMs, automobiles, laptops, tablets, smartphones, and wearables.

There is obvious category growth driven by the demand for more secured biometrics and multi modal biometrics using iris. I cannot specifically speak about some of the other optical imaging technologies we are developing but I can assure you what we are planning to bring to market will only enable iris recognition and other contactless biometric technologies requiring image capture to become more mainstream across very wide applications. You'll hear more of our activities and partnerships in the market next year.