Brief: Active Attention Systems for Screening of Medical Images

Medical - Cancer Screening

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Introduction

This document will briefly describe VizKinect's patented technology that can offer medical imaging organizations a simple and cost effective solution to augment current screening and reviewing methods that can easily integrate with existing product lines.
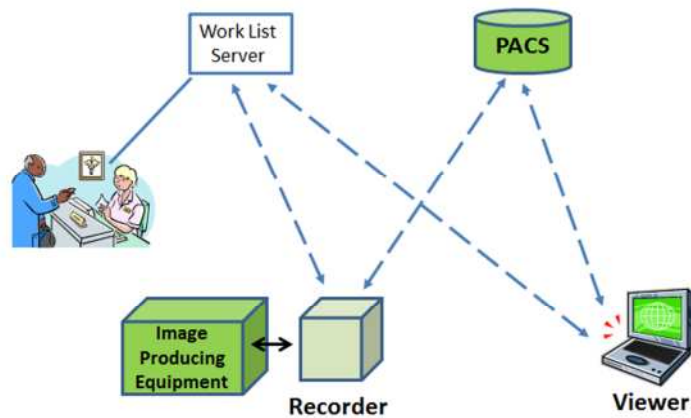
I.   **The Challenge**

The demand for medical imaging is rapidly increasing as the Baby Boomers enter Medicare and retirement. This coupled with advances in high-speed cameras, new cancer detection technologies (eg. ultrasound), and a decline in the number of radiologists has resulted in an alarming work load on radiologists, responsible for recording and reviewing countless medical images. The data flow is illustrated below where the primary diagnostics occurs at the Viewer.

The challenge is driven by two primary objectives: 1) ensuring every image is screened and 2) enabling a fail-safe method for allowing for the inadvertent times of inattention.

Data Gathering and Diagnostic System Structure

No medical professional intentionally ignores the review and screening of medical images. However, in the course of reviewing hundreds of images, there may be times when their attention is inadvertently diverted for a second or longer. With camera speeds of 30 and 60 frames per second, a few seconds of inattention can result in not seeing many images that might contain diseased cells.

VizKinect offers a safeguard to ensure images are seen. When attention is inadvertently diverted, the medical professional can feel assured that he/she will not miss any images.

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II. **About VizKinect**

VizKinect has a different view of attention monitoring than many of our competitors. The world is changing and medical screening demands are increasing to ensure that medical procedures efficient and effective.

VizKinect offers an innovative solution that can effectively address these issues.

Attention Monitoring

Using VizKinect's eye-tracking analysis with **C.I.R.C.L.E.S. ™** technology, we offer the Active Attention System (AAS) that validates whether or not a medical professional is focusing their attention at the screen. VizKinect can work with screening equipment companies to integrate our technology into their machines and easily augment the existing operational capabilities. This can be performed in a new or after-market condition without costly or major modifications.

VizKinect can detect the presence of operator's attention, and conversely, their inattention, even if they "just look away" for a few seconds. The AAS is provisionable to fit various environments and operational conditions.

If an operator's attention is not detected when reviewing an image, *such as shown to the right*, the VizKinect AAS can activate an alert signal or cause screening equipment to pause the scanning process until attention is re-established.

III. Other Value Based Analyses Available from VizKinect

VizKinect has developed patent-pending technology and has been validated in several other market areas, including:

- Active Attention System application in Medical, Transportation, Heavy Machinery, Mining, and other industrial environments
- TV Commercial, Website Usability, and Mobile Media Ad Analysis
- Product Placement Analysis (Motion Picture, Television Programing)
- Print Analysis (Magazine, Newspaper, Mailer)
- Outdoor Analysis (Billboard, Bus Stop, Mall Signage)
- Expert Training Video Production/Analysis for Trainees in high performance areas
- Legal Animation Video Production/Analysis
- Biosensor Analysis (Neural Optical, Pulse Rate: Panelist reaction to visual content)

IV. Conclusion

With VizKinect, medical professionals will know that every image is seen and inadvertent lapses of attention, caused by fatigue, environmental distractions, high-stress activities or other distractions, will not let the screening of any image slip through the process.

For ultimate effectiveness, we have to be right EVERY time, and there is no reason for even one image to go unscreened for the safety of the patients. VizKinect provides this capability and enables a safe and effective solution.

VizKinect is eager to explore working with medical image processing organizations.   We encourage you to try us out and see the difference we can offer.