Chronodynamics Data Recorder (CDR-100) for Breast Health Monitoring

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Abstract (300 word limit)

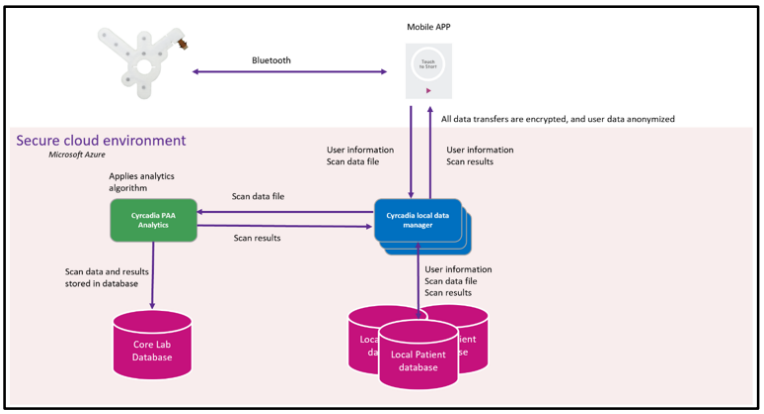
The Chronodynamics Data Recorder (CDR-100) system is a dynamic (time based) thermal differential detection system, which detects abnormal circadian cellular temperature changes, including those associated with breast cancer. Temperature measurements are sequentially taken over time to determine incidences of elevated or chaotic circadian readings indicative of tumor infusion.

The CDR-100 system consists of three major components: (1) Sensors (2) Recording device (3) Analytics package. The sensors are embedded in two conformable patches that are placed on the breasts. An associated data transmission recorder gathers and transmits raw data from sensors to Cyrcadia Health's Cloud (see Image) via a mobile app, where the data is then analyzed by Cyrcadia's proprietary, predictive, patented analytics software. Though the device may be used on a general patient population as a monthly breast health screening alternative, it is particularly useful for women with dense breast tissue.

Recent clinical trial findings indicate the capability of the CDR-100 system to detect breast abnormalities with pathology-confirmed accuracy comparable to that of mammography. Clinical studies of the third generation CDR-100 begin in May 2019. The CDR-100 is tissue density independent, radiation-free, compression-free, non-invasive, low cost, and is a proactive, preventative early risk indication screening system.

In the U.S, there are many states that mandate physicians notify patients when it is determined they have dense breasts. The FDA is increasing its focus on women with dense breast tissue. The potential diagnostic and prognostic implications for additional testing to detect the presence or absence of breast cancer must be explained by the physician. Apart from being a potentially excellent secondary diagnostic modality for breast cancer detection, the CDR-100 system is the only early detection modality that may provide a more comprehensive and confident diagnosis for women with dense breasts. We believe this has a definitive impact on the current healthcare system.

Image



Recent publications (minimum 5)

1. U. Rajendra Acharya, G. Swapna, **S. Vinitha Sree**, Filippo Molinari, Savita Gupta, Ricardo H. Bardales, Agnieszka Witkowska, Jasjit S Suri, "A review on ultrasound-based thyroid cancer tissue characterization and automated classification," **Technology in Cancer Research and Treatment**, vol. 13, no. 4, pp. 289-301, Aug. 2014.
2. U. Rajendra Acharya, **S. Vinitha Sree**, Luca Saba, Filippo Molinari, Stefano Guerriero, Jasjit S. Suri, "Ovarian tumor characterization and classification using ultrasound - A new on-line paradigm," **Journal of Digital Imaging**, vol. 26, no. 3, pp. 544-553, Jun. 2013.
3. U. Rajendra Acharya, **S. Vinitha Sree**, Ang Peng Chuan Alvin, Ratna Yanti, Jasjit S. Suri, "Application of non-linear and wavelet based features for the automated identification of epileptic EEG signals," **International Journal of Neural Systems**, vol. 22, no. 2, pp. 1250002-1-14, Apr. 2012.
4. **S. Vinitha Sree**, E.Y.K. Ng, U. Rajendra Acharya, W. Tan, "Breast imaging systems: a review and comparative study," **Journal of Mechanics in Medicine and Biology**, vol. 10, no. 1, pp. 1-30, Mar. 2010.
5. **S. Vinitha Sree**, E.Y.K. Ng, U. Rajendra Acharya, "Data mining approach to evaluating the use of skin surface electropotentials for breast cancer detection," **Technology in Cancer Research and Treatment**, vol. 9, no. 1, pp. 95-106, Feb. 2010.

