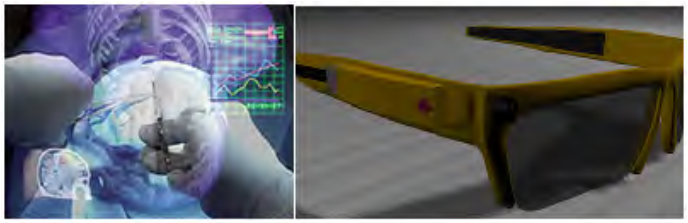
Juxtopia® Urban Innovation and Cooperative Entrepreneurship

JUICE™ Research & Development

JHU CISST and JUICE™ Labs complete wearable augmented reality prototype for neurosurgery published in International Conference



BALTIMORE, MD (December 14, 2012)
During a brain tumor removal or expressed more clinically, a tumor resection, a surgeon often has to turn away from the patient to view an external display. Furthermore, although neurosurgeons are especially skilled at disassociating their hand motions from their visual field, the JHU and Juxtopia team identified the ergonomic and "painful" problems inherent with traditional surgical devices that increase operating times, surgeon fatigue, and the risk for human errors. The JHU/Juxtopia team asserted that an innovative approach may eliminate the identified problems and, consequently, improve the surgical practice while decreasing healthcare costs.

Wearable Augmented Reality Solution
In 2010, Drs. Jayfus Doswell and Peter Kazanzides joined their labs with a mission to solve this problem with their *Wearable Intelligent Navigation System for Surgery (WINSS)* platform with Dr. Doswell's added motivation to conduct research in the same pediatric neurosurgery field as his childhood super-hero, "Dr. Ben Carson". The WINSS platform will enable a neurosurgeon, wearing the Juxtopia® augmented reality (AR) goggles to view medical images and more effectively remove brain tumors. After just 1.5 years of research funded by the National Science Foundation, the Johns Hopkins University Center for Computer-Integrated Surgical Systems and Technology (CISST) and the Juxtopia® Urban Innovation and Cooperative Entrepreneurship (JUICE™) labs developed the WINSS functional prototype running the JHU CISST software with potential capabilities to deliver computer medical images and navigational assistance through the Juxtopia® AR Goggles to neurosurgeons performing brain tumor removal procedures.

Publications
Research results from WINSS research studies were published in the Institute of Electrical and Electronics Engineers (IEEE) Virtual Reality (VR) conference, Juxtopia® Urban Learning Technology (JULT) conference, and recently accepted as conference proceeding in the Medicine Meets Virtual Reality (MMVR) 2013 conference. JHU undergraduate engineering student, Mr. Praneeth Sadda, was first author on the publication entitled, "Surgical Navigation with a Head-Mounted Tracking System and Display".

Diversity Integration

The JHU CISST Engineering Research Center (ERC) has developed educational programs that focus on providing unique opportunities for women and minorities and highlight career paths in biomedical, electrical, computer engineering, computer science, and other related fields. The Juxtopia wearable AR platform is developed in the JUICE™ Lab with a minority engineering team as young as 17 years old comprised of biomedical, electrical, and software engineering students as well as industrial design students from underrepresented minority groups.

About JUICE™ Lab

The JUICE™ Lab is a high-tech research and development (R&D) lab founded by Dr. Jayfus T. Doswell and located in the Emerging Technology Centers at Johns Hopkins East. The JUICE™ Lab focuses on developing minority high-tech companies in Maryland. Dr. Jayfus T. Doswell is President/CEO of Juxtopia, LLC.

About JHU CISST ERC

The JHU Engineering Research Center for Computer-Integrated Surgical Systems and Technology (CISST ERC) was created with support from the National Science Foundation (NSF) and is located on the Homewood campus of JHU. Dr. Peter Kazanzides is an associate Research Professor in the Department of Computer Science and Chief Systems and Robotics Engineer at JHU Center for Computer Integrated Surgical Systems and Technology (CISST)

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