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Simple Imaging Tool for Oral Cancer Detection and Monitoring

Tech ID: 30343 / UC Case 2018-523-0

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BRIEF DESCRIPTION

UCI researchers have developed a miniature, flexible intra-oral probe with a camera that allows early detection of oral cancer lesions in difficult-to-see, high risk areas of the mouth and throat. The tool allows for a low cost, non-invasive procedure that can be easily adopted in non-specialist medical settings.

FULL DESCRIPTION

If detected early, patients with oral cancer have a 5 year survival rate of approximately 80%. However, due to the limitations of simple visual examinations commonly used by non-specialist medical professionals, most oral cancers are detected late. These patients face a 5 year survival rate of only 20%. Additionally, specialist care introduces invasive surgical biopsies, long processing and analysis times, and high costs. High quality, simple diagnostic measures for oropharyngeal cancers that can be used by non-specialists do not currently exist.

Researchers at UCI have developed a simple-to-use imaging tool that adds detail and rigor to early oral cancer detection. Their miniaturized intra-oral camera with a unique flexible probe allows detailed visualization of oropharyngeal cancers in difficult-to-see areas of the oral cavity. The pen-type device can image all areas of the mouth, including the base of tongue and tonsils. The probe uses white light, polarized light and autofluorescence to detect and map oral tissues and surrounding vasculature. To allow simple and low cost set-up and operation in non-specialist settings, the device contains a smartphone connector and can be used as a Bluetooth device as well. Access to cloud-based services facilitates easy storage of images for future reference, further consultation or monitoring of lesions over time.

SUGGESTED USES

Examination conducted by non-specialists in the detection and monitoring of early stage oral and oropharyngeal cancers

FEATURES/BENEFITS

·Bendable and extendible probe and multiple visualization capabilities (autofluorescence, polarized and white light) allows thorough examination of difficult-to-visualize areas of the mouth and pharynx.

·The device can connect directly to smartphones or via Bluetooth, and to cloud services

·Set-up and operation costs are low and can be adopted in non-specialist medical settings.

·Ease of data storage allows for accurate, detailed monitoring of cancerous lesions over time.

PATENT STATUS

INVENTORS

» Wilder-Smith, Petra

OTHER INFORMATION

CATEGORIZED AS

» **Medical**
  » Devices
  » Diagnostics
  » Imaging
  » Screening

RELATED CASES

2018-523-0

Country	Type	Number	Dated	Case
United States Of America	Published Application	20210307597	10/07/2021	2018-523

STATE OF DEVELOPMENT

Early working prototype of the device has been developed.

RELATED MATERIALS

» Uthoff RD, et al. Point-of-care, smartphone-based, dual-modality, dual-view, oral cancer screening device with neural network classification for low-resource communities. PLoS One. 2018, 13(12):e0207493. - 12/05/2018

» Song B, et al. Automatic classification of dual-modalilty, smartphone-based oral dysplasia and malignancy images using deep learning. Biomed Opt Express. 2018. 10;9(11):5318-5329. - 10/10/2018

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Reducing Risk Of Aerosol-Transmitted Infection From Dental Ultrasonic Instrumentation

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