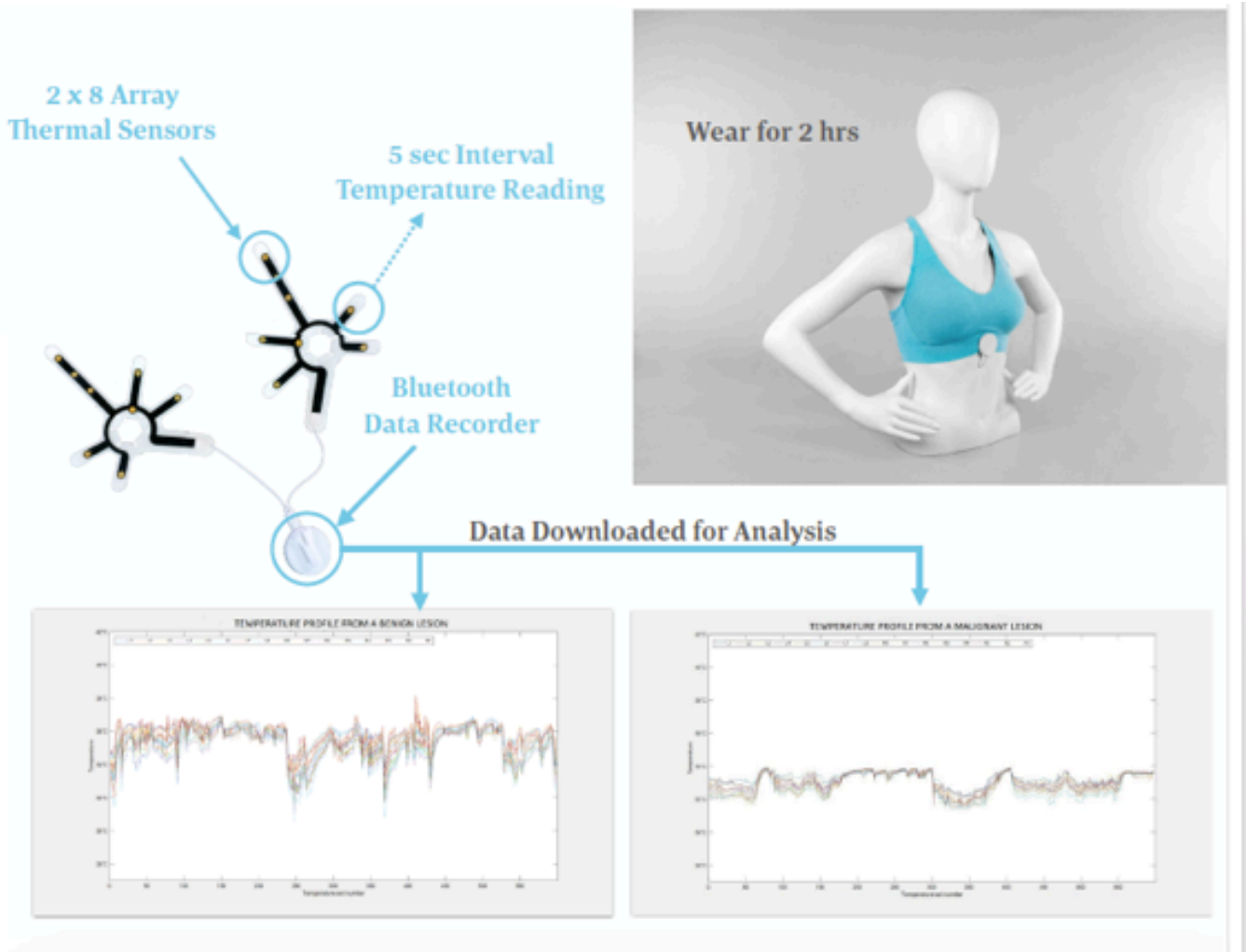


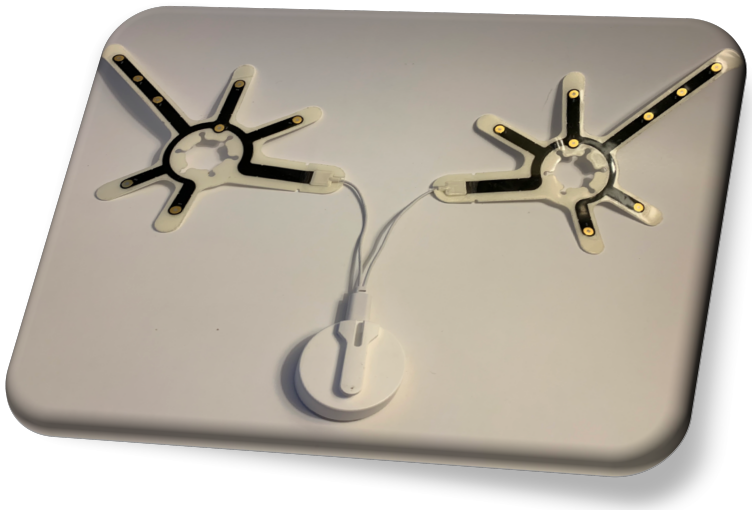
Biography

Dr. Vinithasree Subbhuraam has published 90 journal papers, conference articles and book chapters, and her work is internationally recognized by her peers as evidenced by more than 3752 citations to her work. She is the co-editor of the book Diagnostic and Therapeutic Applications of Breast Imaging published by SPIE, USA, 2012. She is the associate editor of the Journal of Medical Imaging and Health Informatics (JMIHI), and an invited reviewer for several international journals such as International Journal of Thermal Sciences, IEEE Transactions on Biomedical Engineering, Physical Review, IEEE Transactions on Information Technology in Biomedicine, Artificial Intelligence in Medicine, Computers in Biology and Medicine, Journal of Mechanics in Medicine and Biology, Neural Computing and Applications, and Neurocomputing. She holds M.S. and Ph.D. degrees in Biomedical Engineering from Nanyang Technological University, Singapore, and a Bachelor's degree in Electronics and Communication Engineering from PSG College of Technology, India.

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Notes/Comments:





CDR-100 Designed and Manufactured by Jabil for Cyrcadia Health